

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

- 1 avoid adverse effects prove to be feasible and any necessary agreements are completed before the
- 2 project's contribution to the effect is made, effects would not be adverse.
- 3

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

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | 477485 to 813827 | - | 1,049435 to 1,385777 | -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 | - | - | 598599 to 1,547549 | - | 1,170549 to 2,119499 | 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 | - | - | 301374 to 8251026 | - | 8731324 to 1,397976 | - |
| BRE 03 | Balfour Rd | Brentwood Blvd (Old SR 4) | Brentwood City Limits | D | 3,540 | 437 to 1,300 | - | 437551 to 1,300638 | - | 437591 to 1,300678 | - |
| CC 01 | Bethel Island Rd | Oakley City Limits | End | D | 1,600 | 124 to 330 | - | 124156 to 330416 | - | 124196 to 330456 | - |
| CC 02 | Balfour Rd | Brentwood City Limits | Byron Hwy | D | 1,600 | 90 to 297 | - | 90113 to 297374 | - | 90153 to 297414 | - |
| 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 | - | - | 1,320332 to 1,959977 | 4 (7-8AM; 3-6PM) | 1,8922,282 to 2,531927 | 13 (6AM-7PM) |
| CC 04 | Byron Hwy | Delta Rd | Old SR 4 | D | 1,410 | 108 to 240 | - | 108109 to 240243 | - | 108149 to 240283 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 05 | Byron Hwy | SR 4 | Contra Costa Co./ Alameda Co. Line | D | 1,600 | 483 to 907 | - | 599609 to 1,125143 | - | 1,171559 to 1,6972,093 | 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 | - | 2,9873,168 to 6,7147,121 | 1 (7-8AM) | 3,216548 to 6,9437,501 | 12 (7-8AM9AM) |
| CT 02 | I-5 SB | Florin Rd | Pocket Rd | F | 6,060 | 1,647 to 5,705 | - | 1,870972 to 6,479831 | 2 (4-6PM) | 2,099352 to 6,7087,211 | 2 (4-6PM) |
| CT 03 | I-5 NB | Pocket Rd | Laguna Blvd | F | 6,060 | 2,359 to 5,156 | - | 2,359710 to 5,156924 | - | 2,359750 to 5,156964 | - |
| CT 04 | I-5 SB | Pocket Rd | Laguna Blvd | F | 6,060 | 1,543 to 5,243 | - | 1,543790 to 5,2436,083 | -1 (5-6PM) | 1,543830 to 5,2436,123 | -1 (5-6PM) |
| CT 05 | I-5 NB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,820 to 3,339 | - | 1,8202,137 to 3,339921 | - | 1,8202,177 to 3,339961 | - |
| CT 06 | I-5 SB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,254 to 3,332 | - | 1,254469 to 3,332903 | - | 1,254509 to 3,332943 | - |
| CT 07 | I-5 NB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,504 to 2,162 | - | 1,751808 to 2,517599 | - | 2,102393 to 2,8683,184 | - |
| CT 08 | I-5 SB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,217 to 2,236 | - | 1,425474 to 2,619707 | - | 1,7762,509 to 2,9703,292 | - |
| CT 09 | I-5 NB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,414 to 1,851 | - | 1,623749 to 2,125289 | - | 2,056469 to 2,5583,009 | - |
| CT 10 | I-5 SB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,207 to 1,964 | - | 1,405494 to 2,285432 | - | 1,8382,214 to 2,7183,152 | - |
| CT 11 | I-5 NB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,312 to 1,720 | - | 1,561619 to 2,047122 | - | 1,9122,204 to 2,398707 | - |
| CT 12 | I-5 SB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,111 to 1,813 | - | 1,322371 to 2,158237 | - | 1,673956 to 2,509822 | - |
| CT 13 | I-5 NB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,374 to 1,803 | - | 1,649814 to 2,164380 | - | 1,730949 to 2,245515 | - |
| CT 14 | I-5 SB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,128 to 1,894 | - | 1,354489 to 2,273500 | - | 1,435624 to 2,354635 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 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 | - | 1,288 825 to 1,985 745 | - | 1,288 700 to 1,985 620 | - |
| CT 18 | I-5 SB | Turner Rd | SR 12 | C | 2,880 | 1,124 to 1,482 | - | 1,124 484 to 1,482 956 | - | 1,124 609 to 1,482 2,081 | - |
| CT 19 | I-5 NB | SR 12 | Eight Mile Rd | C | 4,400 | 1,533 to 2,267 | - | 1,533 962 to 2,267 902 | - | 1,533 52,087 to 2,267 3,027 | - |
| CT 20 | I-5 SB | SR 12 | Eight Mile Rd | C | 4,400 | 1,243 to 2,070 | - | 1,243 591 to 2,070 550 | - | 1,243 716 to 2,070 775 | - |
| 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 | - | 136 164 to 476 574 | - | 136 924 to 476 334 | - |
| CT 24 | SR 160 (Freeport Blvd/ River Rd) | Freeport Bridge | Scribner Rd | E | 1,740 | 94 to 180 | - | 94 to 180 | - | 55 2854 to 63 8940 | - |
| CT 25 | SR 160 (River Rd) | Scribner Rd | Hood Franklin Rd | E | 1,740 | 41 to 125 | - | 41 to 125 | - | 49 9801 to 58 3885 | - |
| CT 26 | SR 160 (River Rd) | Hood Franklin Rd | Lambert Rd | E | 1,740 | 105 to 170 | - | 105 129 to 170 208 | - | 82 61,294 to 90 31,373 | - |
| CT 27 | SR 160 (River Rd) | Lambert Rd | Paintersville Bridge | E | 1,740 | 69 to 122 | - | 69 779 to 122 140 | - | 77 91,244 to 83 81,305 | - |
| CT 28 | SR 160 (Paintersville Bridge) | Sutter Slough Bridge Rd | SR 160 (River Rd) | E | 1,740 | 75 to 150 | - | 75 184 to 150 167 | - | 78 31,249 to 86 51,332 | - |
| CT 29 | SR 160 | Paintersville Bridge | Walnut Grove Bridge | E | 1,740 | 78 to 128 | - | 78 102 to 128 168 | - | 79 91,267 to 86 31,333 | - |
| CT 30 | SR 160 (River Rd) | Walnut Grove Bridge | A St (Isleton) | E | 1,740 | 173 to 465 | - | 173 to 465 | - | 1,03 8,608 to 1,33 0,900 | -3 (-2.5PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 31 | SR 160 | A St (Isleton) | SR 12 | E | 1,740 | 193 to 378 | - | 193 to 378 | - | 1,058628 to 1,243813 | -3 (3-6PM) |
| CT 32 | SR 160 | SR 12 | Brannan Island Rd | F | 1,740 | 530 to 894 | - | 578592 to 975999 | - | 1,578542 to 1,975949 | 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 194196 | - | 618996 to 7661146 | 13 (6AM-7PM) |
| CT 34 | SR 84 (Courtland Rd/ Ryer Ave) | Courtland Rd | Cache Slough Ferry | C | 680 | 10 to 25 | - | 1011 to 2528 | - | 1051 to 2568 | - |
| CT 35 | I-80 EB | Suisun Valley Rd | SR 12 | C | 8,350 | 3,079 to 6,994 | - | 3,8804,064 to 8,8129,232 | 3 (3-6PM) | 4,380894 to 9,31210,062 | 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) | 7,246591 to 11,204737 | 8 (6 (6-9AM; 3-10AM; 2-6PM) | 7,7468,421 to 11,70412,567 | 9 (6-10AM; 1-6PM) 13 (6AM-7PM) |
| CT 37 | SR 12 EB | I-80 | Beck Ave | C | 2,880 | 528 to 1,847 | - | 676708 to 2,364475 | - | 1,176538 to 2,8643,305 | -4 (3-7PM) |
| CT 38 | SR 12 WB | I-80 | Beck Ave | C | 2,880 | 829 to 1,625 | - | 1,061111 to 2,080178 | - | 1,561941 to 2,5803,008 | -2 (6-8PM) |
| CT 39 | SR 12 | Beck Ave | Sunset Ave/ Grizzly Island Rd | C | 5,060 | 2,408 to 3,573 | - | 3,046183 to 4,519772 | - | 4,046348 to 5,519887 | 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 | - | 2,057153 to 3,012153 | - | 3,057318 to 4,012318 | - |
| CT 41 | SR 12 | Walters Rd/ Lawler Ranch Pkwy | SR 113 | C | 790 | 627 to 1,075 | 10 (6-8AM; 9-1PM; 2-6PM) | 803840 to 1,376441 | 13 (6AM-7PM) | 1,8032,005 to 2,376606 | 13 (6AM-7PM) |
| CT 42 | SR 12 | SR 113 | SR 84 (River Rd) | C | 790 | 1,073 to 1,544 | 13 (6AM-7PM) | 1,373438 to 1,9762,069 | 13 (6AM-7PM) | 2,373603 to 2,9763,234 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 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) | 995,137 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) | 990,110 to 1,414,549 | 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 5,744,820 | 6 (7-9AM; 2-6PM) | 3,394,626 to 6,027,295 | 9 (7-9AM; 1-6PM) to 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) | 3,849,074 to 5,153,391 | 9 (6-9AM; 3-10AM; 1-6PM) to 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 | - | 1,144,519 to 1,913,291 | -9 (8-9AM; 11AM-7PM) to -9 (8-9AM; 11AM-7PM) |
| CT 49 | SR 113 | Dixon City Limits | SR 12 | C | 680 | 174 to 294 | - | 216,219 to 365,370 | - | 788,116 to 937,132 | 13 (6AM-7PM) |
| CT 50 | SR 4 (Marsh Creek Rd) ² | Vasco Rd | Byron Hwy (Old SR 4) | D C | 1,600 790 | 442 to 733 - | - - | - 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)) to 11 (8AM-13 (6AM-7PM)) |
| CT 52 | SR 4 | Discovery Bay Blvd | Tracy Blvd | C | 790 | 412 to 746 | - | 412 to 746 | - | 984,136 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 | 23 (7-8AM; 5-6PM) | 6,023,301 to 7,754,804 | 45 (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 5,962,054 | 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) | 5,919,619 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) | 1,915,212 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 | 34 (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 (2-7PM) |
| 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 | 34 (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 | - | 1,983,210 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 3,910,096 | - |
| CT 64 | I-205 EB | Tracy Blvd | MacArthur Dr | D | 5,410 | 1,511 to 4,182 | - | 1,874,934 to 5,186,353 | - | 1,966,209 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 | - | 1,757 to 7,515 | - |
| 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 | | BPGPP 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) | 1,511903 to 2,308712 | 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 | - | 1,247549 to 2,649951 | - |
| SAC 02 | Freeport Blvd (Old SR 160) | Pocket Rd | Sacramento City Limits | D | 1,760 | 152 to 492 | - | 176 192 to 574 620 | - | 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 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | 6364 to 140142 | - | 6351,014 to 7121,092 | - |
| SC 09 | River Rd (Sac Co.) | Paintersville Bridge | Twin Cities Rd | D | 1,410 | 85 to 134 | - | 8687 to 136138 | - | 161212 to 211263 | - |
| SC 10 | River Rd (Sac Co.) | Twin Cities Rd | Walnut Grove Bridge | D | 1,600 | 223 to 365 | - | 231238 to 378390 | - | 393508 to 540660 | - |
| SC 11 | Walnut Grove Rd/River Rd | Walnut Grove Bridge | Sacramento Co./ SJ Co. Line | D | 1,410 | 175 to 332 | - | 183190 to 347360 | - | 345460 to 509630 | - |
| 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 | - | 142196 to 364418 | - |
| SC 13 | Race Track Rd/ Tyler Island Rd | Walnut Grove Rd | Southern End of Tyler Island | D | 1,410 | 17 to 34 | - | 18 to 3537 | - | 99153 to 116172 | - |
| SC 14 | Tyler Island Rd | Southern End of Tyler Island | SR 160 (River Rd) | D | 1,410 | 14 to 39 | - | 14 to 39 | - | 1454 to 3979 | - |
| SC 15 | Jackson Slough Rd | Isleton City Limits | SR 12 | D | 1,410 | 4 to 53 | - | 45 to 5367 | - | 445 to 53107 | - |
| SC 16 | Jackson Slough Rd | Brannan Island Rd | SR 12 | D | 1,410 | 16 to 52 | - | 1620 to 5266 | - | 1660 to 52106 | - |
| SJ 01 | Walnut Grove Rd | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 141 to 232 | - | 147153 to 242251 | - | 309423 to 404521 | - |
| SJ 02 | Peltier Rd | Blossom Rd | I-5 | C | 680 | 8 to 23 | - | 8 to 23 | - | 848 to 2363 | - |
| SJ 03 | Tracy Blvd | SR 4 | Clifton Court Rd | C | 790 | 108 to 209 | - | 108 to 209 | - | 292413 to 393514 | - |
| SJ 04 | Tracy Blvd | Clifton Court Rd | Tracy City Limits | C | 790 | 69 to 171 | - | 8487 to 209215 | - | 268392 to 393520 | - |
| SJ 05 | Byron Hwy | Alameda Co./San Joaquin Co. Line | Mountain House Pkwy | D | 1,600 | 521 to 824 | - | 646656 to 1,022038 | - | 1,218606 to 1,594988 | -13 (6AM-7PM) |
| SJ 06 | Mountain House Pkwy | Byron Hwy | Arnaudo Blvd | D | 1,410 | 190 to 298 | - | 236239 to 370375 | - | 8081,189 to 9421,325 | - |
| SJ 07 | Mountain House Pkwy | Arnaudo Blvd | I-205 | D | 3,540 | 418 to 769 | - | 543552 to 1,000015 | - | 1,115502 to 1,572965 | - |
| STK 01 | Eight Mile Rd | Stockton City Limits | I-5 | E | 1,870 | 309 to 769 | - | 309389 to 769969 | - | 309429 to 7691,006 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 |
| 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 | 611 (7-9AM; 3,11AM-7PM) |
| WS 04 | Jefferson Blvd (Old SR 84) | Southport Pkwy | West Sacramento City Limits | C | 680 | 42 to 146 | - | 505 1 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 | - | 747 9 to 249 266 | - | 741 19 to 249 306 | - |
| YOL 02 | River Rd (Yolo Co.) | Courtland Rd | Sacramento Co./ Yolo Co. Line | C | 680 | 25 to 63 | - | 313 2 to 787 9 | - | 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
 2 area roadways that would exceed acceptable LOS threshold (Table 19-8). As shown in Table 19-8,
 3 traffic volumes during construction of Alternative 1A would temporarily exacerbate already
 4 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
 5 time of project construction. This impact would be temporary, but significant. Mitigation Measures
 6 TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-
 7 significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
 8 constructed prior to the project's contribution to the impact. If an improvement that is identified in
 9 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
 10 constructed before the project's contribution to the impact is made, a significant impact in the form
 11 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
 12 however, all improvements required to avoid significant impacts prove to be feasible and any
 13 necessary agreements are completed before the project's contribution to the effect is made, impacts
 14 would be less than significant.

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

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

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

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

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

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

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

- 1 ● Designated offsite vehicle staging and parking areas.
- 2 ● Posted information for contact in case of emergency or complaint.
- 3 ● Daily construction time windows during which construction is restricted or rail operations
- 4 would need to be suspended for any activity within railroad rights of way.
- 5 ● Coordination with rail providers (BNSF Railway, Amtrak, and UPRR) to develop alternative
- 6 interim transportation modes (e.g., trucks or buses) that could be used to provide freight
- 7 and/or passenger service during any longer term railroad closures.
- 8 ● Coordination with transit providers (SCT, Tri-Delta, Rio Vista, and Greyhound Bus Lines) to
- 9 develop, where feasible, daily construction time windows during which transit operations
- 10 would not be either detoured or significantly slowed.
- 11 ● Routinely post information to the 511.org website regarding construction delays and
- 12 detours.
- 13 ● Other actions to be identified and developed as may be needed by the construction
- 14 manager/resident engineer to ensure that temporary impacts on transportation facilities
- 15 are minimized.
- 16 ● Implement maximum 45 mph speed limit on Hood Franklin Road west of Interstate 5.
- 17 Include signage: "Caution: entering sensitive wildlife area."
- 18 ● Further reduce speed limit in both directions to 35 mph from ½ mile west of Interstate 5 to
- 19 1 mile west of Interstate 5. Add sign at Visitor Center entrance stating that facilities are for
- 20 SLNWR visitors only.
- 21 ● Add a right hand turn lane on Hood Franklin Road at the entrance of the Stone Lakes Visitor
- 22 Center.
- 23 ● Reduce speed limit to 35 mph on Lambert Road from 1 ½ miles west of Interstate 5 to 2 ¼
- 24 miles west of Interstate 5. Include signage: "Caution: entering sensitive wildlife area."
- 25 As additional mitigation to minimize delays to transit vehicles due to projected traffic
- 26 congestion and to encourage use of alternative modes of travel, including transit, the BDCP
- 27 proponents are required to develop a Transportation Demand Management (TDM) program for
- 28 construction contractor's crews to reduce the number of project trips. The program shall
- 29 include and implement any combination of measures that would reduce the proposed project's
- 30 trips and associated parking demand. The measures include:
- 31 ● Promote ride sharing programs by methods that may include designating a certain
- 32 percentage of parking spaces for ride sharing vehicles, designating adequate passenger
- 33 loading and unloading and waiting areas for ride sharing vehicles.
- 34 ● Provide public transit incentives such as fully-subsidized or low-cost monthly transit passes.
- 35 ● Provide shuttle service and/or funding for a shuttle for residents that are outside of walking
- 36 distance from a transit line.
- 37 ● Offering a parking cash out program.
- 38 The plan also includes more passive measures to further reduce trips:
- 39 ● Addition of pedestrian and bicycle facilities;

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

4 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 5 **Conditions**

6 **NEPA Effects:** Construction truck traffic may damage roadway surfaces. During construction,
7 various materials would be transported to and from the construction areas in load-bearing trucks.
8 As shown in Table 19-10, construction of Alternative 1A would contribute to further deterioration of
9 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (see
10 Table 19-7), on a total of ~~43~~ **46** roadway segments (see table entries in **bold** type). Figure 19-~~44~~ **4a**
11 shows all of the study roadway segments that could experience substantial pavement condition
12 effects.
13

1 **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 | 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 | 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 | 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.

1 As shown in Table 19-10, construction during Alternative 1A would contribute to substantial
2 deterioration of pavement conditions of ~~43-46~~ roadway segments that would exceed applicable
3 thresholds summarized in Table 19-7. Damage to roadway pavement is expected throughout the
4 study area (Figure 19-44a) on various local and state roads, as well as on a few interstates. The
5 effect of roadway damage to these segments during construction would be adverse. Mitigation
6 Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a
7 level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or
8 encroachment permits will be obtained from the relevant transportation agencies. If an agreement
9 or encroachment permit is not obtained, an adverse effect in the form of deficient pavement
10 conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation
11 agreement(s) or encroachment permit(s) providing for the improvement or replacement of
12 pavement are obtained and any other necessary agreements are completed, adverse effects could be
13 avoided. Collectively, these measures include stipulations to limit/prohibit construction activity on
14 deficient roadways and improve the physical condition of affected segments.

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

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

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

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

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

2

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

| <u>O&M Type</u> | <u>Number of Employees</u> | <u>Vehicles (number)</u> | <u>Equipment (number)</u> |
|---------------------------|--|--------------------------|---------------------------|
| <u>Annual Inspections</u> | <u>6</u> | <u>1 crew truck</u> | <u>Crane (1)</u> |
| <u>Tunnel Dewatering</u> | <u>18 (sediment crew)</u> <u>11 (inspection crew)</u> | <u>1 crew truck</u> | <u>Crane (2)</u> |

4

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

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

5

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

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

3 **Table 19-16. O&M Employment**

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

Source: Chapter 16, *Socioeconomics*.

4
 5 O&M activities would occur along the entire alternative alignment. Even assuming ~~the higher~~ the
 6 total employment ~~range~~ figures in Table 19-16, given the limited number of workers involved and
 7 the large number of work sites, it is not anticipated that routine operations and maintenance
 8 activities or major inspections would result in substantial increases of traffic volumes or roadway
 9 congestion. The intake design includes parking for employees during operations and maintenance.
 10 The small amount of added vehicle trips for facility maintenance and operations would not
 11 substantially contribute to traffic volumes and increase roadway congestion. The effect of increased
 12 traffic volumes and delays during operations would not be adverse.

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

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

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

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

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

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

12 Removal of groundwater during construction (dewatering) would be required for excavation
13 activities. Groundwater removed during construction would be treated as necessary (see Chapter 3,
14 *Description of Alternatives*, and Chapter 7, *Groundwater*), and discharged to local drainage channels
15 or rivers. This would result in a small localized increase in flows and water surface elevations in the
16 receiving channels. The increase in flows and water surface elevations in the receiving channels and
17 rivers would not affect navigation. Alternative 1A includes the construction of five fish-screened
18 intakes (Intakes 1, 2, 3, 4, and 5) on the east bank of the Sacramento River between Clarksburg and
19 Walnut Grove. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at
20 each location. Coffers dams will isolate each construction area from the Sacramento River and will be
21 used to de-water the construction area. Intakes and screens have been designed and located on-
22 bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation
23 changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility
24 location within the river. These localized surface elevation changes will not exceed an increase of
25 0.10 feet at any intake location even at high river flows (when surface elevation changes would be
26 expected to be highest). This represents the highest surface upstream elevation increase after coffer
27 dam removal and during intake operation. Because this maximum increase in elevation is entirely
28 localized, downstream surface elevation changes during intake construction would be insignificant
29 and changes to river depth and width at any location will be insignificant. Any decrease in surface
30 water elevations downstream of the cofferdams would be negligible and would not adversely affect
31 navigation. Under existing regulations, USACE, CVFPB, and DWR would require installation of
32 setback levees or other measures to maintain existing flow capacity in the Sacramento River during
33 construction and operations, which would prevent unacceptable increases in river water surface
34 elevations under flood-flow conditions, reverse flow areas, areas of high velocities that could result
35 in scour, and reflection of flood waves towards other levees. As a result, boat passage and river use,
36 including Sacramento River tributaries, will not be affected.

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

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

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

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

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

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

21 With respect to Alternative 1A, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
22 water surface elevation during certain operational regimes and at various river flows. While intake
23 operations and pumping levels are dictated by many factors, Sacramento River diversions are
24 limited during low flows by operational rules. The nature and extent of impacts caused by
25 diversions at an intake are dependent in large part on the location of the intake on the river. To
26 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
27 and were placed so that river flood and flow characteristic will be minimally altered. Based on
28 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
29 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
30 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
31 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
32 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
33 adequate to support navigation along the Sacramento River. Additionally, under these same intake
34 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
35 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
36 be affected less, and during higher river flow and lower intake diversions, river depths would be
37 greater than the minimum estimate.

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

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

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

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

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

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

14 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 15 **Construction of Intakes**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

13 **NEPA Effects:** No effect.

14 **CEQA Conclusion:** No impact.

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

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

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

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

35 **NEPA Effects:** Operational criteria and design specifications for intake operations will result in no
36 change to water column or bed load sediment dynamics. Erosion and deposition patterns will
37 change little if any during intake operation. As a result, there will be no adverse effect on navigation
38 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

1 segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 1B would therefore
2 temporarily exacerbate an already unacceptable LOS under BPBG conditions on **20-28** roadway
3 segments (~~39-48~~ minus the ~~19-20~~ that would already be operating at an unacceptable LOS under
4 BPBG conditions). Figure 19-3a shows the study roadway segments that could experience
5 substantial roadway operation effects.
6

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

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|--------|--|------------------------------------|------------------------------------|---------------|----------------------|----------------------------|--|--|--|--|---|
| | | | | | LOS Volume Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (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 | - | 416431 to 708735 | - | 798956 to 1,090260 | - |
| 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 | - | - | 590592 to 1,526531 | - | 1,080262 to 2,016201 | 79 (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 | - | - | 346371 to 9501,019 | - | 8361,041 to 1,440689 | - |
| BRE 03 | Balfour Rd | Brentwood Blvd (Old SR 4) | Brentwood City Limits | D | 3,540 | 437 to 1,300 | - | 437489 to 1,300456 | - | 437554 to 1,300521 | - |
| CC 01 | Bethel Island Rd | Oakley City Limits | End | D | 1,600 | 124 to 330 | - | 124139 to 330370 | - | 124204 to 330435 | - |
| CC 02 | Balfour Rd | Brentwood City Limits | Byron Hwy | D | 1,600 | 90 to 297 | - | 90101 to 297333 | - | 90166 to 297398 | - |
| 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 | - | - | 1,220245 to 1,811848 | 3 (3-6PM) | 1,710915 to 2,301518 | 13 (6AM-7PM) |
| CC 04 | Byron Hwy | Delta Rd | Old SR 4 | D | 1,410 | 108 to 240 | - | 108109 to 240241 | - | 108174 to 240306 | - |
| CC 05 | Byron Hwy | SR 4 | Contra Costa Co./ Alameda Co. Line | D | 1,600 | 483 to 907 | - | 522541 to 9801,016 | - | 9041,066 to 1,362541 | - |
| CT 01 | I-5 NB | Florin Rd | Pocket Rd | F | 6,060 | 2,589 to 5,820 | - | 2,842914 to 6,389552 | 1 (7-8AM) | 3,309554 to 6,8567,192 | 1 (7-8AM) |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|---------|------------------|------------------|---------------|------------|----------------------------|--|--|--|----------------------------|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range 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 2,823,048 | - | |
| 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 | - | |

| ID | Segment | From | To | LOS Threshold | LOS Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|----------------------------------|-------------------------|----------------------|---------------|----------------------|----------------------------|--|--|--|----------------------------|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| CT 18 | I-5 SB | Turner Rd | SR 12 | C | 2,880 | 1,124 to 1,482 | - | 1,304 to 1,719 | 326 to - | 1,424 to 1,839 | 491 to - |
| CT 19 | I-5 NB | SR 12 | Eight Mile Rd | C | 4,400 | 1,533 to 2,267 | - | 1,717 to 2,539 | 748 to - | 1,980 to 2,802 | 108 to - |
| CT 20 | I-5 SB | SR 12 | Eight Mile Rd | C | 4,400 | 1,243 to 2,070 | - | 1,392 to 2,348 | 417 to - | 1,655 to 2,581 | 777 to - |
| CT 21 | I-5 NB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,937 to 3,452 | - | 2,169 to 3,866 | 208 to - | 2,366 to 4,063 | 478 to - |
| CT 22 | I-5 SB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,817 to 2,760 | - | 2,035 to 3,091 | 071 to - | 2,232 to 3,288 | 341 to - |
| CT 23 | SR 160 (Freeport Blvd) | Sacramento City Limits | Freeport Bridge | E | 1,740 | 136 to 476 | - | 145 to 506 | 149 to - | 1,077 to 1,438 | 424 to -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 to 1,112 | 369 to - |
| CT 25 | SR 160 (River Rd) | Scribner Rd | Hood Franklin Rd | E | 1,740 | 41 to 125 | - | 41 to 125 | - | 973 to 1,057 | 1316 to - |
| CT 26 | SR 160 (River Rd) | Hood Franklin Rd | Lambert Rd | E | 1,740 | 105 to 170 | - | 116 to 188 | 119 to - | 1,570 to 1,642 | 104 to -13 (6AM-7PM) |
| CT 27 | SR 160 (River Rd) | Lambert Rd | Paintersville Bridge | E | 1,740 | 69 to 122 | - | 72 to 128 | 74 to - | 1,526 to 1,582 | 059 to -13 (6AM-7PM) |
| CT 28 | SR 160 (Paintersville Bridge) | Sutter Slough Bridge Rd | SR 160 (River Rd) | E | 1,740 | 75 to 150 | - | 77 to 154 | 79 to - | 1,531 to 1,608 | 064 to -13 (6AM-7PM) |
| CT 29 | SR 160 | Paintersville Bridge | Walnut Grove Bridge | E | 1,740 | 78 to 128 | - | 89 to 147 | 92 to - | 1,925 to 1,983 | 592 to 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 to 2,409 | 823 to 13 (6AM-7PM) |
| CT 31 | SR 160 | A St (Isleton) | SR 12 | E | 1,740 | 193 to 378 | - | 193 to 378 | - | 2,137 to 2,322 | 843 to 13 (6AM-7PM) |
| CT 32 | SR 160 | SR 12 | Brannan Island Rd | F | 1,740 | 530 to 894 | - | 549 to 926 | 559 to - | 2,709 to 3,086 | 509 to 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|-------------------------------|------------------------------|------------------------------|---------------|----------------------|----------------------------|--|--|--|----------------------------|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| CT 33 | SR 84 (Jefferson Blvd) | West Sacramento City Limits | Courtland Rd | B | 200 | 40 to 169 | - | 4243 to 177181 | - | 424568 to 559706 | 13 (6AM-7PM) |
| CT 34 | SR 84 (Courtland Rd/Ryer Ave) | Courtland Rd | Cache Slough Ferry | C | 680 | 10 to 25 | - | 1011 to 2527 | - | 1076 to 2592 | - |
| CT 35 | I-80 EB | Suisun Valley Rd | SR 12 | C | 8,350 | 3,079 to 6,994 | - | 3,510633 to 7,9738,253 | - | 4,5915,108 to 9,054728 | 3 (3-6PM; 2-7PM) |
| CT 36 | I-80 WB | Suisun Valley Rd | SR 12 | C | 8,350 | 5,751 to 8,892 | 2 (6-8AM) | 6,556786 to 10,137493 | 23 (6-8AM; 9AM) | 7,6378,261 to 11,218968 | 8 (6-10AM; 2-6PM); 12 (6AM-PM) |
| CT 37 | SR 12 EB | I-80 | Beck Ave | C | 2,880 | 528 to 1,847 | - | 612634 to 2,143216 | - | 1,6932,109 to 3,224691 | 4 (37 (12-7PM) |
| CT 38 | SR 12 WB | I-80 | Beck Ave | C | 2,880 | 829 to 1,625 | - | 962995 to 1,885950 | - | 2,043470 to 2,9663,425 | 23 (6-8AM; 9AM) |
| CT 39 | SR 12 | Beck Ave | Sunset Ave/Grizzly Island Rd | C | 5,060 | 2,408 to 3,573 | - | 2,772864 to 4,114249 | - | 4,9325,814 to 6,2747,199 | 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 | - | 1,864928 to 2,729824 | - | 4,024878 to 4,8895,774 | -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) | 727752 to 1,247290 | 12 (6AM-6PM) | 2,8873,702 to 3,4074,240 | 13 (6AM-7PM) |
| CT 42 | SR 12 | SR 113 | SR 84 (River Rd) | C | 790 | 1,073 to 1,544 | 13 (6AM-7PM) | 1,245288 to 1,791853 | 13 (6AM-7PM) | 3,4054,238 to 3,9514,803 | 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) | 1,317362 to 4,9552,022 | 13 (6AM-7PM) | 3,4774,312 to 4,115972 | 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) | 774788 to 1,133154 | 12 (6AM-6PM) | 905968 to 1,264334 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|------------------------------------|-----------------------------|----------------------|---------------|--------------|----------------------------|--|--|--|---|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| CT 45 | SR 12 | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 773 to 1,164 | 12 (6AM-6PM) | 806813 to 1,214224 | 13 (6AM-7PM) | 937993 to 1,345404 | 13 (6AM-7PM) |
| CT 46 | I-80 EB | SR 113 | Pedrick Rd | C | 4,400 | 2,508 to 4,632 | 2 (3-5PM) | 2,765851 to 5,107266 | 3 (3-5 (7-8AM; 2-6PM)) | 3,064261 to 5,406676 | 56 (7-8AM; 2-6PM) |
| CT 47 | I-80 WB | SR 113 | Pedrick Rd | C | 4,400 | 3,068 to 4,191 | - | 3,280351 to 4,481578 | 2 (4-6PM) | 3,579761 to 4,780988 | 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 | - | 1,167389 to 1,9392,161 | 5 (12-1PM; 2 (4-6PM)) |
| CT 49 | SR 113 | Dixon City Limits | SR 12 | C | 680 | 174 to 294 | - | 188195 to 318329 | - | 7861,015 to 9161,149 | 13 (6AM-7PM) |
| CT 50 | SR 4 (Marsh Creek Rd) ² | Vasco Rd | Byron Hwy (Old SR 4) | D C | 1,600 790 | 442 to 733 - | - - | - 477495 to 792821 | - 12 (4-5PM; 6PM) | - 1,515915 to 1,8302,241 | - 13 (6AM-7PM) |
| CT 51 | SR 4 | Marsh Creek Rd | Discovery Bay Blvd | D | 1,600 | 554 to 1,224 | - | 601614 to 1,327357 | - | 1,6392,034 to 2,365777 | 13 (6AM-7PM) |
| CT 52 | SR 4 | Discovery Bay Blvd | Tracy Blvd | C | 790 | 412 to 746 | - | 412 to 746 | - | 1,450832 to 1,7842,166 | 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) | 1,9052,287 to 2,530912 | 13 (6AM-7PM) |
| CT 54 | I-5 NB | SR 4 (Freeway) | SR 4 (Charter Way) | D | 7,280 | 2,552 to 4,815 | - | 2,855941 to 5,386549 | - | 3,374651 to 5,9056,259 | - |
| CT 55 | I-5 SB | SR 4 (Freeway) | SR 4 (Charter Way) | D | 7,280 | 4,550 to 5,913 | - | 5,108268 to 6,639846 | - | 5,627978 to 7,158556 | -3 (7-8AM; 4-6PM) |
| CT 56 | I-5 NB | SR 4 (Charter Way) | Eighth Street | D | 5,410 | 2,430 to 4,586 | - | 2,770867 to 5,228411 | -1 (3-4PM) | 3,289577 to 5,7476,121 | 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) | 4,9405,113 to 6,419645 | 89 (6-9AM; 112-6PM) | 5,459823 to 6,9387,355 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|--------|-------------------------------------|---------------------|-----------------------|---------------|------------|----------------------------|--|--|--|----------------------------|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| CT 58 | I-205 EB | I-580 | Mountain House C Pkwy | | 4,400 | 1,350 to 5,071 | 4 (3-7PM) | 1,480 to 5,560 | 4 (3-7PM) | 1,674 to 5,751 | 4 (2-7PM) |
| CT 59 | I-205 WB | I-580 | Mountain House C Pkwy | | 4,400 | 1,873 to 4,867 | 2 (6-8AM) | 2,058 to 5,348 | 3 (6-9AM) | 2,249 to 5,539 | 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 to 5,575 | 5 (2-7PM) | 1,765 to 5,766 | 5 (2-7PM) |
| CT 61 | I-205 WB | Mountain House Pkwy | Eleventh St | C | 4,400 | 1,287 to 4,117 | - | 2,063 to 4,529 | 1 (6-7AM) | 2,254 to 4,720 | 1 (6-7AM) |
| CT 62 | I-205 EB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,525 to 4,200 | - | 1,678 to 4,620 | - | 2,006 to 4,948 | - |
| CT 63 | I-205 WB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,852 to 3,079 | - | 2,037 to 3,387 | - | 2,365 to 3,715 | - |
| CT 64 | I-205 EB | Tracy Blvd | MacArthur Dr | D | 5,410 | 1,511 to 4,182 | - | 1,662 to 4,600 | - | 1,990 to 4,928 | - |
| CT 65 | I-205 WB | Tracy Blvd | MacArthur Dr | D | 5,410 | 2,083 to 3,446 | - | 2,291 to 3,791 | - | 2,619 to 4,119 | - |
| ISL 01 | A St/4th St/ Jackson Blvd. | SR 160 | Isleton City Limits | D | 1,410 | 17 to 75 | - | 17 to 75 | - | 178 to 751 | - |
| OAK 01 | Main Street (Old SR 4) ¹ | SR 160 | Cypress Rd | C | 1,920 | 752 to 1,663 | - | - | - | - | - |
| | | | | D | 3,540 | - | - | 795 to 1,759 | - | 1,285 to 2,249 | - |

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | | |
|--------|-------------------------------------|------------------------|-------------------------------|---------------|---------------------|---------------|----------------------------------|--|---------------|----------------------------------|--|---------------|
| | | | | | LOS | Hourly Volume | Hourly Volume Range (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume | Hourly Volume Range (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume |
| 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 | - | - | 823852 to 1,522575 | - | 1,313522 to 2,012245 | 5 (811 (7-9AM; 2-6PM; 11AM-7PM)) | |
| OAK 03 | Cypress Rd | Main Street (Old SR 4) | Bethel Island Rd | D | 1,600 | 304 to 764 | - | 304340 to 764856 | - | 304405 to 764921 | - | |
| OAK 04 | Bethel Island Rd | Cypress Rd | Oakley City Limits | D | 1,410 | 140 to 367 | - | 140157 to 367411 | - | 140222 to 367476 | - | |
| OAK 05 | Delta Rd | Main Street (Old SR 4) | Byron Hwy | D | 1,410 | 155 to 334 | - | 155157 to 334337 | - | 155222 to 334402 | - | |
| SAC 01 | Pocket Rd | I-5 | Freeport Blvd (Old SR 160) | D | 3,540 | 789 to 2,191 | - | 789 to 2,191 | - | 1,7212,064 to 3,123466 | - | |
| SAC 02 | Freeport Blvd (Old SR 160) | Pocket Rd | Sacramento City Limits | D | 1,760 | 152 to 492 | - | 164170 to 531551 | - | 1,096445 to 1,463826 | -2 (3-4PM; 5-6PM) | |
| SC 01 | Freeport Bridge | River Rd | SR 160 (Freeport Blvd) | D | 1,410 | 98 to 346 | - | 98109 to 346384 | - | 626174 to 874449 | - | |
| SC 02 | Hood Franklin Rd | SR 160 (River Rd) | I-5 | D | 1,410 | 77 to 137 | - | 8081 to 142145 | - | 1,5342,066 to 1,5962,130 | 13 (6AM-7PM) | |
| SC 03 | Lambert Rd | SR 160 (River Rd) | Herzog Rd | D | 1,410 | 10 to 29 | - | 11 to 3132 | - | 347471 to 367492 | - | |
| SC 04 | Lambert Rd | Herzog Rd | Franklin Blvd | D | 1,410 | 19 to 38 | - | 4920 to 39 | - | 355480 to 375499 | - | |
| SC 05 | Franklin Blvd | Lambert Rd | Twin Cities Rd | D | 1,410 | 41 to 71 | - | 41 to 72 | - | 377501 to 408532 | - | |
| SC 06 | Twin Cities Rd | River Rd | I-5 | D | 1,410 | 130 to 248 | - | 133134 to 253255 | - | 241284 to 361405 | - | |
| SC 07 | Twin Cities Rd | I-5 | Franklin Blvd | D | 1,410 | 141 to 318 | - | 151152 to 340344 | - | 487612 to 676804 | - | |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|-------------------------------|---|--------------------------------------|-----|---------------|----------------------------|--|--|--|--|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| SC 08 | Sutter Slough Bridge Rd | Sacramento Co./ Yolo Co. Line | Paintersville Bridge | D | 1,410 | 51 to 113 | - | 5557 to 122127 | - | 437582 to 504652 | - |
| SC 09 | River Rd (Sac Co.) | Paintersville Bridge | Twin Cities Rd | D | 1,410 | 85 to 134 | - | 8586 to 134136 | - | 85151 to 134201 | - |
| SC 10 | River Rd (Sac Co.) | Twin Cities Rd | Walnut Grove Bridge | D | 1,600 | 223 to 365 | - | 228230 to 373377 | - | 336380 to 481527 | - |
| SC 11 | Walnut Grove Rd/River Rd | Walnut Grove Bridge | Sacramento Co./D SJ Co. Line | D | 1,410 | 175 to 332 | - | 182 to 345 | - | 341402 to 504565 | - |
| SC 12 | Isleton Rd | River Rd (Walnut Grove)/Isleton Rd Bridge | 1.5 miles west ofD Isleton Rd Bridge | D | 1,410 | 61 to 283 | - | 61 to 283 | - | 61126 to 283348 | - |
| SC 13 | Race Track Rd/Tyler Island Rd | Walnut Grove Rd | Southern End of D Tyler Island | D | 1,410 | 17 to 34 | - | 1718 to 3435 | - | 1783 to 34100 | - |
| SC 14 | Tyler Island Rd | Southern End of Tyler Island | SR 160 (River Rd) | D | 1,410 | 14 to 39 | - | 14 to 39 | - | 1479 to 39104 | - |
| SC 15 | Jackson Slough Rd | Isleton City Limits | SR 12 | D | 1,410 | 4 to 53 | - | 4 to 5359 | - | 469 to 53124 | - |
| SC 16 | Jackson Slough Rd | Brannan Island Rd | SR 12 | D | 1,410 | 16 to 52 | - | 1618 to 5258 | - | 1683 to 52123 | - |
| SJ 01 | Walnut Grove Rd | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 141 to 232 | - | 146 to 241 | - | 647831 to 742926 | -13 (6AM-7PM) |
| SJ 02 | Peltier Rd | Blossom Rd | I-5 | C | 680 | 8 to 23 | - | 8 to 23 | - | 350478 to 365493 | - |
| SJ 03 | Tracy Blvd | SR 4 | Clifton Court Rd | C | 790 | 108 to 209 | - | 108 to 209 | - | 7641,003 to 8651,104 | 6 (6-7AM; 2-13 (6AM-7PM)) |
| SJ 04 | Tracy Blvd | Clifton Court Rd | Tracy City Limits | C | 790 | 69 to 171 | - | 7577 to 185192 | - | 731972 to 8411,087 | 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 | - | 563584 to 890923 | - | 9451,109 to 1,272448 | - |
| SJ 06 | Mountain House Pkwy | Byron Hwy | Arnaudo Blvd | D | 1,410 | 190 to 298 | - | 205213 to 322334 | - | 587738 to 704859 | - |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|--------|---------------------------------------|------------------------|--------------------------------|---------------|------------|----------------------------|--|--|--|----------------------------|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold |
| SJ 07 | Mountain House Pkwy | Arnaudo Blvd | I-205 | D | 3,540 | 418 to 769 | - | 477493 to 877907 | - | 8591018 to 1,259432 | - |
| STK 01 | Eight Mile Rd | Stockton City Limits | I-5 | E | 1,870 | 309 to 769 | - | 340346 to 846861 | - | 734886 to 1,240401 | - |
| TRA 01 | Tracy Blvd | Tracy City Limits | I-205 | E | 1,870 | 309 to 759 | - | 334346 to 820850 | - | 9901,241 to 1,476745 | - |
| WS 01 | Harbor Blvd | Industrial Blvd | US 50 | D | 3,540 | 1,140 to 2,317 | - | 1,218257 to 2,476555 | - | 1,600782 to 2,8583,080 | - |
| WS 02 | Industrial Blvd/ Lake Washington Blvd | Harbor Blvd | Jefferson Blvd (Old SR 84) | C | 1,920 | 773 to 1,858 | - | 835866 to 2,007081 | 1 (5-6PM) | 1,217391 to 2,389606 | 35 (7-8AM9AM; 4-6PM7PM) |
| WS 03 | Jefferson Blvd (Old SR 84) | Lake Washington Blvd | Southport Pkwy | C | 1,920 | 546 to 1,718 | - | 586606 to 1,843906 | - | 9681,131 to 2,225431 | 3 (87-9AM; 4-6PM3-7PM) |
| WS 04 | Jefferson Blvd (Old SR 84) | Southport Pkwy | West Sacramento City Limits | C | 680 | 42 to 146 | - | 4546 to 155160 | - | 427571 to 537685 | -1 (8-9AM) |
| YOL 01 | River Rd (Yolo Co.) | Freeport Bridge | Courtland Rd | C | 680 | 74 to 249 | - | 7476 to 249257 | - | 74141 to 249322 | - |
| YOL 02 | River Rd (Yolo Co.) | Courtland Rd | Sacramento Co./C Yolo Co. Line | C | 680 | 25 to 63 | - | 2728 to 6871 | - | 409553 to 450596 | - |
| YOL 03 | Courtland Rd | SR 84 (Jefferson Blvd) | River Rd | C | 680 | 28 to 77 | - | 3031 to 8386 | - | 412556 to 465611 | - |

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

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

22 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 23 **Conditions**

24 **NEPA Effects:** Construction truck traffic may damage roadway surfaces. During construction,
25 various materials would be transported to and from the construction areas in load-bearing trucks.
26 As shown in Table 19-18, construction of Alternative 1B would contribute to further deterioration of
27 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~
28 Table 19-7), on a total of ~~46-48~~ roadway segments (~~see~~ table entries in **bold** type). Figure 19-4a
29 shows all of the study roadway segments that could experience substantial pavement condition
30 effects.
31

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

| Segment ID* | Roadway | From | To | Baseline Year 2009 Conditions | BPGPP 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 | BPGPP 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 | BPGPP 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 | BPGPP 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 | NoYes | NoYes |
| 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 | BPGPP 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 | NoYes | NoYes |
| 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

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

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

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

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

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

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

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

9 In total, Alternative 1B would have potential impacts associated with alterations to drainage
10 patterns, stream courses, and runoff, and the potential for slightly increased surface water
11 elevations in the rivers and streams from construction of facilities located within the waterway, as
12 described under Alternative 1A. Construction and operations under Alternative 1B would not result
13 in a substantial decrease in surface water elevations on any navigable waterways and therefore
14 would not have an adverse effect on navigation. Although the increase in surface water elevations in
15 rivers and streams under Alternative 1B creates a potential impact regarding flooding (which is
16 considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in
17 surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface*
18 *Water*, for additional information regarding changes to surface water elevations under Alternative
19 1B.

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

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

34 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 35 **by Operation of Intakes**

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

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

1 operations and pumping levels are dictated by many factors, Sacramento River diversions are
2 limited during low flows by operational rules. The nature and extent of impacts caused by
3 diversions at an intake are dependent in large part on the location of the intake on the river. To
4 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
5 and were placed so that river flood and flow characteristic will be minimally altered. Based on
6 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
7 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
8 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
9 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
10 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
11 adequate to support navigation along the Sacramento River. Additionally, under these same intake
12 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
13 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
14 be affected less, and during higher river flow and lower intake diversions, river depths would be
15 greater than the minimum estimate.

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

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

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

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

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

36 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 37 **Construction of Intakes**

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

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

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

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

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

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

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

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

32 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 33 **Construction of Barge Facilities**

34 The potential impacts on navigation caused by sedimentation under Alternative 1B would be similar
35 in type to those described for Alternative 4; however, the effect would be less because Alternative
36 1B includes fewer temporary barge unloading facilities.

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

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

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

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

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

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

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

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

25 **Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From** 26 **Construction of Clifton Court Forebay**

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

30 *NEPA Effects:* No effect.

31 *CEQA Conclusion:* No Impact.

32 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 33 **of Intakes**

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

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

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

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

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

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

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

25 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head** 26 **of Old River Barrier**

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

29 **NEPA Effects:** No effect.

30 **CEQA Conclusion:** No Impact.

31 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 32 **Operations of Water Conveyance Facilities**

33 As explained above and with respect to the construction and operation of these facilities, Alternative
34 1B would not result in an adverse effects to navigation due to water level elevation changes or
35 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
36 impacts of the project to result in cumulative effects on navigation. This is because the minimal
37 effects of these elements of the project on navigation are localized and would combine only with
38 probable future projects if the projects were located immediately adjacent to the project
39 components. There are no other reasonably foreseeable projects proposed to be located near or
40 adjacent to the planned Alternative 1B facilities.

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

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

8 **19.3.3.4 Alternative 1C—Dual Conveyance with West Alignment and Intakes** 9 **W1–W5 (15,000 cfs; Operational Scenario A)**

10 **Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS** 11 **Conditions**

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

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

31 Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively,
 32 these measures include requirements to avoid or reduce circulation effects, notify the public of
 33 construction activities, provide alternate access routes, require direct haulers to pull over in the
 34 event of an emergency, limit/prohibit the amount of construction activity on congested roadways,
 35 and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity
 36 of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete
 37 funding of required improvements. If an improvement that is identified in any mitigation
 38 agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed
 39 before the project's contribution to the effect is made, an adverse effect in the form of unacceptable
 40 LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to
 41 avoid adverse effects prove to be feasible and any necessary agreements are completed before the
 42 project's contribution to the effect is made, effects would not be adverse.
 43

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

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|--------|--|------------------------------------|----------------------------------|-----|---------------|----------------------------|--|--|--|---|---|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (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 | - | 416431 to 708735 | - | 1,491356 to 1,522660 | 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 | - | - | 590592 to 1,526531 | - | 1,665517 to 2,601456 | 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 | - | - | 346371 to 9501019 | - | 1,421296 to 2,0251944 | - |
| BRE 03 | Balfour Rd | Brentwood Blvd (Old SR 4) | Brentwood City Limits | D | 3,540 | 437 to 1,300 | - | 481489 to 1,430456 | - | 774 to 1,723711 | - |
| CC 01 | Bethel Island Rd | Oakley City Limits | End | D | 1,600 | 124 to 330 | - | 139 to 370 | - | 291269 to 522500 | - |
| CC 02 | Balfour Rd | Brentwood City Limits | Byron Hwy | D | 1,600 | 90 to 297 | - | 99101 to 327333 | - | 392356 to 629588 | - |
| 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 | - | - | 1,220245 to 1,811848 | 3 (3-6PM) | 2,295170 to 2,886773 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|-----------|------------------|------------------------------------|---------------|-----------------------------|----------------------------|--|--|--|--|--|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Worse Than LOS Threshold |
| | | | | | | | | | | | |
| CC 04 | Byron Hwy | Delta Rd | Old SR 4 | D | 1,410 | 108 to 240 | - | 106109 to 236241 | - | 732649 to 862781 | - |
| CC 05 | Byron Hwy | SR 4 | Contra Costa Co./ Alameda Co. Line | D | 1,600 | 483 to 907 | - | 522541 to 9801,016 | - | 1,597466 to 2,0551,941 | 127 (6-11AM; 129AM; 3-7PM) |
| CT 01 | I-5 NB | Florin Rd | Pocket Rd | F | 6,060 | 2,589 to 5,820 | - | 2,842914 to 6,389552 | 1 (7-8AM) | 3,894824 to 7,441462 | 2 (7-9AM) |
| CT 02 | I-5 SB | Florin Rd | Pocket Rd | F | 6,060 | 1,647 to 5,705 | - | 1,789830 to 6,198338 | 2 (4-6PM) | 2,841740 to 7,250248 | 2 (4-6PM) |
| CT 03 | I-5 NB | Pocket Rd | Laguna Blvd | F | 6,060 | 2,359 to 5,156 | - | 2,513557 to 5,492588 | - | 2,839837 to 5,818868 | - |
| CT 04 | I-5 SB | Pocket Rd | Laguna Blvd | F | 6,060 | 1,543 to 5,243 | - | 1,651682 to 5,611716 | - | 1,977962 to 5,937996 | - |
| CT 05 | I-5 NB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,820 to 3,339 | - | 1,820999 to 3,339667 | - | 1,8202,054 to 3,339722 | - |
| CT 06 | I-5 SB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,254 to 3,332 | - | 1,254375 to 3,332653 | - | 1,254430 to 3,332708 | - |
| CT 07 | I-5 NB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,504 to 2,162 | - | 1,504675 to 2,162408 | - | 1,504730 to 2,162463 | - |
| CT 08 | I-5 SB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,217 to 2,236 | - | 1,217361 to 2,236501 | - | 1,217416 to 2,236556 | - |
| CT 09 | I-5 NB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,414 to 1,851 | - | 1,602 to 2,097 | - | 1,678667 to 2,173162 | - |
| CT 10 | I-5 SB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,207 to 1,964 | - | 1,369 to 2,227 | - | 1,445434 to 2,303292 | - |
| CT 11 | I-5 NB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,312 to 1,720 | - | 1,446485 to 1,896946 | - | 2,172110 to 2,622571 | - |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|--------------|---------------------------------------|-----------------------------------|----------------------------|----------|------------------|---------------------------|---|---|---|-----------------------------------|---|
| | | | | | | Hourly Volume | Hours Operating Worse Than LOS | Hourly Volume | Hours Operating Worse Than LOS | Hourly Volume | Hours Operating Worse Than LOS |
| | | | | | | Range (6AM to 7PM) | Threshold | Range (6AM to 7PM) | Threshold | Range (6AM to 7PM) | Threshold |
| CT 12 | I-5 SB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,111 to 1,813 | - | 1,225,257 to 1,999,052 | - | 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 3,042,995 | 2 (3-5PM) |
| CT 15 | I-5 NB | Peltier Rd | Turner Rd | C | 2,880 | 1,421 to 1,885 | - | 1,421,677 to 1,885,224 | - | 1,421,732 to 1,885,279 | - |
| CT 16 | I-5 SB | Peltier Rd | Turner Rd | C | 2,880 | 1,145 to 1,974 | - | 1,145,351 to 1,974,329 | - | 1,145,406 to 1,974,384 | - |
| 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 | - | 1,937,208 to 3,452,935 | - | 1,937,263 to 3,452,990 | - |
| CT 22 | I-5 SB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,817 to 2,760 | - | 1,817,071 to 2,760,146 | - | 1,817,126 to 2,760,201 | - |
| CT 23 | SR 160 (Freeport Blvd) | Sacramento City Limits | Freeport Bridge | E | 1,740 | 136 to 476 | - | 145,149 to 506,521 | - | 2,246,195 to 2,607,331 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | 94149 to 180235 | - |
| CT 25 | SR 160 (River Rd) | Scribner Rd | Hood Franklin Rd | E | 1,740 | 41 to 125 | - | 41 to 125 | - | 4196 to 125180 | - |
| CT 26 | SR 160 (River Rd) | Hood Franklin Rd | Lambert Rd | E | 1,740 | 105 to 170 | - | 105119 to 170192 | - | 105174 to 170247 | - |
| CT 27 | SR 160 (River Rd) | Lambert Rd | Paintersville Bridge | E | 1,740 | 69 to 122 | - | 6974 to 122130 | - | 69129 to 122185 | - |
| CT 28 | SR 160 (Paintersville Bridge) | Sutter Slough Bridge Rd | SR 160 (River Rd) | E | 1,740 | 75 to 150 | - | 7779 to 154157 | - | 1,528329 to 1,605407 | - |
| CT 29 | SR 160 | Paintersville Bridge | Walnut Grove Bridge | E | 1,740 | 78 to 128 | - | 8992 to 147152 | - | 3,2652,827 to 3,3232,887 | 13 (6AM-7PM) |
| CT 30 | SR 160 (River Rd) | Walnut Grove Bridge | A St (Isleton) | E | 1,740 | 173 to 465 | - | 173 to 465 | - | 3,3492,908 to 3,644200 | 13 (6AM-7PM) |
| CT 31 | SR 160 | A St (Isleton) | SR 12 | E | 1,740 | 193 to 378 | - | 193 to 378 | - | 3,3692,928 to 3,554113 | 13 (6AM-7PM) |
| CT 32 | SR 160 | SR 12 | Brannan Island Rd | F | 1,740 | 530 to 894 | - | 549559 to 926942 | - | 3,725294 to 4,1023,677 | 13 (6AM-7PM) |
| CT 33 | SR 84 (Jefferson Blvd) | West Sacramento City Limits | Courtland Rd | B | 200 | 40 to 169 | - | 4243 to 177181 | - | 1,926668 to 2,0641,806 | 13 (6AM-7PM) |
| CT 34 | SR 84 (Courtland Rd/ Ryer Ave) | Courtland Rd | Cache Slough Ferry | C | 680 | 10 to 25 | - | 11 to 2627 | - | 239211 to 254227 | - |
| CT 35 | I-80 EB | Suisun Valley Rd | SR 12 | C | 8,350 | 3,079 to 6,994 | - | 3,510633 to 7,9738,253 | - | 5,100003 to 9,563623 | 4 (2-6PM) |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBGPP Conditions | |
|-------|--------------------------|-------------------------------|-------------------------------|-----|------------------|--------------------------|---|---|---|--------------------------|---|
| | | | | | | Hourly Volume | Hours Operating Worse Than LOS | Hourly Volume | Hours Operating Worse Than LOS | Hourly Volume | Hours Operating Worse Than LOS |
| | | | | | | Range (6AM to 7PM) | Threshold | Range (6AM to 7PM) | Threshold | Range (6AM to 7PM) | Threshold |
| CT 36 | I-80 WB | Suisun Valley Rd | SR 12 | C | 8,350 | 5,751 to 8,892 | 2 (6-8AM) | 6,556 to 10,137 | 786 to 7493 (6-8AM) | 8,146 to 11,727 | 156 to 863 (6AM-6PM) |
| CT 37 | SR 12 EB | I-80 | Beck Ave | C | 2,880 | 528 to 1,847 | - | 612 to 2,143 | 634 to 216 | 2,202 to 3,733 | 8 to 11 (2-7PM) |
| CT 38 | SR 12 WB | I-80 | Beck Ave | C | 2,880 | 829 to 1,625 | - | 962 to 1,885 | 2995 to 950 | 2,552 to 3,475 | 365 to 320 (6-10AM) |
| CT 39 | SR 12 | Beck Ave | Sunset Ave/ Grizzly Island Rd | C | 5,060 | 2,408 to 3,573 | - | 2,772 to 4,114 | 864 to 249 | 5,948 to 7,290 | 599 to 984 (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 to 2,729 | 928 to 824 | 5,040 to 5,905 | 663 to 559 (6-10AM); (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 to 1,247 | 752 to 290 (6AM-6PM) | 3,903 to 4,423 | 487 to 025 (6AM-7PM) |
| CT 42 | SR 12 | SR 113 | SR 84 (River Rd) | C | 790 | 1,073 to 1,544 | 13 (6AM-7PM) | 1,245 to 1,791 | 288 to 853 (6AM-7PM) | 4,421 to 4,967 | 023 to 588 (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 to 1,955 | 362 to 2,022 (6AM-7PM) | 4,493 to 5,131 | 097 to 757 (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 | to 154 (6AM-6PM) | 1,658 to 2,024 | 538 to 1,904 (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 | to 1,224 (6AM-7PM) | 1,683 to 2,094 | 563 to 1,974 (6AM-7PM) |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBGPP Conditions | |
|-------|------------------------------------|--------------------|----------------------|--------|---------------|---------------------|----------------------------|--|----------------------------|-----------------------------|------------------------------|
| | | | | | | Hourly Volume | Hours Operating Worse Than | Hourly Volume | Hours Operating Worse Than | Hourly Volume | Hours Operating Worse Than |
| | | | | | | (6AM to 7PM) | LOS Threshold | (6AM to 7PM) | LOS Threshold | (6AM to 7PM) | 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 3,107,266 | 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 (7-8 (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 C | 1,600 790 | 442 to 733 - | - - | - 477,495 to 792,821 | - 12 (4-5PM) | - 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 5,924,6014 | - |
| 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) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 56 | I-5 NB | SR 4 (Charter Way) | Eighth Street D | D | 5,410 | 2,430 to 4,586 | - | 2,770 to 5,228 | 0 to -1 (3-4PM) | 3,308 to 5,766 | 3 to 3 (3-6PM) |
| CT 57 | I-5 SB | SR 4 (Charter Way) | Eighth Street D | D | 5,410 | 4,333 to 5,631 | 3 (7-8AM; 4-6PM) | 4,940 to 6,419 | 5,113 to 6,445 (6-9AM; 1-6PM) | 5,478 to 6,957 | 13 to 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 to 5,560 | 517 to 6,99 (3-7PM) | 2,018 to 6,098 | 5 to 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 to 5,348 | 111 to 86 (6-9AM) | 2,596 to 5,886 | 3 to 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 to 5,575 | 631 to 778 (2-7PM) | 2,112 to 6,113 | 5 to 5 (2-7PM) |
| CT 61 | I-205 WB | Mountain House Pkwy | Eleventh St | C | 4,400 | 1,875 to 4,117 | - | 2,063 to 4,529 | 138 to 693 (6-7AM) | 2,601 to 5,067 | 2 to 2 (6-8AM) |
| CT 62 | I-205 EB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,525 to 4,200 | - | 1,525 to 4,200 | 739 to 788 | 1,525 to 4,200 | - to - |
| CT 63 | I-205 WB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,852 to 3,079 | - | 1,852 to 3,079 | 111 to 510 | 1,852 to 3,079 | - to - |
| CT 64 | I-205 EB | Tracy Blvd | MacArthur Dr | D | 5,410 | 1,511 to 4,182 | - | 1,511 to 4,182 | 723 to 767 | 1,511 to 4,182 | - to - |
| CT 65 | I-205 WB | Tracy Blvd | MacArthur Dr | D | 5,410 | 2,083 to 3,446 | - | 2,083 to 3,446 | 375 to 928 | 2,083 to 3,446 | - to - |
| ISL 01 | A St/4th St/ Jackson Blvd. | SR 160 | Isleton City Limits | D | 1,410 | 17 to 75 | - | 17 to 75 | - | 177 to 751 | - to - |
| OAK 01 | Main Street (Old SR 4)1 | SR 160 | Cypress Rd | C D | 1,920 3,540 | 752 to 1,663 - | - - | - 795 to 1,759 | - 817 to 807 | - 1,870 to 2,834 | - - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | - | - | - |
| | | | | D | 1,760 | - | - | 823852 to 1,522575 | - | 1,898777 to 2,597500 | 13 |
| OAK 03 | Cypress Rd | Main Street (Old SR 4) | Bethel Island Rd | D | 1,600 | 304 to 764 | - | 340 to 856 | - | 906830 to 1,422346 | - |
| OAK 04 | Bethel Island Rd | Cypress Rd | Oakley City Limits | D | 1,410 | 140 to 367 | - | 157 to 411 | - | 309287 to 563541 | - |
| OAK 05 | Delta Rd | Main Street (Old SR 4) | Byron Hwy | D | 1,410 | 155 to 334 | - | 129157 to 278337 | - | 755697 to 904877 | - |
| SAC 01 | Pocket Rd | I-5 | Freeport Blvd (Old SR 160) | D | 3,540 | 789 to 2,191 | - | 789 to 2,191 | - | 2,890599 to 4,292001 | 6 (8 (7-9AM; 12-7PM) |
| SAC 02 | Freeport Blvd (Old SR 160) | Pocket Rd | Sacramento City Limits | D | 1,760 | 152 to 492 | - | 164170 to 531551 | - | 2,2651,980 to 2,632361 | 13 (6AM-7PM) |
| SC 01 | Freeport Bridge | River Rd | SR 160 (Freeport Blvd) | D | 1,410 | 98 to 346 | - | 105109 to 371384 | - | 2,2061,919 to 2,472194 | 13 (6AM-7PM) |
| SC 02 | Hood Franklin Rd | SR 160 (River Rd) | I-5 | D | 1,410 | 77 to 137 | - | 7781 to 137145 | - | 77136 to 137200 | - |
| SC 03 | Lambert Rd | SR 160 (River Rd) | Herzog Rd | D | 1,410 | 10 to 29 | - | 1011 to 2932 | - | 1066 to 2987 | - |
| SC 04 | Lambert Rd | Herzog Rd | Franklin Blvd | D | 1,410 | 19 to 38 | - | 1920 to 3839 | - | 1975 to 3894 | - |
| SC 05 | Franklin Blvd | Lambert Rd | Twin Cities Rd | D | 1,410 | 41 to 71 | - | 41 to 7172 | - | 4196 to 71127 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 06 | Twin Cities Rd | River Rd | I-5 | D | 1,410 | 130 to 248 | - | 133 134 to 253 255 | - | 1,584384 to 1,704505 | 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 | - | 1,537336 to 1,586386 | 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 | - | 1,943702 to 2,104865 | 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 | - |

| ID | Segment | From | To | LOS | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 01 | Walnut Grove Rd | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 141 to 232 | - | 145146 to 238241 | - | 1,909666 to 2,0021761 | 13 (6AM-7PM) |
| SJ 02 | Peltier Rd | Blossom Rd | I-5 | C | 680 | 8 to 23 | - | 8 to 23 | - | 863 to 2378 | - |
| SJ 03 | Tracy Blvd | SR 4 | Clifton Court Rd | C | 790 | 108 to 209 | - | 108 to 209 | - | 108163 to 209264 | - |
| SJ 04 | Tracy Blvd | Clifton Court Rd | Tracy City Limits | C | 790 | 69 to 171 | - | 6977 to 171192 | - | 69132 to 171247 | - |
| SJ 05 | Byron Hwy | Alameda Co./San Joaquin Co. Line | Mountain House Pkwy | D | 1,600 | 521 to 824 | - | 563584 to 890923 | - | 1,638509 to 1,965848 | 13 (6AM-9AM; 2-7PM) |
| SJ 06 | Mountain House Pkwy | Byron Hwy | Arnaudo Blvd | D | 1,410 | 190 to 298 | - | 205213 to 322334 | - | 1,280138 to 1,397259 | - |
| SJ 07 | Mountain House Pkwy | Arnaudo Blvd | I-205 | D | 3,540 | 418 to 769 | - | 477493 to 877907 | - | 1,552418 to 1,952832 | - |
| STK 01 | Eight Mile Rd | Stockton City Limits | I-5 | E | 1,870 | 309 to 769 | - | 309346 to 769861 | - | 309401 to 769916 | - |
| TRA 01 | Tracy Blvd | Tracy City Limits | I-205 | E | 1,870 | 309 to 759 | - | 309346 to 759850 | - | 309401 to 759905 | - |
| WS 01 | Harbor Blvd | Industrial Blvd | US 50 | D | 3,540 | 1,140 to 2,317 | - | 1,218 to 2,57 to 2,476555 | - | 3,1022,882 to 4,360180 | 106 (7-10AM; 129AM; 3-7PM) |
| WS 02 | Industrial Blvd/ Lake Washington Blvd | Harbor Blvd | Jefferson Blvd (Old SR 84) | C | 1,920 | 773 to 1,858 | - | 835866 to 2,007081 | 1 (5-6PM) | 2,719491 to 3,891706 | 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 |
| | | | | | | | | | | | |
| WS 03 | Jefferson Blvd (Old SR 84) | Lake Washington Blvd | Southport Pkwy | C | 1,920 | 546 to 1,718 | - | 586606 to 1,843906 | - | 2,470231 to 3,727531 | 13 (6AM-7PM) |
| WS 04 | Jefferson Blvd (Old SR 84) | Southport Pkwy | West Sacramento City Limits | C | 680 | 42 to 146 | - | 4546 to 155160 | - | 1,929671 to 2,0391,785 | 13 (6AM-7PM) |
| YOL 01 | River Rd (Yolo Co.) | Freeport Bridge | Courtland Rd | C | 680 | 74 to 249 | - | 76 to 254257 | - | 2,1771,886 to 2,355067 | 13 (6AM-7PM) |
| YOL 02 | River Rd (Yolo Co.) | Courtland Rd | Sacramento Co./ Yolo Co. Line | C | 680 | 25 to 63 | - | 2728 to 6871 | - | 3,2032,763 to 3,2442,806 | 13 (6AM-7PM) |
| YOL 03 | Courtland Rd | SR 84 (Jefferson Blvd) | River Rd | C | 680 | 28 to 77 | - | 3031 to 8386 | - | 1,914656 to 1,967711 | 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
2 roadways that would exceed acceptable LOS threshold (Table 19-217). As shown in Table 19-21,
3 traffic volumes during construction of Alternative 1C would temporarily exacerbate already
4 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
5 time of project construction. This impact would be temporary, but significant. Mitigation Measures
6 TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-
7 significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
8 constructed prior to the project's contribution to the impact. If an improvement that is identified in
9 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
10 constructed before the project's contribution to the impact is made, a significant impact in the form
11 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
12 however, all improvements required to avoid significant impacts prove to be feasible and any
13 necessary agreements are completed before the project's contribution to the effect is made, impacts
14 would be less than significant.

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

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

1 **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 | 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 | 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.

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

15 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 16 **Caused by Construction of Water Conveyance Facilities**

17 The potential impacts on navigation caused by changes in surface water elevation during
18 construction of the proposed intakes under Alternative 1C would be similar to those described for
19 Alternative 4. Although Alternative 1C includes two additional intakes (Alternative 1C includes five
20 intakes compared to three for Alternative 4), the effects to surface water elevation caused by
21 construction of the proposed intakes is highly localized, and therefore, the higher number of intakes
22 would not result in a greater level of impacts on navigation. Alternative 1C includes the construction
23 of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the bank of the Sacramento River between
24 Clarksburg and Walnut Grove. The planned locations of the intakes are generally the same as those
25 proposed for Alternative 1A, as described previously, with the exception that intake facilities would
26 be constructed on the west side of the river rather than the east side. Construction for Intakes 1, 2, 3,
27 4, and 5 would be accomplished using coffer dams at each location. Coffers dams will isolate each
28 construction area from the Sacramento River and will be used to de-water the construction area.
29 Intakes and screens have been designed and located on-bank to minimize changes to river flow
30 characteristics. Nevertheless, some localized water elevation changes will occur upstream and
31 adjacent to each coffer dam at these intake sites due to facility location within the river. These
32 localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location
33 even at high river flows (when surface elevation changes would be expected to be highest). This
34 represents the highest surface upstream elevation increase after coffer dam removal and during
35 intake operation. Because this maximum increase in elevation is entirely localized, downstream
36 surface elevation changes during intake construction would be insignificant and changes to river
37 depth and width at any location will be insignificant. As a result, boat passage and river use,
38 including Sacramento River tributaries, will not be affected.

39 As explained in Chapter 6, Surface Water, construction of facilities within or adjacent to waterways
40 could change surface water elevations or runoff characteristics. Alternative 1C would have potential
41 impacts associated with alterations to drainage patterns, stream courses, and runoff, and the
42 potential for slightly increased surface water elevations in the rivers and streams during
43 construction and operations of facilities located within the waterway, as described for Alternative
44 1A. Construction under Alternative 1C would not result in a substantial decrease in surface water
45 elevations on any navigable waterways and therefore would not have an adverse effect on

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

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

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

20 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 21 **by Operation of Intakes**

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

29 With respect to Alternative 1C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
30 water surface elevation during certain operational regimes and at various river flows. While intake
31 operations and pumping levels are dictated by many factors, Sacramento River diversions are
32 limited during low flows by operational rules. The nature and extent of impacts caused by
33 diversions at an intake are dependent in large part on the location of the intake on the river. To
34 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
35 and were placed so that river flood and flow characteristic will be minimally altered. Based on
36 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
37 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
38 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
39 River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-
40 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
41 adequate to support navigation along the Sacramento River. Additionally, under these same intake
42 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
43 represents a localized and maximum estimate. Surface elevations downstream of the intakes would

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

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

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

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

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

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

23 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 24 **Construction of Intakes**

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

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

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

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

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

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

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

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

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

19 Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From 20 Construction of Barge Facilities

21 The potential impacts on navigation caused by sedimentation under Alternative 1C would be similar
22 in type to those described for Alternative 4; however, the effect would be less because Alternative
23 1C includes fewer temporary barge unloading facilities.

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

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

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

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

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

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

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

12 Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From 13 Construction of Clifton Court Forebay

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

17 NEPA Effects: No effect.

18 CEQA Conclusion: No Impact.

19 Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation 20 of Intakes

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

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

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

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

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

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

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

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

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

16 NEPA Effect: No effect.

17 CEQA Conclusion: No Impact.

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

20 As explained above and with respect to the construction and operation of these facilities, Alternative
21 1C would not result in an adverse effects to navigation due to water level elevation changes or
22 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
23 impacts of the project to result in cumulative effects on navigation. This is because the minimal
24 effects of these elements of the project on navigation are localized and would combine only with
25 probable future projects if the projects were located immediately adjacent to the project
26 components. There are no other reasonably foreseeable projects proposed to be located near or
27 adjacent to the planned Alternative 1C facilities.

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

30 CEQA Conclusion: Because it does not involve a physical change in the environment, effects to
31 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
32 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
33 explained above, Alternative 1C in combination with other reasonably foreseeable projects would
34 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 ~~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 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. Coffers dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area.

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

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

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

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

36 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 37 **by Operation of Intakes**

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

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

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

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

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

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

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

38 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 39 **Construction of Intakes**

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

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

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

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

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

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

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

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

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

34 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 35 **Construction of Barge Facilities**

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

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

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

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

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

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

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

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

29 **Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From** 30 **Construction of Clifton Court Forebay**

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

34 **NEPA Effects:** No effect.

35 **CEQA Conclusion:** No Impact.

36 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 37 **of Intakes**

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

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

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

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

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

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

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

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

28 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head** 29 **of Old River Barrier**

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

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

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

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

19 With respect to both recreational and commercial navigation, and based on analysis provided in the
20 SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14,
21 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will
22 be less than significant (p. 5.8-15, 5.8-19, 5.8-22), impact on non-recreational boaters due to
23 temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on
24 recreation as a result of constructing and operating any of the alternatives will not be significant (p.
25 7.4-1).

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

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

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

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

3 As explained above and with respect to the construction and operation of these facilities, Alternative
 4 2A would not result in an adverse effects to navigation due to water level elevation changes or
 5 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
 6 impacts of the project to result in cumulative effects on navigation. This is because the minimal
 7 effects of these elements of the project on navigation are localized and would combine only with
 8 probable future projects if the projects were located immediately adjacent to the project
 9 components. There are no other reasonably foreseeable projects proposed to be located near or
 10 adjacent to the planned Alternative 2A facilities.

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

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

18 **19.3.3.6 Alternative 2B—Dual Conveyance with East Alignment and Five**
 19 **Intakes (15,000 cfs; Operational Scenario B)**

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

22 **NEPA Effects:** The estimate of the number of vehicles generated by construction activities would be
 23 slightly higher for Alternative 2B compared to Alternative 1B due to the addition of an operable
 24 barrier at the head of Old River. As shown in Table 19-18, construction of Alternative 1B would
 25 contribute to further deterioration of the existing pavement condition, to less than the acceptable
 26 PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **4846** roadway segments (~~see table~~
 27 entries in bold type). Damage to roadway pavement is expected throughout the study area (Figure
 28 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway
 29 damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a
 30 through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be
 31 adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will
 32 be obtained from the relevant transportation agencies. If an agreement or encroachment permit is
 33 not obtained, an adverse effect in the form of deficient pavement conditions would occur.
 34 Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment
 35 permit(s) providing for the improvement or replacement of pavement are obtained and any other
 36 necessary agreements are completed, adverse effects could be avoided.

37 **CEQA Conclusion:** Construction would add trips, exacerbating unacceptable pavement conditions to
 38 below acceptable thresholds (Table 19-7) at the **4846** locations shown in Table 19-18. The impact of
 39 roadway damage during construction would be potentially significant. Mitigation Measures TRANS-
 40 2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-
 41 significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment
 42 permits will be obtained from the relevant transportation agencies. If an agreement or

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

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

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

14 Alternative 2B would include the construction of five fish-screened intakes on the west bank of the
15 Sacramento River. Alternative 2B, however, could potentially entail two different intake and intake
16 pumping plant locations. As an alternative to Intakes 1–5, intake locations 1, 2, 3, 6, and 7 are being
17 considered. Unlike the other intakes, Intakes 6 and 7 would be downstream of Sutter and Steamboat
18 Sloughs. Construction of the intakes would be accomplished using coffer dams at each location.
19 Coffer dams will isolate each construction area from the Sacramento River and will be used to de-
20 water the construction area. Intakes and screens have been designed and located on-bank to
21 minimize changes to river flow characteristics. Nevertheless, some localized water elevation
22 changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility
23 location within the river. These localized surface elevation changes will not exceed an increase of
24 0.10 feet at any intake location even at high river flows (when surface elevation changes would be
25 expected to be highest). This represents the highest surface upstream elevation increase after coffer
26 dam removal and during intake operation. Because this maximum increase in elevation is entirely
27 localized, downstream surface elevation changes during intake construction would be insignificant
28 and changes to river depth and width at any location will be insignificant. As a result, boat passage
29 and river use, including Sacramento River tributaries, will not be affected.

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

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

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

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

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

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

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

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

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

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

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

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

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

14 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 15 **Construction of Intakes**

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

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

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

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

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

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

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

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

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

12 The potential impacts on navigation caused by sedimentation under Alternative 2B would be similar
13 in type to those described for Alternative 4; however, the effect would be less because Alternative
14 2B includes only one temporary barge unloading facility.

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

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

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

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

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

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

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

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

7 **NEPA Effects:** No effect.

8 **CEQA Conclusion:** No Impact.

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

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

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

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

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

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

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

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

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

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

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

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

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

33 With respect to both recreational and commercial navigation, and based on analysis provided in the
34 SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14,
35 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will
36 be less than significant (p. 5.8-15, 5.8-19, 5.8-22), impact on non-recreational boaters due to
37 temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on
38 recreation as a result of constructing and operating any of the alternatives will not be significant (p.
39 7.4-1).

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

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

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

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

13 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 14 **Operations of Water Conveyance Facilities**

15 As explained above and with respect to the construction and operation of these facilities, Alternative
 16 2B would not result in an adverse effects to navigation due to water level elevation changes or
 17 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
 18 impacts of the project to result in cumulative effects on navigation. This is because the minimal
 19 effects of these elements of the project on navigation are localized and would combine only with
 20 probable future projects if the projects were located immediately adjacent to the project
 21 components. There are no other reasonably foreseeable projects proposed to be located near or
 22 adjacent to the planned Alternative 2B facilities.

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

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

30 **19.3.3.7 Alternative 2C—Dual Conveyance with West Alignment and Intakes** 31 **W1–W5 (15,000 cfs; Operational Scenario B)**

32 **Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS** 33 **Conditions**

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

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

3 The decrease in LOS below applicable thresholds during construction would be adverse at the
4 locations identified in Table 19-21 because construction associated with Alternative 2C would cause
5 LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
6 analysis period. Alternative 2C would also temporarily exacerbate an already unacceptable LOS
7 under BPBG conditions at ~~3637~~ roadway segments (56 minus the 19 that would already be
8 operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will
9 occur throughout the study area, the highest concentration of roadway segments below applicable
10 LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also
11 be exceeded on several local roadways, including all segments studied in West Sacramento and Yolo
12 County.

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

25 ***CEQA Conclusion:*** Construction under Alternative 2C would add hourly traffic volumes to study area
26 roadways that would exceed acceptable LOS threshold (Table 19-~~217~~). As shown in Table 19-21,
27 traffic volumes during construction of Alternative 2C would temporarily exacerbate already
28 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
29 time of project construction. This impact would be temporary, but significant. Mitigation Measures
30 TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-
31 significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
32 constructed prior to the project's contribution to the impact. If an improvement that is identified in
33 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
34 constructed before the project's contribution to the impact is made, a significant impact in the form
35 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
36 however, all improvements required to avoid significant impacts prove to be feasible and any
37 necessary agreements are completed before the project's contribution to the effect is made, impacts
38 would be less than significant.

39 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 40 **Caused by Construction of Water Conveyance Facilities**

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

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

3 Alternative 2C includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the
4 bank of the Sacramento River between Clarksburg and Walnut Grove. The planned locations of the
5 intakes are generally the same as those proposed for Alternative 1A, as described previously, with
6 the exception that intake facilities would be constructed on the west side of the river rather than the
7 east side. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each
8 location. Coffers dams will isolate each construction area from the Sacramento River and will be used
9 to de-water the construction area. Intakes and screens have been designed and located on-bank to
10 minimize changes to river flow characteristics. Nevertheless, some localized water elevation
11 changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility
12 location within the river. These localized surface elevation changes will not exceed an increase of
13 0.10 feet at any intake location even at high river flows (when surface elevation changes would be
14 expected to be highest). This represents the highest surface upstream elevation increase after coffer
15 dam removal and during intake operation. Because this maximum increase in elevation is entirely
16 localized, downstream surface elevation changes during intake construction would be insignificant
17 and changes to river depth and width at any location will be insignificant. As a result, boat passage
18 and river use, including Sacramento River tributaries, will not be affected.

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

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

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

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

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

10 With respect to Alternative 2C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
11 water surface elevation during certain operational regimes and at various river flows. While intake
12 operations and pumping levels are dictated by many factors, Sacramento River diversions are
13 limited during low flows by operational rules. The nature and extent of impacts caused by
14 diversions at an intake are dependent in large part on the location of the intake on the river. To
15 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
16 and were placed so that river flood and flow characteristic will be minimally altered. Based on
17 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
18 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
19 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
20 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
21 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
22 adequate to support navigation along the Sacramento River. Additionally, under these same intake
23 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
24 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
25 be affected less, and during higher river flow and lower intake diversions, river depths would be
26 greater than the minimum estimate.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3 The potential impacts on navigation caused by sedimentation under Alternative 2C would be similar
4 in type to those described for Alternative 4; however, the effect would be less because Alternative
5 2C includes fewer temporary barge unloading facilities.

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

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

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

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

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

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

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

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

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

39 **NEPA Effects:** No effect.

40 **CEQA Conclusion:** No Impact.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

23 With respect to both recreational and commercial navigation, and based on analysis provided in the
24 SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14,
25 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will
26 be less than significant (p. 5.8-15, 5.8-19, 5.8-22), impact on non-recreational boaters due to
27 temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on
28 recreation as a result of constructing and operating any of the alternatives will not be significant (p.
29 7.4-1).

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

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

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

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

3 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 4 **Operations of Water Conveyance Facilities**

5 As explained above and with respect to the construction and operation of these facilities, Alternative
6 2C would not result in an adverse effects to navigation due to water level elevation changes or
7 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
8 impacts of the project to result in cumulative effects on navigation. This is because the minimal
9 effects of these elements of the project on navigation are localized and would combine only with
10 probable future projects if the projects were located immediately adjacent to the project
11 components. There are no other reasonably foreseeable projects proposed to be located near or
12 adjacent to the planned Alternative 2C facilities.

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

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

20 **19.3.3.8 Alternative 3—Dual Conveyance with Pipeline/Tunnel and Intakes 1** 21 **and 2 (6,000 cfs; Operational Scenario A)**

22 **Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS** 23 **Conditions**

24 **NEPA Effects:** The estimate of the number of vehicles generated by construction activities would be
25 lower compared to Alternative 1A due to the reduction in the number of intakes (approximately
26 60% reduction). Localized impacts in the vicinity of Intakes 3, 4, and 5 would not occur.

27 As shown in Table 19-8, under BPBG conditions, a total of ~~2523~~ roadway segments would exceed
28 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8,
29 construction associated with Alternative 3 would cause LOS thresholds to be exceeded for at least 1
30 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~4733~~ roadway segments under
31 BPBGPP conditions (~~see~~-entries in **bold type**). Alternative 3 would therefore temporarily exacerbate
32 an already unacceptable LOS under BPBG conditions on ~~2210~~ roadway segments (~~4733~~ minus the
33 ~~2523~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a
34 shows the study roadway segments that could experience substantial roadway operation effects.

35 The decrease in LOS below applicable thresholds during construction would be adverse at the
36 locations identified in Table 19-8 because construction associated with Alternative 3 would cause
37 LOS thresholds (~~see~~-Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
38 analysis period. Alternative 3 would also temporarily exacerbate an already unacceptable LOS under
39 BPBG conditions at ~~2210~~ roadway segments (~~4733~~ minus the ~~2523~~ that would already be operating
40 at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur
41 throughout the study area, the highest concentration of roadway segments below applicable LOS

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

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

15 **CEQA Conclusion:** Construction under Alternative 3 would add hourly traffic volumes to study area
16 roadways that would exceed acceptable LOS threshold (Table 19-8Z). As shown in Table 19-8, traffic
17 volumes during construction of Alternative 3 would temporarily exacerbate already unacceptable
18 LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of
19 project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-
20 1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant
21 levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
22 constructed prior to the project's contribution to the impact. If an improvement that is identified in
23 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
24 constructed before the project's contribution to the impact is made, a significant impact in the form
25 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
26 however, all improvements required to avoid significant impacts prove to be feasible and any
27 necessary agreements are completed before the project's contribution to the effect is made, impacts
28 would be less than significant.

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

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

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

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

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

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

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

34 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 35 **by Operation of Intakes**

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

1 Alternative 3 includes only two intakes, and only 9,000 cfs capacity, the impact would be much less
2 than described for Alternative 4.

3 With respect to Alternative 3, operation of Intakes 1 and 2 may have localized effects on water
4 surface elevation during certain operational regimes and at various river flows. While intake
5 operations and pumping levels are dictated by many factors, Sacramento River diversions are
6 limited during low flows by operational rules. The nature and extent of impacts caused by
7 diversions at an intake are dependent in large part on the location of the intake on the river. To
8 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
9 and were placed so that river flood and flow characteristic will be minimally altered. Based on
10 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
11 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
12 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
13 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
14 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
15 adequate to support navigation along the Sacramento River. Additionally, under these same intake
16 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
17 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
18 be affected less, and during higher river flow and lower intake diversions, river depths would be
19 greater than the minimum estimate.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1 NEPA Effects: No effect.

2 CEQA Conclusion: No impact.

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

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

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

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

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

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

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

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

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

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

39 NEPA Effects: No effect.

1 CEQA Conclusion: No Impact.

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

4 As explained above and with respect to the construction and operation of these facilities, Alternative
 5 3 would not result in an adverse effects to navigation due to water level elevation changes or altered
 6 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
 7 the project to result in cumulative effects on navigation. This is because the minimal effects of these
 8 elements of the project on navigation are localized and would combine only with probable future
 9 projects if the projects were located immediately adjacent to the project components. There are no
 10 other reasonably foreseeable projects proposed to be located near or adjacent to the planned
 11 Alternative 3 facilities.

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

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

19 **19.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and**
 20 **Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)**

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

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

27 **NEPA Effects:** As shown in Table 19-25, under BPBG conditions, a total of 23 roadway segments
 28 would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown
 29 in Table 19-25, construction associated with Alternative 4 would cause LOS thresholds to be
 30 exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~36-38~~
 31 roadway segments under BPBGPP conditions (see entries in **bold** type).¹ Alternative 4 would
 32 therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~13-15~~
 33 roadway segments (~~36-38~~ minus the 23 that would already be operating at an unacceptable LOS
 34 under BPBG conditions). Figure 19-3b shows the study roadway segments that could experience
 35 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.

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

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

25

1 **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 | | BPPGPP 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 825,1025 | - | 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 Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | 108109 to 240243 | - | 108194 to 240328 | - |
| CC 05 | Byron Hwy | SR 4 | Contra Costa Co./ Alameda Co. Line | D | 1,600 | 483 to 907 | - | 599 to 1,125 | - | 1,179219 to 1,705745 | 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 | - | 29873.13 1 to 6,7147.03 9 | 1 (7-8AM) | 3,364336 to 7,091244 | 1 (7-8AM) |
| CT 02 | I-5 SB | Florin Rd | Pocket Rd | F | 6,060 | 1,647 to 5,705 | - | 1,870952 to 6,479761 | 2 (4-6PM) | 2,247157 to 6,856966 | 2 (4-6PM) |
| CT 03 | I-5 NB | Pocket Rd | Laguna Blvd | F | 6,060 | 2,359 to 5,156 | - | 2,359688 to 5,156876 | - | 2,359793 to 5,156981 | - |
| CT 04 | I-5 SB | Pocket Rd | Laguna Blvd | F | 6,060 | 1,543 to 5,243 | - | 1,543775 to 5,2436.03 1 | - | 1,543880 to 5,2436.136 | -1 (5-6PM) |
| CT 05 | I-5 NB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,820 to 3,339 | - | 1,8202.11 8 to 3,339885 | - | 1,8202,223 to 3,339990 | - |
| CT 06 | I-5 SB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,254 to 3,332 | - | 1,254456 to 3,332868 | - | 1,254561 to 3,332973 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 07 | I-5 NB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,504 to 2,162 | - | 1,751 to 2,517 | 789 to 572 | - | 2,210 to 2,976 | 279 to 062 |
| CT 08 | I-5 SB | Elk Grove Blvd | Hood Franklin Rd | F | 4,010 | 1,217 to 2,236 | - | 1,425 to 2,619 | 458 to 678 | - | 1,884 to 3,078 | 948 to 168 |
| CT 09 | I-5 NB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,414 to 1,851 | - | 1,644 to 2,152 | 728 to 262 | - | 2,021 to 2,529 | 1,933 to 467 |
| CT 10 | I-5 SB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,207 to 1,964 | - | 1,405 to 2,285 | 476 to 402 | - | 1,782 to 2,662 | 681 to 607 |
| CT 11 | I-5 NB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,312 to 1,720 | - | 1,561 to 2,047 | 600 to 097 | - | 2,020 to 2,506 | 090 to 587 |
| CT 12 | I-5 SB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,111 to 1,813 | - | 1,322 to 2,158 | 355 to 211 | - | 1,781 to 2,617 | 845 to 701 |
| CT 13 | I-5 NB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,374 to 1,803 | - | 1,704 to 2,236 | 786 to 344 | - | 1,812 to 2,344 | 2901 to 459 |
| CT 14 | I-5 SB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,128 to 1,894 | - | 1,399 to 2,349 | 466 to 462 | - | 1,507 to 2,457 | 581 to 577 |
| CT 15 | I-5 NB | Peltier Rd | Turner Rd | C | 2,880 | 1,421 to 1,885 | - | 1,421 to 1,885 | 847 to 2,45 | - | 1,421 to 1,885 | 952 to 2,556 |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPPGPP 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 | - | 1,145489 to 1,9742,566 | - | 1,145594 to 1,9742,671 | - |
| CT 17 | I-5 NB | Turner Rd | SR 12 | C | 2,880 | 1,288 to 1,985 | - | 1,623674 to 2,501581 | - | 1,664779 to 2,542686 | - |
| CT 18 | I-5 SB | Turner Rd | SR 12 | C | 2,880 | 1,124 to 1,482 | - | 1,416461 to 1,867927 | - | 1,457566 to 1,9082,032 | - |
| CT 19 | I-5 NB | SR 12 | Eight Mile Rd | C | 4,400 | 1,533 to 2,267 | - | 1,870932 to 2,766856 | - | 1,9112,037 to 2,807961 | - |
| CT 20 | I-5 SB | SR 12 | Eight Mile Rd | C | 4,400 | 1,243 to 2,070 | - | 1,516566 to 2,525608 | - | 1,557671 to 2,566713 | - |
| CT 21 | I-5 NB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,937 to 3,452 | - | 1,9372,441 to 3,4524,350 | - | 1,9372,546 to 3,4524,455 | - |
| CT 22 | I-5 SB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,817 to 2,760 | - | 1,8172,289 to 2,7603,478 | - | 1,817 to 2,760394 to 3,583 | - |
| CT 23 | SR 160 (Freeport Blvd) | Sacramento City Limits | Freeport Bridge | E | 1,740 | 136 to 476 | - | 153162 to 536566 | - | 906572 to 1,289976 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 | - | 847504 to 933590 | - |
| CT 25 | SR 160 (River Rd) | Scribner Rd | Hood Franklin Rd | E | 1,740 | 41 to 125 | - | 41 to 125 | - | 794451 to 878535 | - |
| CT 26 | SR 160 (River Rd) | Hood Franklin Rd | Lambert Rd | E | 1,740 | 105 to 170 | - | 124127 to 201206 | - | 1,042747 to 1,119826 | - |
| CT 27 | SR 160 (River Rd) | Lambert Rd | Paintersville Bridge | E | 1,740 | 69 to 122 | - | 7779 to 136139 | - | 995699 to 1,054759 | - |
| CT 28 | SR 160 (Paintersville Bridge) | Sutter Slough Bridge Rd | SR 160 (River Rd) | E | 1,740 | 75 to 150 | - | 8183 to 163166 | - | 999703 to 1,081786 | - |
| CT 29 | SR 160 | Paintersville Bridge | Walnut Grove Bridge | E | 1,740 | 78 to 128 | - | 97100 to 161166 | - | 1,015720 to 1,079786 | - |
| CT 30 | SR 160 (River Rd) | Walnut Grove Bridge | A St (Isleton) | E | 1,740 | 173 to 465 | - | 173 to 465 | - | 1,091793 to 1,383085 | - |
| CT 31 | SR 160 | A St (Isleton) | SR 12 | E | 1,740 | 193 to 378 | - | 193 to 378 | - | 1,111813 to 1,296998 | - |
| CT 32 | SR 160 | SR 12 | Brannan Island Rd | F | 1,740 | 530 to 894 | - | 578587 to 975991 | - | 1,658207 to 2,0551,611 | 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 | - | 626666 to 774814 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 34 | SR 84 (Courtland Rd/ Ryer Ave) | Courtland Rd | Cache Slough Ferry | C | 680 | 10 to 25 | - | 1011 to 2528 | - | 10126 to 25143 | - |
| CT 35 | I-80 EB | Suisun Valley Rd | SR 12 | C | 8,350 | 3,079 to 6,994 | - | 3,8804,00 3 to 8,8129,09 2 | 3 (3-6PM) | 4,421493 to 9,353582 | 3 (34 (2-6PM) |
| CT 36 | I-80 WB | Suisun Valley Rd | SR 12 | C | 8,350 | 5,751 to 8,892 | 28 (6- 8AM10AM; 2-6PM) | 7,246476 to 11,20456 0 | 6 (6-9AM; 3-6PM) | 7,787966 to 11,74512.0 50 | 910 (6- 10AM11AM; 1-6PM) |
| CT 37 | SR 12 EB | I-80 | Beck Ave | C | 2,880 | 528 to 1,847 | - | 676697 to 2,364438 | - | 1,217187 to 2,905928 | 2 (5-7PM) |
| CT 38 | SR 12 WB | I-80 | Beck Ave | C | 2,880 | 829 to 1,625 | - | 1,064094 to 2,080145 | - | 1,602584 to 2,621635 | - |
| CT 39 | SR 12 | Beck Ave | Sunset Ave/ Grizzly Island Rd | C | 5,060 | 2,408 to 3,573 | - | 3,046137 to 4,519655 | - | 4,0863,757 to 5,559275 | 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 | - | 2,057121 to 3,012106 | - | 3,0972,741 to 4,0523,726 | - |

| ID | Segment | From | To | LOS Threshold | LOS Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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) | 803828 to 1,376419 | 13 (6AM-7PM) | 1,843448 to 2,416039 | 13 (6AM-7PM) |
| CT 42 | SR 12 | SR 113 | SR 84 (River Rd) | C | 790 | 1,073 to 1,544 | 13 (6AM-7PM) | 1,373416 to 1,9762,038 | 13 (6AM-7PM) | 2,413036 to 3,0162,658 | 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) | 1,453498 to 2,157224 | 13 (6AM-7PM) | 2,493118 to 3,1972,844 | 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) | 845873 to 1,236277 | 13 (6AM-7PM) | 926988 to 1,317392 | 13 (6AM-7PM) |
| CT 45 | SR 12 | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 773 to 1,164 | 12 (6AM-6PM) | 840853 to 1,264284 | 13 (6AM-7PM) | 921968 to 1,345399 | 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) | 3,398418 to 6,031051 | 7 (7-9AM; 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) | 3,853873 to 5,157177 | 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 | - | 1,149189 to 1,921961 | 4 (4-6PM) |
| CT 49 | SR 113 | Dixon City Limits | SR 12 | C | 680 | 174 to 294 | - | 216 to 365 | - | 796836 to 945985 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPPGPP Conditions | | |
|-------|------------------------------------|--------------------|----------------------|---------------|-----------------------------|----------------------------------|--|----------------------------------|--|----------------------------------|--|
| | | | | | 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 50 | SR 4 (Marsh Creek Rd) ² | Vasco Rd | Byron Hwy (Old SR 4) | D | 1,600 | 442 to 733 | - | - | - | - | - |
| | | | | C | 790 | - | - | 548 to 909 | 2 (4-6PM) | 1,128168 to 1,489529 | 13 (6AM-7PM) |
| CT 51 | SR 4 | Marsh Creek Rd | Discovery Bay Blvd | D | 1,600 | 554 to 1,224 | - | 654 to 1,445 | - | 1,234274 to 2,025065 | 11 (8AM-7PM) |
| CT 52 | SR 4 | Discovery Bay Blvd | Tracy Blvd | C | 790 | 412 to 746 | - | 412 to 746 | - | 9921,032 to 1,326366 | 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) | 1,447487 to 2,072112 | 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 | - | 3,781821 to 6,619659 | - |
| 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) | 6,327367 to 8,048088 | 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) | 3,739779 to 6,542582 | 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) | 6,213253 to 7,900940 | 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) | 1,919939 to 6,408428 | 5 (2-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 to 6,188 | 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 to 6,676 | 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 to 5,477 | 3 (6-9AM) |
| CT 62 | I-205 EB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,525 to 4,200 | - | 1,769 to 4,872 | - | 1,833 to 4,936 | - |
| CT 63 | I-205 WB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,852 to 3,079 | - | 2,148 to 3,572 | - | 2,212 to 3,636 | - |
| CT 64 | I-205 EB | Tracy Blvd | MacArthur Dr | D | 5,410 | 1,511 to 4,182 | - | 1,753 to 4,851 | - | 1,817 to 4,915 | - |
| CT 65 | I-205 WB | Tracy Blvd | MacArthur Dr | D | 5,410 | 2,083 to 3,446 | - | 2,416 to 3,997 | - | 2,480 to 4,064 | - |
| ISL 01 | A St/4th St/Jackson Blvd. | SR 160 | Isleton City Limits | D | 1,410 | 17 to 75 | - | 17 to 75 | - | 17 to 75 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPPGPP 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 2,534,571 | - |
| 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 574,610 | - | 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 | - | 8486 to 150,153 | - | 1,002,706 to 1,068,773 | - |

| ID | Segment | From | To | LOS Threshold | LOS Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPPGPP 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 3435 | - | 930632 to 952655 | - |
| SC 04 | Lambert Rd | Herzog Rd | Franklin Blvd | D | 1,410 | 19 to 38 | - | 20 to 40 | - | 938640 to 958660 | - |
| SC 05 | Franklin Blvd | Lambert Rd | Twin Cities Rd | D | 1,410 | 41 to 71 | - | 42 to 7273 | - | 960662 to 990693 | - |
| SC 06 | Twin Cities Rd | River Rd | I-5 | D | 1,410 | 130 to 248 | - | 134138 to 255263 | - | 512543 to 633668 | - |
| SC 07 | Twin Cities Rd | I-5 | Franklin Blvd | D | 1,410 | 141 to 318 | - | 141164 to 318370 | - | 141209 to 318415 | - |
| SC 08 | Sutter Slough Bridge Rd | Sacramento Co./ Yolo Co. Line | Paintersville Bridge | D | 1,410 | 51 to 113 | - | 63 to 140 | - | 643683 to 720760 | - |
| SC 09 | River Rd (Sac Co.) | Paintersville Bridge | Twin Cities Rd | D | 1,410 | 85 to 134 | - | 8587 to 134138 | - | 85132 to 134183 | - |
| SC 10 | River Rd (Sac Co.) | Twin Cities Rd | Walnut Grove Bridge | D | 1,600 | 223 to 365 | - | 230237 to 377388 | - | 608642 to 755793 | - |
| SC 11 | Walnut Grove Rd/ River Rd | Walnut Grove Bridge | Sacramento Co./ SJ Co. Line | D | 1,410 | 175 to 332 | - | 185188 to 351357 | - | 401418 to 567587 | - |
| 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 | - | 61106 to 283328 | - |
| SC 13 | Race Track Rd/ Tyler Island Rd | Walnut Grove Rd | Southern End of Tyler Island | D | 1,410 | 17 to 34 | - | 1718 to 3436 | - | 1763 to 3481 | - |
| SC 14 | Tyler Island Rd | Southern End of Tyler Island | SR 160 (River Rd) | D | 1,410 | 14 to 39 | - | 14 to 39 | - | 1459 to 3984 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 15 | Jackson Slough Rd | Isleton City Limits | SR 12 | D | 1,410 | 4 to 53 | - | 45 to 5366 | - | 450 to 53111 | - |
| SC 16 | Jackson Slough Rd | Brannan Island Rd | SR 12 | D | 1,410 | 16 to 52 | - | 1620 to 5264 | - | 1665 to 52109 | - |
| SJ 01 | Walnut Grove Rd | Sacramento Co./SJ Co. Line | I-5 | C | 790 | 141 to 232 | - | 149152 to 245250 | - | 365382 to 461480 | - |
| SJ 02 | Peltier Rd | Blossom Rd | I-5 | C | 680 | 8 to 23 | - | 8 to 23 | - | 853 to 2368 | - |
| SJ 03 | Tracy Blvd | SR 4 | Clifton Court Rd | C | 790 | 108 to 209 | - | 108 to 209 | - | 460483 to 561584 | - |
| SJ 04 | Tracy Blvd | Clifton Court Rd | Tracy City Limits | C | 790 | 69 to 171 | - | 8486 to 209212 | - | 436461 to 561587 | - |
| SJ 05 | Byron Hwy | Alameda Co./San Joaquin Co. Line | Mountain House Pkwy | D | 1,600 | 521 to 824 | - | 646 to 1,022 | - | 1,226266 to 1,602642 | 14 (7-8AM; 3-6PM) |
| SJ 06 | Mountain House Pkwy | Byron Hwy | Arnaudo Blvd | D | 1,410 | 190 to 298 | - | 236 to 370 | - | 816856 to 950990 | - |
| SJ 07 | Mountain House Pkwy | Arnaudo Blvd | I-205 | D | 3,540 | 418 to 769 | - | 543 to 1,000 | - | 1,123163 to 1,580620 | - |
| STK 01 | Eight Mile Rd | Stockton City Limits | I-5 | E | 1,870 | 309 to 769 | - | 309383 to 769954 | - | 309428 to 769999 | - |
| TRA 01 | Tracy Blvd | Tracy City Limits | I-205 | E | 1,870 | 309 to 759 | - | 377383 to 926941 | - | 729758 to 1,278316 | - |
| WS 01 | Harbor Blvd | Industrial Blvd | US 50 | D | 3,540 | 1,140 to 2,317 | - | 1,374 to 2,793 | - | 1,954994 to 3,373413 | - |

| ID | Segment | From | To | LOS Threshold | LOS Hourly Volume Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP 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 to 2,884 | 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 to 2,674 | 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 to 754 | 6 (7-9AM; 2-6PM) 12 (7AM-7PM) |
| YOL 01 | River Rd (Yolo Co.) | Freeport Bridge | Courtland Rd | C | 680 | 74 to 249 | - | 7479 to 249265 | - | 74124 to 249310 | - |
| YOL 02 | River Rd (Yolo Co.) | Courtland Rd | Sacramento Co./ Yolo Co. Line | C | 680 | 25 to 63 | - | 31 to 78 | - | 614651 to 658698 | -2 (8-9AM; 5-6PM) |
| YOL 03 | Courtland Rd | SR 84 (Jefferson Blvd) | River Rd | C | 680 | 28 to 77 | - | 35 to 95 | - | 615655 to 675715 | -4 (7-8AM; 3-6PM) |

| ID | Segment | From | To | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | | |
|----|---------|------|----|---------------------|---------------|--|--------------------|--------------------|--------------------|--------------------|
| | | | | LOS | Hourly Volume | Hours Operating | Hourly Volume | Hours Operating | Hourly Volume | Hours Operating |
| | | | | Threshold | Threshold | Range (6AM to 7PM) | Range (6AM to 7PM) | Range (6AM to 7PM) | Range (6AM to 7PM) | Range (6AM to 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:

- 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
 2 roadways that would exceed acceptable LOS threshold (Table 19-257). As shown in Table 19-25,
 3 traffic volumes during construction of Alternative 4 would temporarily exacerbate already
 4 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
 5 time of project construction. This impact would be temporary, but significant. Mitigation Measures
 6 TRANS-1a through TRANS-1c would reduce the severity of this impact through development of TMPs
 7 that would minimize traffic impacts, limiting construction activities during commute hours and by
 8 working with affected state, regional, or local agencies to alleviate road congestion issues; but not to
 9 less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully
 10 funded or constructed prior to the project's contribution to the impact. If an improvement identified in
 11 the mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
 12 constructed before the project's contribution to the impact is made, a significant impact in the form of
 13 unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
 14 however, all improvements required to avoid significant impacts prove to be feasible and any
 15 necessary agreements are completed before the project's contribution to the effect is made, impacts
 16 would be less than significant.

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

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

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

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

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

- 1 out” or “no wake zone” labeled buoys) will be in compliance with the U.S. Coast Guard Private
2 Aid to Navigation requirements (U.S. Coast Guard 2012) and effective during non-daylight
3 hours and periods of dense fog.
- 4 ● Use of flag people or temporary traffic signals/signage as necessary to slow or detour traffic.
 - 5 ● Notifications for the public, emergency providers, cycling organizations, bike shops, and
6 schools, the U.S. Coast Guard, boating organizations, marinas, city and county parks
7 departments, and DPR, where applicable, describing construction activities that could affect
8 transportation and water navigation.
 - 9 ● Outreach (via public meetings and/or flyers and other advertisements)
 - 10 ● Procedures for construction area evacuation in the case of an emergency declared by county
11 or other local authorities.
 - 12 ● Alternate access routes via detours and bridges to maintain continual circulation for local
13 travelers in and around construction zones, including bicycle riders, pedestrians, and boaters,
14 where applicable.
 - 15 ● Description of construction staging areas, material delivery routes, and specification of
16 construction vehicle travel hour limits.
 - 17 ● Notifications to commercial and leisure boating community of proposed barge operations in
18 the waterways, including posting notices at Delta marinas and public launch ramps. This
19 information will provide details regarding construction site location(s), construction
20 schedules, and identification of no-wake zone, speed restricted zones, and/or detours, where
21 applicable.
 - 22 ● No-wake zone and speed-restrictions will be established as part of development of the site-
23 specific plans and will be determined to protect the safety of construction workers and
24 recreationists.
 - 25 ● Designation of areas where nighttime construction will occur.
 - 26 ● Plans to relocate school bus drop-off and pick-up locations if they will be affected during
27 construction.
 - 28 ● Scheduling for oversized material deliveries to the work site and haul routes.
 - 29 ● Provisions that direct haulers are to pull over in the event of an emergency. If an emergency
30 vehicle is approaching on a narrow two-way roadway, specify measures to ensure that
31 appropriate maneuvers will be conducted by the construction vehicles to allow continual
32 access for the emergency vehicles at the time of an emergency.
 - 33 ● Control for any temporary road closure, detour, or other disruption to traffic circulation,
34 including any temporary partial water channel closures.
 - 35 ● Designated offsite vehicle staging and parking areas.
 - 36 ● Posted information for contact in case of emergency or complaint.
 - 37 ● Daily construction time windows during which construction is restricted or rail operations
38 would need to be suspended for any activity within railroad rights of way.

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

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

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

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

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

28 **Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on** 29 **Congested Roadway Segments**

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

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

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

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

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

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

- 28 1) Construction of improvements, which may be subject to fee credits and/or
 29 reimbursement, coordinated by the affected agency, from other fee-paying development
 30 projects if available with respect to improvements that would also benefit such fee-paying
 31 development projects;
- 32 2) The payment of impact fees to the affected agency in amounts that constitute the BDCP
 33 proponents’ fair share contributions to the construction of the required improvements,
 34 consistent with the affected agency’s Capital Improvement Program (“CIP”) or other
 35 funding program that meets the definition of a “reasonable plan for mitigation” under
 36 CEQA case law (i.e., a plan that ensures that (i) the fees collected from the BDCP
 37 proponents will be used for their intended purposes, and (ii) the improvements will
 38 actually be built within a reasonable period of time);
- 39 3) The payment of adopted regional impact fees that would provide funding for
 40 transportation facilities that are affected by multiple agencies, except where the BDCP
 41 proponents’ payments of other fees or construction of improvements within the affected
 42 agency will create credit against the payment of regional impact fees;

- 1 4) The payment of impact fees to the affected agency in amounts that constitute the BDCP
 2 proponents' fair share contributions to the construction of improvements within other
 3 agencies and not the affected agency, which payments to the affected agency and
 4 transmittal of fees to other agency would occur through one or more enforceable
 5 agreements, provided that for each required improvement there is a reasonable plan for
 6 mitigation that ensures that (i) the fees collected from the BDCP proponents will be used
 7 for their intended purposes, and (ii) the improvements will actually be built within a
 8 reasonable period of time; and/or
- 9 5) The payment of impact fees to the California Department of Transportation ("Caltrans") in
 10 amounts that constitute the BDCP proponents' fair share contributions to the construction
 11 of improvements on federal or state highways or freeways needed in part because of the
 12 BDCP, to be made available to Caltrans if and when Caltrans, DWR, and any other the
 13 affected agency enter into an enforceable agreement consistent with state law, provided
 14 that, for each required improvement, Caltrans has a reasonable mitigation plan that
 15 ensures that (i) the fees collected from the BDCP proponents will be used for their
 16 intended purposes, and (ii) the improvements will actually be built within a reasonable
 17 period of time.

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

27 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 28 **Conditions**

29 **NEPA Effects:** As shown in Table 19-26, construction of Alternative 4 would contribute to further
 30 deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable
 31 threshold (~~see~~ Table 19-7), on a total of ~~42~~ **46** roadway segments. Damage to roadway pavement is
 32 expected throughout the study area (Figure 19-4b) on various local and state roads, as well as on a
 33 few interstates.
 34

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

| Segment ID* | Roadway | From | To | Baseline Year 2009 Conditions | BPGPP 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 | BPGPP 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 | BPGPP Conditions | |
|--------------|---------------------------|--|-----------------------------------|-------------------------------|--|--|
| | | | | | Alternative Results in Construction Trips Added to Roadway | 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 | BPGPP Conditions | |
|---------------|--------------------------------|--------------------------------------|--------------------------------------|-------------------------------|--|--|
| | | | | | Alternative Results in Construction Trips Added to Roadway | 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 | BPGPP Conditions | |
|---------------|---|---|---|-------------------------------|--|--|
| | | | | | Alternative Results in Construction Trips Added to Roadway | 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 | BPGPP Conditions | |
|---------------|----------------------------|-------------------------------|-------------------------------------|-------------------------------|--|--|
| | | | | | Alternative Results in Construction Trips Added to Roadway | 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.

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

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

23 **Mitigation Measure TRANS-2a: Prohibit Construction Activity on Physically Deficient** 24 **Roadway Segments**

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

30 **Mitigation Measure TRANS-2b: Limit Construction Activity on Physically Deficient** 31 **Roadway Segments**

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

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

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

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

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

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

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

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

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

1 As discussed above and in Chapter 22, *Air Quality and Greenhouse Gases*, construction of Alternative
 2 4 would increase the amount of trucks using the transportation system in the study area. The effects
 3 under Alternative 4 would be similar to those described for Alternative 1A. However, Alternative 4
 4 would require temporary realignment of Byron Highway/South Pacific Railroad during construction
 5 of the siphon connecting the new approach canal and Jones PP approach canal. Minor delays and
 6 congestion created by rerouted traffic could interfere with emergency service response times in the
 7 vicinity of Bryon Highway.

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

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

33 **Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation** 34 **Agreements to Enhance Capacity of Congested Roadway Segments**

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

36 **Impact TRANS-4: Disruption of Marine Traffic during Construction**

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

- 42 ● SR 160 west of Walnut Grove Sacramento River northeast of Walnut Grove

- 1 • ~~Venice Island~~Snodgrass Slough near Intermediate Forebay
- 2 • ~~Bacon Island~~Little Potato Slough on Bouldin Island
- 3 • ~~Woodward Island~~San Joaquin River on Venice Island
- 4 • ~~Victoria Island~~Middle River on Mandeville Island
- 5 • ~~Tyler Island~~Connection Slough on Bacon Island
- 6 • Old River on Victoria Island
- 7 • West Canal at Clifton Court Forebay

8 Approximately ~~113~~,000 barge trips are projected to carry construction materials from ports to the
 9 sites listed above via the Sacramento River under Alternative ~~1A4~~, averaging approximately ~~81~~ trips
 10 per day during construction of CM1 through a 9-year-long construction period for up to 5 years. It is
 11 likely that under Alternative 4, the estimated number of trips and amount of in-water work would
 12 be less than under Alternative 1A because of the reduction in the number of intakes to be
 13 constructed. Although barges are relatively slow and have less maneuverability than smaller vessels,
 14 commercial barge operators on the Sacramento River are required to operate in compliance with
 15 navigational guidelines. The majority of commercial barge activity in the Delta travels from the San
 16 Francisco Bay to the Sacramento area via the SRDWSC (Delta Protection Commission 2012).

17 Alternative 4 would avoid direct effects on this barge traffic because the alternative features would
 18 be located along the Sacramento River (not the Deep Water Channel) and no modifications to the
 19 Deep Water Channel would be required. The barge unloading facility by Venice Island would not be
 20 expected to interfere with navigation to the Port of Stockton because it would be outside the main
 21 channel and would be designed to facilitate barge operations. The barge unloading facilities would
 22 be temporary and removed following construction. Increased barge traffic related to delivery of
 23 materials to the alternative work site would average less than 1 barge trip per day over the 9-year-
 24 long construction period up to 8 trips per day for up to 5 years and is not anticipated to cause
 25 impediments to the passage of other vessels. There is 135 feet of open air clearance at the Antioch
 26 UPRR bridge and 144 feet at the Rio Vista bridge, and additional raising of draw bridges in the study
 27 area would not be required.

28 Although some in-water work would be necessary for intake construction, the Sacramento River
 29 would remain open to boat traffic at all times during construction. The intake cofferdams would
 30 extend into the river channel up to ~~120-60~~ feet, depending on location. The width of the river near
 31 the intakes (approximately 500–700 feet) would therefore allow for passage of the types of boats
 32 typically observed on the Sacramento River (channel width during construction 380–580 feet).
 33 (Refer to Chapter 15, *Recreation*, for additional discussion of the effects of intake construction on
 34 boating.). This potential effect is not considered adverse because construction of Alternative 4
 35 would not require modification to existing deep water channels, interfere with Port of Stockton
 36 navigation, or substantially increase the volume of barge movement within the study area, such that
 37 existing marine traffic would be disrupted (on average, less than 1 additional barge trip per day is
 38 expected through the 9-year construction period, 8 trips per day for up to 5 years throughout the
 39 alignment). As noted in Chapter 15, *Recreation*, Impact REC-3, temporary barge unloading facilities
 40 would occupy between ~~2800~~ to ~~12,000~~ feet of riverbank, depending on the location. Based on the
 41 river channel width, all barge facilities except the San Joaquin River facility could occupy substantial
 42 portions of the waterway. However, all barge routes and landing sites will be selected to maximize
 43 continuous waterway access and a minimum waterway width greater than 100 feet. Moreover,

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

4 ***CEQA Conclusion:*** ~~Disruption of Marine Traffic during Construction could result in significant~~
 5 ~~impacts.~~ Construction of Alternative 4 would not require modification to existing deep water
 6 channels, interfere with Port of Stockton navigation, or substantially increase the volume of barge
 7 movement within the study area such that existing marine traffic would be disrupted (~~on average,~~
 8 ~~only 1 additional barge trip per day is expected through the 9-year construction period~~ ~~8 trips per~~
 9 ~~day for up to 5 years~~). ~~Therefore, this impact would be less-than-significant.~~ Moreover, Mitigation
 10 Measure TRANS-1a would reduce any potential disruptions as it includes stipulations to notify the
 11 commercial and leisure boating community of proposed barge operations in the waterways.
 12 Accordingly, the impact of disruption to marine traffic during construction would be less than
 13 significant with implementation of Mitigation Measure TRANS-1a. No additional mitigation is
 14 required.

15 **Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management** 16 **Plan**

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

18 **Impact TRANS-5: Disruption of Rail Traffic during Construction**

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

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

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

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

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

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

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

11 **Impact TRANS-6: Disruption of Transit Service during Construction**

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

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

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

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

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

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

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

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

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

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

18 **Impact TRANS-7: Interference with Bicycle Routes during Construction**

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

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

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

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

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

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

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

20 The effect of maintaining and operating the facilities on roadway operations under Alternative 4
 21 would be the same as under Alternative 1A (see Tables 19-14, 19-15, and 19-16), but slightly less in
 22 magnitude because only three intakes would be operated and maintained and correspondingly
 23 fewer employee trips would be anticipated. Like Alternative 1A, O&M activities would occur along
 24 the entire alternative alignment. Even assuming the **highest total employment range figure** in Table
 25 19-16, given the limited number of workers involved and the large number of work sites, it is not
 26 anticipated that routine operations and maintenance activities or major inspections would result in
 27 substantial increases of traffic volumes or roadway congestion. The impact of increased traffic
 28 volumes and delays during project operations would not be adverse.

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

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

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

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

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

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

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

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

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

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

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

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

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

- 13 ● Yolo Bypass Fishery Enhancement (CM2)

- 14 ○ Installing fish ladders and experimental ramps at Fremont Weir or widening the existing
15 fish ladder.
- 16 ○ Installing fish screens on small Yolo Bypass diversions.
- 17 ○ Constructing new or replacement operable check-structures at Tule Canal/Toe Drain.
- 18 ○ Replacing the Lisbon Weir with a fish-passable gate structure.
- 19 ○ Realigning Lower Putah Creek.
- 20 ○ Increasing operation of upstream unscreened pumps.
- 21 ○ Installing operable gates at Fremont Weir.
- 22 ○ Constructing physical barriers in the Sacramento River.
- 23 ○ Constructing associated support facilities (operations buildings, parking lots, access
24 facilities such as roads and bridges).
- 25 ○ Improving levees adjacent to the Fremont Weir Wildlife Area.
- 26 ○ Replacing agricultural crossings of the Tule Canal/Toe Drain with fish-passable structures
27 such as flat car bridges, earthen crossings with large, open culverts.
- 28 ○ Grading, removal of existing berms, levees, and water control structures, construction of
29 berms or levees, re-working of agricultural delivery channels, and earthwork or
30 construction of structures to reduce Tule Canal/Toe Drain channel capacities.

- 31 ● Tidal Habitat Restoration (CM4)

- 32 ○ Breaching and lowering levees, installing new or modified levees to protect adjacent areas
33 from flooding.
- 34 ○ Connecting remnant sloughs or channels to improve circulation.
- 35 ○ Modifying ground elevations to reduce impacts of subsidence to restore freshwater tidal
36 habitat in the Cache Slough, Cosumnes/Mokelumne, West Delta, South Delta, and Suisun
37 Marsh ROAs.

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

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

- 27 ● Interstate 680
- 28 ● State Route 12
- 29 ● Chadbourne Road
- 30 ● Ramsey Road
- 31 ● Jacksnipe Road
- 32 ● Collinsville Road
- 33 ● Grizzly Island Road
- 34 ● Gum Tree Road
- 35 ● Van Sickle Road
- 36 ● Joyce Island Road

- 1 • Branscombe Road
- 2 • Potrero Hills Lane
- 3 • Scally Road
- 4 • Shiloh Road
- 5 • Little Honker Bay Road

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

18 With respect to Alternative 4, operation of Intakes 2, 3 and 5 may have localized effects on water
19 surface elevation during certain operational regimes and at various river flows. While intake
20 operations and pumping levels are dictated by many factors, Sacramento River diversions are
21 limited during low flows by operational rules. The nature and extent of impacts caused by
22 diversions at an intake are dependent in large part on the location of the intake on the river. To
23 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
24 and were placed so that river flood and flow characteristic will be minimally altered. Based on
25 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
26 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
27 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
28 River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-
29 2602 (September 30, 1995) pages 3-8. This river depth has occurred historically and has been
30 adequate to support navigation along the Sacramento River. Additionally, under these same intake
31 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
32 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
33 be affected less, and during higher river flow and lower intake diversions, river depths would be
34 greater than the minimum estimate.

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

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

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

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

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

12 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 13 **Construction of Intakes**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

38 **NEPA Effects:** No effect.

39 **CEQA Conclusion:** No impact.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

37 As explained above and with respect to the construction and operation of these facilities, Alternative
38 4 would not result in an adverse effects to navigation due to water level elevation changes or altered
39 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
40 the project to result in cumulative effects on navigation. This is because the minimal effects of these
41 elements of the project on navigation are localized and would combine only with probable future
42 elements of the project on navigation are localized and would combine only with probable future
43 elements of the project on navigation are localized and would combine only with probable future

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

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

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

11 **19.3.3.10 Alternative 5—Dual Conveyance with Pipeline/Tunnel and Intake 1** 12 **(3,000 cfs; Operational Scenario C)**

13 **Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS** 14 **Conditions**

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

20 As shown in Table 19-8, under BPBG conditions, a total of ~~2523~~ roadway segments would exceed
 21 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8,
 22 construction associated with Alternative 5 would cause LOS thresholds to be exceeded for at least
 23 one hour during the 6 AM to 7 PM analysis period on a total of ~~4733~~ roadway segments under
 24 BPBGPP conditions (~~see~~-entries in **bold** type). Alternative 5 would therefore temporarily exacerbate
 25 an already unacceptable LOS under BPBG conditions on ~~2210~~ roadway segments (~~3473~~ minus the
 26 ~~2523~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a
 27 shows the study roadway segments that could experience substantial roadway operation impacts).

28 The decrease in LOS below applicable thresholds during construction would be adverse at the
 29 locations identified in Table 19-8 because construction associated with Alternative 5 would cause
 30 LOS thresholds (~~see~~-Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
 31 analysis period. Alternative 5 would also temporarily exacerbate an already unacceptable LOS under
 32 BPBG conditions at ~~2210~~ roadway segments (~~4733~~ minus the ~~2523~~ that would already be operating
 33 at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur
 34 throughout the study area, the highest concentration of roadway segments below applicable LOS
 35 threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be
 36 exceeded on several local roadways, include all segments studied in West Sacramento.

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

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

7 **CEQA Conclusion:** Construction under Alternative 5 would add hourly traffic volumes to study area
 8 roadways that would exceed acceptable LOS threshold (Table 19-8). As shown in Table 19-8, traffic
 9 volumes during construction of Alternative 5 would **temporarily** exacerbate already unacceptable
 10 LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period **during the time of**
 11 **project construction. This impact would be temporary, but significant.** Mitigation Measures TRANS-
 12 1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant
 13 levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
 14 constructed prior to the project's contribution to the impact. If an improvement that is identified in
 15 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
 16 constructed before the project's contribution to the impact is made, a significant impact in the form
 17 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
 18 however, all improvements required to avoid significant impacts prove to be feasible and any
 19 necessary agreements are completed before the project's contribution to the effect is made, impacts
 20 would be less than significant.

21 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 22 **Conditions**

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

28 As shown in Table 19-10, construction of Alternative 5 would contribute to further deterioration of
 29 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (see
 30 Table 19-7), on a total of **4643** roadway segments. Damage to roadway pavement is expected
 31 throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few
 32 interstates. The effect of roadway damage to these segments during construction would be adverse.
 33 Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not
 34 necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the
 35 agreements or encroachment permits will be obtained from the relevant transportation agencies. If
 36 an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient
 37 pavement conditions would occur. Accordingly, this effect could remain adverse. If, however,
 38 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
 39 of pavement are obtained and any other necessary agreements are completed, adverse effects could
 40 be avoided.

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

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

11 Alternative 5 includes the construction of one fish-screened intake (Intake 1) on the bank of the
12 Sacramento River. Construction for Intake 1 would be accomplished using coffer dams at each
13 location. Coffers dams will isolate each construction area from the Sacramento River and will be used
14 to de-water the construction area. Intakes and screens have been designed and located on-bank to
15 minimize changes to river flow characteristics. Nevertheless, some localized water elevation
16 changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility
17 location within the river. These localized surface elevation changes will not exceed an increase of
18 0.10 feet at any intake location even at high river flows (when surface elevation changes would be
19 expected to be highest). This represents the highest surface upstream elevation increase after coffer
20 dam removal and during intake operation. Because this maximum increase in elevation is entirely
21 localized, downstream surface elevation changes during intake construction would be insignificant
22 and changes to river depth and width at any location will be insignificant. As a result, boat passage
23 and river use, including Sacramento River tributaries, will not be affected.

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

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

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

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

3 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 4 **by Operation of Intakes**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6 **NEPA Effects:** No effect.

7 **CEQA Conclusion:** No impact.

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

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

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

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

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

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

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

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

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

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

5 NEPA Effects: No effect.

6 CEQA Conclusion: No Impact.

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

9 As explained above and with respect to the construction and operation of these facilities, Alternative
 10 5 would not result in an adverse effects to navigation due to water level elevation changes or altered
 11 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
 12 the project to result in cumulative effects on navigation. This is because the minimal effects of these
 13 elements of the project on navigation are localized and would combine only with probable future
 14 projects if the projects were located immediately adjacent to the project components. There are no
 15 other reasonably foreseeable projects proposed to be located near or adjacent to the planned
 16 Alternative 5 facilities.

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

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

24 **19.3.3.11 Alternative 6A—Isolated Conveyance with Pipeline/Tunnel and**
 25 **Intakes 1–5 (15,000 cfs; Operational Scenario D)**

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

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

32 As shown in Table 19-8, under BPBG conditions, a total of ~~2523~~ roadway segments would exceed
 33 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8,
 34 construction associated with Alternative 6A would cause LOS thresholds to be exceeded for at least
 35 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~4733~~ roadway segments under
 36 BPBGPP conditions (*see* entries in **bold** type). Alternative 6A would therefore *temporarily*
 37 exacerbate an already unacceptable LOS under BPBG conditions on ~~2210~~ roadway segments (~~4733~~
 38 minus the ~~2223~~ that would already be operating at an unacceptable LOS under BPBG conditions).
 39 Figure 19-3a shows the study roadway segments that could experience substantial roadway
 40 operation impacts.

1 The decrease in LOS below applicable thresholds during construction would be adverse at the
 2 locations identified in Table 19-8 because construction associated with Alternative 6A would cause
 3 LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
 4 analysis period. Alternative 6A would also temporarily exacerbate an already unacceptable LOS
 5 under BPBG conditions at ~~2210~~ roadway segments (~~4733~~ minus the ~~2523~~ that would already be
 6 operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will
 7 occur throughout the study area, the highest concentration of roadway segments below applicable
 8 LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also
 9 be exceeded on several local roadways, include all segments studied in West Sacramento.

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

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

36 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 37 **Conditions**

38 **NEPA Effects:** Construction truck traffic may damage roadway surfaces. During construction,
 39 various materials would be transported to and from the construction areas in load-bearing trucks.
 40 As shown in Table 19-10, construction of Alternative 6A would contribute to further deterioration of
 41 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~
 42 Table 19-7), on a total of ~~4643~~ roadway segments. Damage to roadway pavement is expected
 43 throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few
 44 interstates. The effect of roadway damage to these segments during construction would be adverse.
 45 Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not

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

8 **CEQA Conclusion:** Construction would add trips, exacerbating unacceptable pavement conditions to
9 below acceptable thresholds (Table 19-7) at the ~~4643~~ locations shown in Table 19-10. The impact of
10 roadway damage during construction would be potentially significant. Mitigation Measures TRANS-
11 2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-
12 significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment
13 permits will be obtained from the relevant transportation agencies. If an agreement or
14 encroachment permit is not obtained, a significant impact in the form of deficient pavement
15 conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however,
16 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
17 of pavement are obtained and any other necessary agreements are completed, impacts would be
18 reduced to less than significant.

19 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 20 **Caused by Construction of Water Conveyance Facilities**

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

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

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

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

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

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

21 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 22 **by Operation of Intakes**

23 The potential impacts on navigation caused by changes in surface water elevation during operation
24 of the proposed intakes under Alternative 6A would be identical to those described for Alternative 4,
25 despite the fact that Alternative 6A includes five intakes (two more than Alternative 4) and despite
26 the fact that Alternative 6A has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for
27 Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes
28 because that is the maximum number of intakes included under any alternative. The modeling also
29 assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

30 Unlike Alternative 4, this Alternative would be an *isolated conveyance*, no longer involving operation
31 of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
32 Facility on Old River. The proposed water operations under Alternative 6A would discontinue use of
33 the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
34 Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta
35 intakes would be the same as Alternative 1A, and the difference in conveyance does not change the
36 analysis of the intakes.

37 With respect to Alternative 6A, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
38 water surface elevation during certain operational regimes and at various river flows. While intake
39 operations and pumping levels are dictated by many factors, Sacramento River diversions are
40 limited during low flows by operational rules. The nature and extent of impacts caused by
41 diversions at an intake are dependent in large part on the location of the intake on the river. To
42 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
43 and were placed so that river flood and flow characteristic will be minimally altered. Based on
44 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal

1 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
2 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
3 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
4 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
5 adequate to support navigation along the Sacramento River. Additionally, under these same intake
6 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
7 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
8 be affected less, and during higher river flow and lower intake diversions, river depths would be
9 greater than the minimum estimate.

10 The minimal changes in surface water elevation anticipated under Alternative 6A, even assuming a
11 maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-
12 made features that would affect or impede navigation and there would be no new snags or
13 obstructions that would impede navigation.

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

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

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

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

30 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 31 **Construction of Intakes**

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

37 Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake
38 location. Coffers dams will isolate each construction area from the Sacramento River and will be used
39 to de-water the construction area. Construction of coffer dams would require sheet pile driving that
40 would result in incremental suspension of bed sediments. These effects would be temporary and
41 would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely
42 change eddy currents locally, but rock slope in the transition zone would limit those currents and

1 potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento
2 River during intake construction would be minimal.

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

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

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

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

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

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

26 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 27 **Construction of Barge Facilities**

28 The potential impacts on navigation caused by sedimentation under Alternative 6A would be similar
29 to those described for Alternative 4. Although Alternative 6A includes a greater number of barge
30 fleeting facilities due to the higher number of intakes, the effects to sedimentation caused by
31 construction of the facilities is highly localized, and therefore, the greater number of barge facilities
32 would not result in a greater level of impacts on navigation.

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

1 To address potential erosion and sedimentation impacts from barge facility construction associated
 2 with Alternative 6A, the project proponents will ensure that a Barge Operations Plan is developed
 3 and implemented for facility construction. The requirements for the Barge Operations Plan are
 4 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
 5 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
 6 submitted by the construction contractors per standard DWR contract specifications. Erosion
 7 control measures during construction activities at project locations are provided in Appendix 3B,
 8 *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will
 9 be either docking facilities built through pile and wharves or loaded and unloaded using landward
 10 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on
 11 sedimentation through construction related activities will be localized and minimal.

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

14 **NEPA Effects:** Construction and operation of the barge facilities under Alternative 6A would not
 15 have an adverse effect on navigation.

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

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

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

23 **Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From** 24 **Construction of Clifton Court Forebay**

25 Alternative 6A would not involve expansion or modifications to Clifton Court Forebay. Moreover,
 26 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
 27 operations and is not open to commercial or recreational navigation.

28 **NEPA Effects:** No effect.

29 **CEQA Conclusion:** No impact.

30 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 31 **of Intakes**

32 The potential impacts on navigation caused by sedimentation under Alternative 6A would be similar
 33 to those described for Alternative 4. Although Alternative 6A includes two additional intakes
 34 (Alternative 6A includes five intakes compared to three for Alternative 4), the effects to
 35 sedimentation during operation of the proposed intakes under Alternative 6A would be similar to
 36 those described for Alternative 4 for the reasons described below.

37 Sediment loads are present in the Sacramento River as bed loads or distributed within the water
 38 column. The Sacramento River is sediment “starved” for most of the year since upstream reservoirs
 39 act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the

1 river bed and this bed load depends on several factors including particle size, particle density and
2 flow velocity. To exclude bed loads from entering intake structures during operation, design criteria
3 for the intakes require that the lowest point of the screen is placed above the river bed in such a way
4 that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations
5 for this alternative are placed on the outer bends of the river to minimize scour, erosion and
6 sediment loading at those locations. Flow control baffles at intakes would be adjusted to control
7 sedimentation near the screens as needed and air jets at screens are proposed to re-suspend
8 sediments as needed.

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

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

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

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

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

22 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head** 23 **of Old River Barrier**

24 Operable barriers would not be constructed under Alternative 6A. An operable barrier at the Head
25 of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A
26 only.

27 **NEPA Effects:** No effect.

28 **CEQA Conclusion:** No Impact.

29 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 30 **Operations of Water Conveyance Facilities**

31 As explained above and with respect to the construction and operation of these facilities, Alternative
32 6A would not result in an adverse effects to navigation due to water level elevation changes or
33 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
34 impacts of the project to result in cumulative effects on navigation. This is because the minimal
35 effects of these elements of the project on navigation are localized and would combine only with
36 probable future projects if the projects were located immediately adjacent to the project
37 components. There are no other reasonably foreseeable projects proposed to be located near or
38 adjacent to the planned Alternative 6A facilities.

1 NEPA Effects: Alternative 6A in combination with other reasonably foreseeable projects would not
2 have a cumulatively adverse effect on navigation.

3 CEQA Conclusion: Because it does not involve a physical change in the environment, effects to
4 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
5 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
6 explained above, Alternative 6A in combination with other reasonably foreseeable projects would
7 not have a cumulatively significant impact on navigation.

8 **19.3.3.12 Alternative 6B—Isolated Conveyance with East Alignment and** 9 **Intakes 1–5 (15,000 cfs; Operational Scenario D)**

10 **Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS** 11 **Conditions**

12 *NEPA Effects:* The estimate of the number of vehicles generated by construction activities for
13 Alternative 6B would be similar to Alternative 1B (assuming that discontinuing the use of the SWP
14 and CVP south Delta export facilities would not generate any significant traffic or close off existing
15 roadways).

16 As shown in Table 19-17, under BPBG conditions, a total of ~~2019~~ roadway segments would exceed
17 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-17,
18 construction associated with Alternative 6B would cause LOS thresholds to be exceeded for at least
19 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~4839~~ roadway segments under
20 BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 6B would therefore temporarily
21 exacerbate an already unacceptable LOS under BPBG conditions on ~~2820~~ roadway segments (~~4839~~
22 minus the ~~2019~~ that would already be operating at an unacceptable LOS under BPBG conditions).
23 Figure 19-3a shows the study roadway segments that could experience substantial roadway
24 operation effects.

25 The decrease in LOS below applicable thresholds during construction would be adverse at the
26 locations identified in Table 19-17 because construction associated with Alternative 2B would cause
27 LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
28 analysis period. Alternative 6B would also temporarily exacerbate an already unacceptable LOS
29 under BPBG conditions at ~~2820~~ roadway segments (~~3489~~ minus the ~~2019~~ that would already be
30 operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will
31 occur throughout the study area, the highest concentration of roadway segments below applicable
32 LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also
33 be exceeded on several local roadways.

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

1 LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to
2 avoid adverse effects prove to be feasible and any necessary agreements are completed before the
3 project's contribution to the effect is made, effects would not be adverse.

4 **CEQA Conclusion:** Construction under Alternative 6B would add hourly traffic volumes to study
5 area roadways that would exceed acceptable LOS threshold (Table 19-177). As shown in Table 19-
6 17, traffic volumes during construction of Alternative 2B would temporarily exacerbate already
7 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
8 time of project construction. This impact would be temporary, but significant. Mitigation Measures
9 TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-
10 significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
11 constructed prior to the project's contribution to the impact. If an improvement that is identified in
12 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
13 constructed before the project's contribution to the impact is made, a significant impact in the form
14 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
15 however, all improvements required to avoid significant impacts prove to be feasible and any
16 necessary agreements are completed before the project's contribution to the effect is made, impacts
17 would be less than significant.

18 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 19 **Caused by Construction of Water Conveyance Facilities**

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

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

40 As explained in Chapter 6, Surface Water, construction of facilities within or adjacent to waterways
41 could change surface water elevations or runoff characteristics. In total, construction under
42 Alternative 6B would not result in a substantial decrease in surface water elevations on any
43 navigable waterways and therefore would not have an adverse effect on navigation. Although the
44 increase in surface water elevations in rivers and streams under Alternative 6B creates a potential

1 impact regarding flooding (which is considered less-than-significant with implementation of
2 Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse
3 effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to
4 surface water under Alternative 6B.

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

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

19 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 20 **by Operation of Intakes**

21 The potential impacts on navigation caused by changes in surface water elevation during operation
22 of the proposed intakes under Alternative 6B would be identical to those described for Alternative 4,
23 despite the fact that Alternative 6B includes five intakes (two more than Alternative 4) and despite
24 the fact that Alternative 6B has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for
25 Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes
26 because that is the maximum number of intakes included under any alternative. The modeling also
27 assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

28 Unlike Alternative 4, this would be an *isolated conveyance*, no longer involving operation of the
29 existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
30 Facility on Old River. The proposed water operations under Alternative 6B would discontinue use of
31 the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
32 Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta
33 intakes would be the same as Alternative 1A, and the difference in conveyance does not change the
34 analysis of the intakes.

35 With respect to Alternative 6B, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
36 water surface elevation during certain operational regimes and at various river flows. While intake
37 operations and pumping levels are dictated by many factors, Sacramento River diversions are
38 limited during low flows by operational rules. The nature and extent of impacts caused by
39 diversions at an intake are dependent in large part on the location of the intake on the river. To
40 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
41 and were placed so that river flood and flow characteristic will be minimally altered. Based on
42 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
43 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
44 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento

1 River. (Planning and Design of Navigation Locks United States Army Corps of Engineers, EM 1110-2-
2 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
3 adequate to support navigation along the Sacramento River. Additionally, under these same intake
4 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
5 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
6 be affected less, and during higher river flow and lower intake diversions, river depths would be
7 greater than the minimum estimate.

8 The minimal changes in surface water elevation anticipated under Alternative 6B, even assuming a
9 maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-
10 made features that would affect or impede navigation and there would be no new snags or
11 obstructions that would impede navigation.

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

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

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

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

28 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 29 **Construction of Intakes**

30 The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar
31 to those described for Alternative 4. Although Alternative 6B includes two additional intakes
32 (Alternative 6B includes five intakes compared to three for Alternative 4), the effects to
33 sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the
34 higher number of intakes would not result in a greater level of impacts on navigation.

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

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

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

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

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

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

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

24 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 25 **Construction of Barge Facilities**

26 The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar
27 in type to those described for Alternative 4; however, the effect would be less because Alternative
28 6B includes fewer temporary barge unloading facilities.

29 Alternative 6B includes a temporary barge unloading facility to be built on Fourteenmile Slough, at
30 the junction of the slough and the San Joaquin River (Mapbook Figure 15-2). The facility would be
31 used to transfer pipeline construction equipment and materials to and from construction sites and
32 would be removed after construction was completed. The facility would likely include in-water and
33 over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and
34 unloading materials; and vehicles and other machinery. Construction of the facility would involve
35 piles.

36 To address potential erosion and sedimentation impacts from barge facility construction associated
37 with Alternative 6B, the project proponents will ensure that a Barge Operations Plan is developed
38 and implemented for facility construction. The requirements for the Barge Operations Plan are
39 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
40 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
41 submitted by the construction contractors per standard DWR contract specifications. Erosion
42 control measures during construction activities at project locations are provided in Appendix 3B,

1 Environmental Commitments, as noted above in the discussion of the intakes. Fleeting facilities will
2 be either docking facilities built through pile and wharves or loaded and unloaded using landward
3 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on
4 sedimentation through construction related activities will be localized and minimal.

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

7 NEPA Effects: Construction and operation of the barge facilities under Alternative 6B would not
8 have an adverse effect on navigation.

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

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

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

16 **Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From** 17 **Construction of Clifton Court Forebay**

18 Alternative 6B would not involve expansion or modifications to Clifton Court Forebay. Moreover,
19 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
20 operations and is not open to commercial or recreational navigation.

21 NEPA Effects: No effect.

22 CEQA Conclusion: No impact.

23 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 24 **of Intakes**

25 The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar
26 to those described for Alternative 4. Although Alternative 6B includes two additional intakes
27 (Alternative 6B includes five intakes compared to three for Alternative 4), the effects to
28 sedimentation during operation of the proposed intakes under Alternative 6B would be similar to
29 those described for Alternative 4 for the reasons described below.

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

1 sedimentation near the screens as needed and air jets at screens are proposed to re-suspend
2 sediments as needed.

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

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

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

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

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

16 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head** 17 **of Old River Barrier**

18 Operable barriers would not be constructed under Alternative 6B. An operable barrier at the head of
19 Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

20 *NEPA Effects:* No effect.

21 *CEQA Conclusion:* No Impact.

22 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 23 **Operations of Water Conveyance Facilities**

24 As explained above and with respect to the construction and operation of these facilities, Alternative
25 6B would not result in an adverse effects to navigation due to water level elevation changes or
26 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
27 impacts of the project to result in cumulative effects on navigation. This is because the minimal
28 effects of these elements of the project on navigation are localized and would combine only with
29 probable future projects if the projects were located immediately adjacent to the project
30 components. There are no other reasonably foreseeable projects proposed to be located near or
31 adjacent to the planned Alternative 6B facilities.

32 *NEPA Effects:* Alternative 6B in combination with other reasonably foreseeable projects would not
33 have a cumulatively adverse effect on navigation.

34 *CEQA Conclusion:* Because it does not involve a physical change in the environment, effects to
35 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
36 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
37 explained above, Alternative 6B in combination with other reasonably foreseeable projects would
38 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 construction~~This 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

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

3 Alternative 6C includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the
4 bank of the Sacramento River between Clarksburg and Walnut Grove. The planned locations of the
5 intakes are generally the same as those proposed for Alternative 1A, as described previously, with
6 the exception that intake facilities would be constructed on the west side of the river rather than the
7 east side. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each
8 location. Coffers dams will isolate each construction area from the Sacramento River and will be used
9 to de-water the construction area. Intakes and screens have been designed and located on-bank to
10 minimize changes to river flow characteristics. Nevertheless, some localized water elevation
11 changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility
12 location within the river. These localized surface elevation changes will not exceed an increase of
13 0.10 feet at any intake location even at high river flows (when surface elevation changes would be
14 expected to be highest). This represents the highest surface upstream elevation increase after coffer
15 dam removal and during intake operation. Because this maximum increase in elevation is entirely
16 localized, downstream surface elevation changes during intake construction would be insignificant
17 and changes to river depth and width at any location will be insignificant. As a result, boat passage
18 and river use, including Sacramento River tributaries, will not be affected.

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

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

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

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

3 The potential impacts on navigation caused by changes in surface water elevation during operation
4 of the proposed intakes under Alternative 6C would be identical to those described for Alternative 4,
5 despite the fact that Alternative 6C includes five intakes (two more than Alternative 4) and despite
6 the fact that Alternative 6C has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for
7 Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes
8 because that is the maximum number of intakes included under any alternative. The modeling also
9 assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

10 Unlike Alternative 4, this Alternative would be an *isolated conveyance*, no longer involving operation
11 of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
12 Facility on Old River. The proposed water operations under Alternative 6A would discontinue use of
13 the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish
14 Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta
15 intakes would be the same as Alternative 1C, and the difference in conveyance does not change the
16 analysis of the intakes.

17 With respect to Alternative 6C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on
18 water surface elevation during certain operational regimes and at various river flows. While intake
19 operations and pumping levels are dictated by many factors, Sacramento River diversions are
20 limited during low flows by operational rules. The nature and extent of impacts caused by
21 diversions at an intake are dependent in large part on the location of the intake on the river. To
22 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
23 and were placed so that river flood and flow characteristic will be minimally altered. Based on
24 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
25 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
26 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
27 River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-
28 2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been
29 adequate to support navigation along the Sacramento River. Additionally, under these same intake
30 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
31 represents a localized and maximum estimate. Surface elevations downstream of the intakes would
32 be affected less, and during higher river flow and lower intake diversions, river depths would be
33 greater than the minimum estimate.

34 The minimal changes in surface water elevation anticipated under Alternative 6C, even assuming a
35 maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-
36 made features that would affect or impede navigation and there would be no new snags or
37 obstructions that would impede navigation.

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

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

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

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

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

12 The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar
13 to those described for Alternative 4. Although Alternative 6C includes two additional intakes
14 (Alternative 6C includes five intakes compared to three for Alternative 4), the effects to
15 sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the
16 higher number of intakes would not result in a greater level of impacts on navigation.

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

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

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

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

41 **CEQA Conclusion:** Because it does not involve a physical change in the environment, effects to
42 navigation caused by changes in sedimentation, by themselves, are not considered environmental

1 impacts under CEQA. Any secondary physical environmental impacts that may result are covered
2 under other impacts. Nonetheless, as explained above, changes in sedimentation during
3 construction of the intakes will not have a significant impact on navigation.

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

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

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

8 The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar
9 in type to those described for Alternative 4; however, the effect would be less because Alternative
10 6C includes fewer temporary barge unloading facilities.

11 Alternative 6C includes two barge unloading facilities to be built on Cache Slough and the
12 Sacramento River (Mapbook Figure 15-3). The facilities would be used to transfer pipeline
13 construction equipment and materials to and from construction sites and would be removed after
14 construction was completed. The facilities would likely include in-water and over-water structures,
15 such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials;
16 and vehicles and other machinery. Construction of the facilities would involve piles at each location.

17 To address potential erosion and sedimentation impacts from barge facility construction associated
18 with Alternative 6C, the project proponents will ensure that a Barge Operations Plan is developed
19 and implemented for facility construction. The requirements for the Barge Operations Plan are
20 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
21 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
22 submitted by the construction contractors per standard DWR contract specifications. Erosion
23 control measures during construction activities at project locations are provided in Appendix 3B,
24 *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will
25 be either docking facilities built through pile and wharves or loaded and unloaded using landward
26 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on
27 sedimentation through construction related activities will be localized and minimal.

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

30 **NEPA Effects:** Construction and operation of the barge facilities under Alternative 6C would not
31 have an adverse effect on navigation.

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

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

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

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

3 Alternative 6C would not involve expansion or modifications to Clifton Court Forebay. Moreover,
4 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
5 operations and is not open to commercial or recreational navigation.

6 **NEPA Effects:** No effect.

7 **CEQA Conclusion:** No Impact.

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

10 The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar
11 to those described for Alternative 4. Although Alternative 6C includes two additional intakes
12 (Alternative 6C includes five intakes compared to three for Alternative 4), the effects to
13 sedimentation during operation of the proposed intakes under Alternative 6C would be similar to
14 those described for Alternative 4 for the reasons described below.

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

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

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

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

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

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

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

3 Operable barriers would not be constructed under Alternative 6C. An operable barrier at the head of
 4 Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

5 NEPA Effects: No effect.

6 CEQA Conclusion: No Impact.

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

9 As explained above and with respect to the construction and operation of these facilities, Alternative
 10 6C would not result in an adverse effects to navigation due to water level elevation changes or
 11 altered sedimentation patterns. It is highly unlikely that other projects would combine with these
 12 impacts of the project to result in cumulative effects on navigation. This is because the minimal
 13 effects of these elements of the project on navigation are localized and would combine only with
 14 probable future projects if the projects were located immediately adjacent to the project
 15 components. There are no other reasonably foreseeable projects proposed to be located near or
 16 adjacent to the planned Alternative 6C facilities.

17 NEPA Effects: Alternative 6C in combination with other reasonably foreseeable projects would not
 18 have a cumulatively adverse effect on navigation.

19 CEQA Conclusion: Because it does not involve a physical change in the environment, effects to
 20 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
 21 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
 22 explained above, Alternative 6C in combination with other reasonably foreseeable projects would
 23 not have a cumulatively significant impact on navigation.

24 **19.3.3.14 Alternative 7—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3,**
 25 **and 5, and Enhanced Aquatic Conservation (9,000 cfs; Operational**
 26 **Scenario E)**

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

29 NEPA Effects: The estimate of the number of vehicles generated by construction activities for
 30 Alternative 7 would be the similar to Alternative 1A except only three intakes would be constructed,
 31 resulting in a 40% reduction in overall traffic impacts during construction. Localized impacts in the
 32 vicinity of Intakes 1, 4, 6, and 7 would not occur.

33 As shown in Table 19-8, under BPBG conditions, a total of ~~2523~~ roadway segments would exceed
 34 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8,
 35 construction associated with Alternative 7 would cause LOS thresholds to be exceeded for at least 1
 36 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~4733~~ roadway segments under
 37 BPBGPP conditions (see-entries in bold type). Alternative 7 would therefore temporarily exacerbate
 38 an already unacceptable LOS under BPBG conditions on ~~2210~~ roadway segments (~~4733~~ minus the
 39 ~~2523~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a
 40 shows the study roadway segments that could experience substantial roadway operation impacts.

1 The decrease in LOS below applicable thresholds during construction would be adverse at the
 2 locations identified in Table 19-8 because construction associated with Alternative 7 would cause
 3 LOS thresholds (see Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
 4 analysis period. Alternative 7 would also temporarily exacerbate an already unacceptable LOS under
 5 BPBG conditions at 2210 roadway segments (4733 minus the 2523 that would already be operating
 6 at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur
 7 throughout the study area, the highest concentration of roadway segments below applicable LOS
 8 threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be
 9 exceeded on several local roadways, include all segments studied in West Sacramento.

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

22 **CEQA Conclusion:** Construction under Alternative 7 would add hourly traffic volumes to study area
 23 roadways that would exceed acceptable LOS threshold (Table 19-87). As shown in Table 19-8, traffic
 24 volumes during construction of Alternative 7 would exacerbate already unacceptable LOS under
 25 BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project
 26 construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a
 27 through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels.
 28 The BDCP proponents cannot ensure that the improvements will be fully funded or constructed
 29 prior to the project's contribution to the impact. If an improvement that is identified in any
 30 mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
 31 constructed before the project's contribution to the impact is made, a significant impact in the form
 32 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
 33 however, all improvements required to avoid significant impacts prove to be feasible and any
 34 necessary agreements are completed before the project's contribution to the effect is made, impacts
 35 would be less than significant.

36 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 37 **Conditions**

38 **NEPA Effects:** The potential to damage road surfaces during construction under Alternative 7 would
 39 be similar to Alternative 1A, except only three intakes would be constructed, resulting in less overall
 40 traffic impacts during construction (truck traffic and workers traffic generated by intake
 41 construction is reduced by 40% compared to 1A). Localized impacts in the vicinity of Intakes 4 and
 42 5-7 would not occur.

43 As shown in Table 19-10, construction of Alternative 7 would contribute to further deterioration of
 44 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (see

1 Table 19-7), on a total of **4643** roadway segments. Damage to roadway pavement is expected
2 throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few
3 interstates. The effect of roadway damage to these segments during construction would be adverse.
4 Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not
5 necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the
6 agreements or encroachment permits will be obtained from the relevant transportation agencies. If
7 an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient
8 pavement conditions would occur. Accordingly, this effect could remain adverse. If, however,
9 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
10 of pavement are obtained and any other necessary agreements are completed, adverse effects could
11 be avoided.

12 **CEQA Conclusion:** Construction would add trips, exacerbating unacceptable pavement conditions to
13 below acceptable thresholds (Table 19-7) at the **4643** locations shown in Table 19-10. The impact of
14 roadway damage during construction would be potentially significant. Mitigation Measures TRANS-
15 2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-
16 significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment
17 permits will be obtained from the relevant transportation agencies. If an agreement or
18 encroachment permit is not obtained, a significant impact in the form of deficient pavement
19 conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however,
20 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
21 of pavement are obtained and any other necessary agreements are completed, impacts would be
22 reduced to less than significant.

23 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 24 **Caused by Construction of Water Conveyance Facilities**

25 The potential impacts on navigation caused by changes in surface water elevation during
26 construction of the proposed intakes under Alternative 7 would be identical to those described for
27 Alternative 4. The intakes included under Alternative 7 (three intakes with a maximum diversion
28 capacity of 9,000 cfs) are identical to those included under Alternative 4.

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

41 As explained in Chapter 6, Surface Water, construction of facilities within or adjacent to waterways
42 could change surface water elevations or runoff characteristics. In total, construction of the facilities
43 under Alternative 7 would not result in a substantial decrease in surface water elevations on any
44 navigable waterways and therefore would not have an adverse effect on navigation. Although the

1 increase in surface water elevations in rivers and streams under Alternative 7 creates a potential
2 impact regarding flooding (which is considered less-than-significant with implementation of
3 Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse
4 effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to
5 surface water under Alternative 7. See Chapter 6, *Surface Water*, for additional information
6 regarding changes to surface water under Alternative 7.

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

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

21 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 22 **by Operation of Intakes**

23 The potential impacts on navigation caused by changes in surface water elevation during operation
24 of the proposed intakes under Alternative 7 would be identical to those described for Alternative 4.

25 The hydraulic modeling scenario for this analysis included five intakes because that is the maximum
26 number of intakes included under any alternative. The modeling also assumed the highest North
27 Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or
28 lower diversion capacity, such as Alternative 7 (three intakes and 9,000 cfs maximum diversion
29 capacity), would have less effects to surface water elevations.

30 With respect to Alternative 7, operation of Intakes 2, 3 and 5 may have localized effects on water
31 surface elevation during certain operational regimes and at various river flows. While intake
32 operations and pumping levels are dictated by many factors, Sacramento River diversions are
33 limited during low flows by operational rules. The nature and extent of impacts caused by
34 diversions at an intake are dependent in large part on the location of the intake on the river. To
35 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
36 and were placed so that river flood and flow characteristic will be minimally altered. Based on
37 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
38 variations) and at maximum intake operation (full diversions at each of five alternative intakes),
39 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
40 River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-
41 2602 (September 30, 1995) pages 3-8. This river depth has occurred historically and has been
42 adequate to support navigation along the Sacramento River. Additionally, under these same intake
43 divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which
44 represents a localized and maximum estimate. Surface elevations downstream of the intakes would

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

3 The minimal changes in surface water elevation anticipated under Alternative 7, even assuming a
4 maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-
5 made features that would affect or impeded. There would be no new snags or obstructions that
6 would impede navigation.

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

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

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

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

23 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 24 **Construction of Intakes**

25 The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical
26 to those described for Alternative 4. The intakes included under Alternative 7 (three intakes with a
27 maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

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

36 Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-
37 water construction activities and through implementing the environmental commitments described
38 in Appendix 3B, Environmental Commitments, including the commitment to Develop and Implement
39 Erosion and Sediment Control Plans to control short-term and long-term erosion and sedimentation
40 effects and to restore soils and vegetation in areas affected by construction activities following
41 construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, Erosion
42 and Sediment Control Plan, described in BDCP Appendix 3.C. It is anticipated that multiple erosion

1 and sediment control plans will be prepared for construction activities, each taking into account
2 site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The
3 plans will include all the necessary state requirements regarding erosion control and will implement
4 BMPs for erosion and sediment control that will be in place for the duration of construction
5 activities.

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

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

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

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

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

17 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 18 **Construction of Barge Facilities**

19 The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical
20 to those described for Alternative 4. Alternative 7 includes the same barge facilities as Alternative 4.

21 Under Alternative 7, five temporary barge landings would be constructed at locations adjacent to
22 construction work areas for the delivery of construction materials. Each of the five proposed barge
23 landings would include in-water and over-water structures, such as piling dolphins, docks, ramps,
24 and possibly conveyors for loading and unloading materials; and vehicles and other machinery.
25 Construction of the five barge landings would involve piles at each landing.

26 To address potential erosion and sedimentation impacts from barge facility construction associated
27 with Alternative 7, the project proponents will ensure that a Barge Operations Plan is developed and
28 implemented for facility construction. The requirements for the Barge Operations Plan are
29 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
30 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
31 submitted by the construction contractors per standard DWR contract specifications. Erosion
32 control measures during construction activities at project locations are provided in Appendix 3B,
33 *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will
34 be either docking facilities built through pile and wharves or loaded and unloaded using landward
35 positioned cranes. In either case, through AMM7 and the *Environmental Commitments*, impacts on
36 sedimentation through construction related activities will be localized and minimal.

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

39 **NEPA Effects:** Construction and operation of the barge facilities under Alternative 7 would not have
40 an adverse effect on navigation.

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

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

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

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

10 Alternative 7 would not involve expansion or modifications to Clifton Court Forebay. Moreover,
11 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
12 operations and is not open to commercial or recreational navigation.

13 **NEPA Effects:** No effect.

14 **CEQA Conclusion:** No impact.

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

17 The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical
18 to those described for Alternative 4. The intakes included under Alternative 7 (three intakes with a
19 maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

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

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

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

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

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

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

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

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

7 Operable barriers would not be constructed under Alternative 7. An operable barrier at the head of
 8 Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

9 **NEPA Effects:** No effect.

10 **CEQA Conclusion:** No Impact.

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

13 As explained above and with respect to the construction and operation of these facilities, Alternative
 14 7 would not result in an adverse effects to navigation due to water level elevation changes or altered
 15 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
 16 the project to result in cumulative effects on navigation. This is because the minimal effects of these
 17 elements of the project on navigation are localized and would combine only with probable future
 18 projects if the projects were located immediately adjacent to the project components. There are no
 19 other reasonably foreseeable projects proposed to be located near or adjacent to the planned
 20 Alternative 7 facilities.

21 **NEPA Effects:** Alternative 7 in combination with other reasonably foreseeable projects would not
 22 have a cumulatively adverse effect on navigation.

23 **CEQA Conclusion:** Because it does not involve a physical change in the environment, effects to
 24 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
 25 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
 26 explained above, Alternative 7 in combination with other reasonably foreseeable projects would not
 27 have a cumulatively significant impact on navigation.

28 **19.3.3.15 Alternative 8—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3,**
 29 **and 5, and Increased Delta Outflow (9,000 cfs; Operational Scenario**
 30 **F)**

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

33 **NEPA Effects:** As with Alternative 7, the estimate of the number of vehicles generated by
 34 construction activities for Alternative 8 would result in a 40% reduction in overall traffic impacts
 35 during construction, compared to Alternative 1A, and localized impacts in the vicinity of Intakes 1
 36 and 4 would not occur.

1 As shown in Table 19-8, under BPBG conditions, a total of ~~2523~~ roadway segments would exceed
2 LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8,
3 construction associated with Alternative 8 would cause LOS thresholds to be exceeded for at least
4 one hour during the 6 AM to 7 PM analysis period on a total of ~~4733~~ roadway segments under
5 BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 8 would therefore ~~temporarily~~ exacerbate
6 an already unacceptable LOS under BPBG conditions on ~~2210~~ roadway segments (~~4733~~ minus the
7 ~~2523~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a
8 shows the study roadway segments that could experience substantial roadway operation impacts.

9 The decrease in LOS below applicable thresholds during construction would be adverse at the
10 locations identified in Table 19-8 because construction associated with Alternative 8 would cause
11 LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
12 analysis period. Alternative 8 would also ~~temporarily~~ exacerbate an already unacceptable LOS under
13 BPBG conditions at ~~2210~~ roadway segments (~~4733~~ minus the ~~2523~~ that would already be operating
14 at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur
15 throughout the study area, the highest concentration of roadway segments below applicable LOS
16 threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be
17 exceeded on several local roadways, include all segments studied in West Sacramento.

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

30 **CEQA Conclusion:** Construction under Alternative 8 would add hourly traffic volumes to study area
31 roadways that would exceed acceptable LOS threshold (Table 19-87). As shown in Table 19-8, traffic
32 volumes during construction of Alternative 8 would ~~temporarily~~ exacerbate already unacceptable
33 LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period ~~during the time of~~
34 ~~project construction. This impact would be temporary, but significant.~~ Mitigation Measures TRANS-
35 1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant
36 levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
37 constructed prior to the project's contribution to the impact. If an improvement that is identified in
38 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
39 constructed before the project's contribution to the impact is made, a significant impact in the form
40 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
41 however, all improvements required to avoid significant impacts prove to be feasible and any
42 necessary agreements are completed before the project's contribution to the effect is made, impacts
43 would be less than significant.

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

3 **NEPA Effects:** The impact under Alternative 8 would be less than under Alternative 1A due to the
4 reduction in intakes constructed (estimated 40% reduction in vehicle trips).

5 As shown in Table 19-10, construction of Alternative 8 would contribute to further deterioration of
6 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (see
7 Table 19-7), on a total of **4643** roadway segments. Damage to roadway pavement is expected
8 throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few
9 interstates. The effect of roadway damage to these segments during construction would be adverse.
10 Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not
11 necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the
12 agreements or encroachment permits will be obtained from the relevant transportation agencies. If
13 an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient
14 pavement conditions would occur. Accordingly, this effect could remain adverse. If, however,
15 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
16 of pavement are obtained and any other necessary agreements are completed, adverse effects could
17 be avoided.

18 **CEQA Conclusion:** Construction would add trips, exacerbating unacceptable pavement conditions to
19 below acceptable thresholds (Table 19-7) at the **4643** locations shown in Table 19-10. The impact of
20 roadway damage during construction would be potentially significant. Mitigation Measures TRANS-
21 2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-
22 significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment
23 permits will be obtained from the relevant transportation agencies. If an agreement or
24 encroachment permit is not obtained, a significant impact in the form of deficient pavement
25 conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however,
26 mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement
27 of pavement are obtained and any other necessary agreements are completed, impacts would be
28 reduced to less than significant.

29 **Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations** 30 **Caused by Construction of Water Conveyance Facilities**

31 The potential impacts on navigation caused by changes in surface water elevation during
32 construction of the proposed intakes under Alternative 8 would be identical to those described for
33 Alternative 4. The intakes included under Alternative 8 (three intakes with a maximum diversion
34 capacity of 9,000 cfs) are identical to those included under Alternative 4.

35 Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Cofferdams
36 will isolate each construction area from the Sacramento River and will be used to de-water the
37 construction area. Intakes and screens have been designed and located on-bank to minimize
38 changes to river flow characteristics. Nevertheless, some localized water elevation changes will
39 occur upstream and adjacent to each coffer dam at these intake sites due to facility location within
40 the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any
41 intake location even at high river flows (when surface elevation changes would be expected to be
42 highest). This represents the highest surface upstream elevation increase after coffer dam removal
43 and during intake operation. Because this maximum increase in elevation is entirely localized,
44 downstream surface elevation changes during intake construction would be insignificant and

1 changes to river depth and width at any location will be insignificant. As a result, boat passage and
2 river use, including Sacramento River tributaries, will not be affected.

3 As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways
4 could change surface water elevations or runoff characteristics. In total, construction of the facilities
5 under Alternative 8 would not result in a substantial decrease in surface water elevations on any
6 navigable waterways and therefore would not have an adverse effect on navigation. Although the
7 increase in surface water elevations in rivers and streams under Alternative 8 creates a potential
8 impact regarding flooding (which is considered less-than-significant with implementation of
9 Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse
10 effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to
11 surface water under Alternative 8.

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

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

26 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 27 **by Operation of Intakes**

28 The potential impacts on navigation caused by changes in surface water elevation during operation
29 of the proposed intakes under Alternative 8 would be identical to those described for Alternative 4.

30 The hydraulic modeling scenario for this analysis included five intakes because that is the maximum
31 number of intakes included under any alternative. The modeling also assumed the highest North
32 Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or
33 lower diversion capacity, such as Alternative 8 (three intakes and 9,000 cfs maximum diversion
34 capacity), would have less effects to surface water elevations.

35 With respect to Alternative 8, operation of Intakes 2, 3 and 5 may have localized effects on water
36 surface elevation during certain operational regimes and at various river flows. While intake
37 operations and pumping levels are dictated by many factors, Sacramento River diversions are
38 limited during low flows by operational rules. The nature and extent of impacts caused by
39 diversions at an intake are dependent in large part on the location of the intake on the river. To
40 minimize the intake effects on river surface elevations, intakes were designed as on-bank structures
41 and were placed so that river flood and flow characteristic will be minimally altered. Based on
42 hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal
43 variations) and at maximum intake operation (full diversions at each of five alternative intakes).

1 estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento
2 River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-
3 2602 (September 30, 1995) pages 3-8. River depth has occurred historically and has been adequate
4 to support navigation along the Sacramento River, under these same intake divisions/river flows,
5 water surface elevations would be lowered by no more than 0.7 foot, which represents a localized
6 and maximum estimate. Surface elevations downstream of the intakes would be affected less, and
7 during higher river flow and lower intake diversions, river depths would be greater than the
8 minimum estimate.

9 The minimal changes in surface water elevation anticipated under Alternative 8, even assuming a
10 maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-
11 made features that would affect or impeded. There would be no new snags or obstructions that
12 would impede navigation.

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

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

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

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

29 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 30 **Construction of Intakes**

31 The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical
32 to those described for Alternative 4. The intakes included under Alternative 8 (three intakes with a
33 maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

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

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

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

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

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

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

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

24 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 25 **Construction of Barge Facilities**

26 The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical
27 to those described for Alternative 4. Alternative 8 includes the same barge facilities as Alternative 4.

28 Under Alternative 8, five temporary barge landings would be constructed at locations adjacent to
29 construction work areas for the delivery of construction materials. Each of the five proposed barge
30 landings would include in-water and over-water structures, such as piling dolphins, docks, ramps,
31 and possibly conveyors for loading and unloading materials; and vehicles and other machinery.
32 Construction of the five barge landings would involve piles at each landing.

33 To address potential erosion and sedimentation impacts from barge facility construction associated
34 with Alternative 8, the project proponents will ensure that a Barge Operations Plan is developed and
35 implemented for facility construction. The requirements for the Barge Operations Plan are
36 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
37 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
38 submitted by the construction contractors per standard DWR contract specifications. Erosion
39 control measures during construction activities at project locations are provided in Appendix 3B,
40 *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will
41 be either docking facilities built through pile and wharves or loaded and unloaded using landward

1 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on
2 sedimentation through construction related activities will be localized and minimal.

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

5 *NEPA Effects:* Construction and operation of the barge facilities under Alternative 8 would not have
6 an adverse effect on navigation.

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

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

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

14 **Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From** 15 **Construction of Clifton Court Forebay**

16 Alternative 8 would not involve expansion or modifications to Clifton Court Forebay. Moreover,
17 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
18 operations and is not open to commercial or recreational navigation.

19 *NEPA Effects:* No effect.

20 *CEQA Conclusion:* No impact.

21 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 22 **of Intakes**

23 The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical
24 to those described for Alternative 4. The intakes included under Alternative 8 (three intakes with a
25 maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

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

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

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

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

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

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

12 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head** 13 **of Old River Barrier**

14 Operable barriers would not be constructed under Alternative 8. An operable barrier at the head of
15 Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

16 NEPA Effects: No effect.

17 CEQA Conclusion: No Impact.

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

20 As explained above and with respect to the construction and operation of these facilities, Alternative
21 8 would not result in an adverse effects to navigation due to water level elevation changes or altered
22 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
23 the project to result in cumulative effects on navigation. This is because the minimal effects of these
24 elements of the project on navigation are localized and would combine only with probable future
25 projects if the projects were located immediately adjacent to the project components. There are no
26 other reasonably foreseeable projects proposed to be located near or adjacent to the planned
27 Alternative 8 facilities.

28 NEPA Effects: Alternative 8 in combination with other reasonably foreseeable projects would not
29 have a cumulatively adverse effect on navigation.

30 CEQA Conclusion: Because it does not involve a physical change in the environment, effects to
31 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
32 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
33 explained above, Alternative 8 in combination with other reasonably foreseeable projects would not
34 have a cumulatively significant impact on navigation.

1 **19.3.3.16 Alternative 9—Through Delta/Separate Corridors (15,000 cfs;**
2 **Operational Scenario G)**

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

5 *NEPA Effects:* As shown in Table 19-27, under BPBG conditions, a total of 17-23 roadway segments
6 would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown
7 in Table 19-827, construction associated with Alternative 9 would cause LOS thresholds to be
8 exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 51-56
9 roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 9 would
10 therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on 34-33
11 roadway segments (51-56 minus the 17-23 that would already be operating at an unacceptable LOS
12 under BPBG conditions). Figure 19-3b shows the study roadway segments that could experience
13 substantial roadway operation effects.
14

1 **Table 19-27. Level of Service for Through Delta/Separate Corridors – Alternative 9**

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | | Baseline Plus Background Growth Conditions | | | BPGPP Conditions | | |
|--------|--|------------------------------------|----------------------------------|---------------|-----------------------------|----------------------------|--|--|--|----------------------------|--|--|--|
| | | | | | LOS Hourly Volume Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range 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 | - | 416470 to 708800 | - | 2,184160 to 2,476490 | 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 | - | - | 590597 to 1,526544 | - | 3,417302 to 4,353249 | 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 | - | - | 346373 to 9501024 | - | 3,173078 to 3,777729 | 8 (6-7AM; 9AM-10-11AM; 12-4PM) | | |
| BRE 03 | Balfour Rd | Brentwood Blvd (Old SR 4) | Brentwood City Limits | D | 3,540 | 437 to 1,300 | - | 437533 to 1,300586 | - | 437608 to 1,300661 | - | | |
| CC 01 | Bethel Island Rd | Oakley City Limits | End | D | 1,600 | 124 to 330 | - | 124151 to 330403 | - | 124226 to 330478 | - | | |
| CC 02 | Balfour Rd | Brentwood City Limits | Byron Hwy | D | 1,600 | 90 to 297 | - | 90110 to 297362 | - | 90185 to 297437 | - | | |
| | | | | C | 790 | 1,133 to 1,682 | 13 (6AM-7PM) | - | - | - | - | | |
| CC 03 | Old SR 4 ¹ | Brentwood City Limits (South) | Marsh Creek Rd | D | 1,600 | - | - | 1,220307 to 1,811940 | 3 (4 (7-8AM; 3-6PM) | 4,047012 to 4,638645 | 13 (6AM-7PM) | | |
| | | | | C | 1,410 | 108 to 240 | - | 108109 to 240243 | - | 108184 to 240318 | - | | |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|-----------|------------------|------------------------------------|-----|---------------|----------------------------|---------------------------|--|---------------------------|----------------------------|---------------------------|
| | | | | | | Hourly Volume (6AM to 7PM) | Hourly Range (6AM to 7PM) | Hourly Volume (6AM to 7PM) | Hourly Range (6AM to 7PM) | Hourly Volume (6AM to 7PM) | Hourly Range (6AM to 7PM) |
| CC 05 | Byron Hwy | SR 4 | Contra Costa Co./ Alameda Co. Line | D | 1,600 | 483 to 907 | - | 522,589 to 980,1107 | - | 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 | - | 2,589,095 to 5,820,958 | -1 (7-8AM) | 2,589,170 to 5,820,033 | -1 (7-8AM) |
| CT 02 | I-5 SB | Florin Rd | Pocket Rd | F | 6,060 | 1,647 to 5,705 | - | 1,647,931 to 5,705,690 | -2 (4-6PM) | 1,647,006 to 5,705,765 | -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 5,243,053 | - |
| CT 05 | I-5 NB | Laguna Blvd | Elk Grove Blvd | F | 4,010 | 1,820 to 3,339 | - | 1,820,098 to 3,339,848 | - | 1,820,173 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 | - | 1,414,707 to 2,043,234 | - | 1,414,112 to 2,463,639 | - |
| CT 10 | I-5 SB | Hood Franklin Rd | Twin Cities Rd | F | 4,010 | 1,207 to 1,964 | - | 1,207,458 to 2,169,373 | - | 1,207,517 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 1,720,072 | - | 1,312,655 to 1,720,147 | - |
| CT 12 | I-5 SB | Twin Cities Rd | Walnut Grove Rd | C | 2,880 | 1,111 to 1,813 | - | 1,111,339 to 1,813,2184 | - | 1,111,414 to 1,813,259 | - |
| CT 13 | I-5 NB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,374 to 1,803 | - | 1,374,759 to 2,091,308 | - | 1,374,119 to 2,464,668 | - |
| CT 14 | I-5 SB | Walnut Grove Rd | Peltier Rd | C | 2,880 | 1,128 to 1,894 | - | 1,128,444 to 2,197,424 | - | 1,128,804 to 2,570,784 | - |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBGPP Conditions | |
|-------|----------------------------------|-------------------------|----------------------|---------------|------------|---------------------|----------------------------------|--|--------------------------------------|-------------------|--------------------------------------|
| | | | | | | Hourly Volume | Hours Operating Range Worse Than | Hourly Volume | Hours Operating Range Worse Than | Hourly Volume | Hours Operating Range Worse Than |
| | | | | | | (6AM to 7PM) | LOS Threshold | (6AM to 7PM) | LOS Threshold | (6AM to 7PM) | LOS Threshold |
| CT 15 | I-5 NB | Peltier Rd | Turner Rd | C | 2,880 | 1,421 to 1,885- | | 1,421 to 1,885- | 1,421 to 1,885- | | |
| | | | | | | | | | 1,421 to 1,885 | | 1,421 to 1,885 |
| | | | | | | | | | 1,885 to 2,413 | | 1,885 to 2,488 |
| CT 16 | I-5 SB | Peltier Rd | Turner Rd | C | 2,880 | 1,145 to 1,974- | | 1,145 to 1,974- | 1,145 to 1,974- | | |
| | | | | | | | | | 1,145 to 1,974 | | 1,145 to 1,974 |
| | | | | | | | | | 1,974 to 2,527 | | 1,974 to 2,602 |
| CT 17 | I-5 NB | Turner Rd | SR 12 | C | 2,880 | 1,288 to 1,985- | | 1,288 to 1,985- | 1,288 to 1,985- | | |
| | | | | | | | | | 1,288 to 1,985 | | 1,288 to 1,985 |
| | | | | | | | | | 2,223 to 2,541 | | 2,334 to 2,651 |
| CT 18 | I-5 SB | Turner Rd | SR 12 | C | 2,880 | 1,124 to 1,482- | | 1,124 to 1,482- | 1,124 to 1,482- | | |
| | | | | | | | | | 1,124 to 1,482 | | 1,124 to 1,482 |
| | | | | | | | | | 1,660 to 1,897 | | 1,771 to 2,007 |
| CT 19 | I-5 NB | SR 12 | Eight Mile Rd | C | 4,400 | 1,533 to 2,267- | | 1,533 to 2,267- | 1,533 to 2,267- | | |
| | | | | | | | | | 1,533 to 2,267 | | 1,533 to 2,267 |
| | | | | | | | | | 2,448 to 2,811 | | 2,559 to 2,921 |
| CT 20 | I-5 SB | SR 12 | Eight Mile Rd | C | 4,400 | 1,243 to 2,070- | | 1,243 to 2,070- | 1,243 to 2,070- | | |
| | | | | | | | | | 1,243 to 2,070 | | 1,243 to 2,070 |
| | | | | | | | | | 2,236 to 2,567 | | 2,347 to 2,677 |
| CT 21 | I-5 NB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,937 to 3,452- | | 1,937 to 3,452- | 1,937 to 3,452- | | |
| | | | | | | | | | 1,937 to 3,452 | | 1,937 to 3,452 |
| | | | | | | | | | 3,452 to 4,280 | | 3,452 to 4,355 |
| CT 22 | I-5 SB | Eight Mile Rd | Hammer Ln | D | 5,410 | 1,817 to 2,760- | | 1,817 to 2,760- | 1,817 to 2,760- | | |
| | | | | | | | | | 1,817 to 2,760 | | 1,817 to 2,760 |
| | | | | | | | | | 2,760 to 3,422 | | 2,760 to 3,497 |
| CT 23 | SR 160 (Freeport Blvd) | Sacramento City Limits | Freeport Bridge | E | 1,740 | 136 to 476 - | | 136 to 476 - | 136 to 476 - | | |
| | | | | | | | | | 136 to 476 | | 136 to 476 |
| | | | | | | | | | 476 to 559 | | 476 to 634 |
| CT 24 | SR 160 (Freeport Blvd/ River Rd) | Freeport Bridge | Scribner Rd | E | 1,740 | 94 to 180 - | | 94 to 180 - | 94 to 180 - | | |
| | | | | | | | | | 94 to 180 | | 94 to 180 |
| | | | | | | | | | 94 to 180 | | 94 to 180 |
| CT 25 | SR 160 (River Rd) | Scribner Rd | Hood Franklin Rd | E | 1,740 | 41 to 125 - | | 41 to 125 - | 41 to 125 - | | |
| | | | | | | | | | 41 to 125 | | 41 to 125 |
| | | | | | | | | | 41 to 125 | | 41 to 125 |
| CT 26 | SR 160 (River Rd) | Hood Franklin Rd | Lambert Rd | E | 1,740 | 105 to 170 - | | 105 to 170 - | 105 to 170 - | | |
| | | | | | | | | | 105 to 170 | | 105 to 170 |
| | | | | | | | | | 105 to 170 | | 105 to 170 |
| CT 27 | SR 160 (River Rd) | Lambert Rd | Paintersville Bridge | E | 1,740 | 69 to 122 - | | 69 to 122 - | 69 to 122 - | | |
| | | | | | | | | | 69 to 122 | | 69 to 122 |
| | | | | | | | | | 69 to 122 | | 69 to 122 |
| CT 28 | SR 160 (Paintersville Bridge) | Sutter Slough Bridge Rd | SR 160 (River Rd) | E | 1,740 | 75 to 150 - | | 75 to 150 - | 75 to 150 - | | |
| | | | | | | | | | 75 to 150 | | 75 to 150 |
| | | | | | | | | | 75 to 150 | | 75 to 150 |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBGPP Conditions | |
|-------|--------------------------------|-------------------------------|-------------------------------|---------------|------------|-----------------------------|----------------------------------|--|--|--|---|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than |
| CT 29 | SR 160 | Paintersville Bridge | Walnut Grove Bridge | E | 1,740 | 78 to 128 | - | 8999 to 147163 | - | 2,593494 to 2,654558 | 13 (6AM-7PM) |
| CT 30 | SR 160 (River Rd) | Walnut Grove Bridge | A St (Isleton) | E | 1,740 | 173 to 465 | - | 173 to 465 | - | 2,677568 to 2,969860 | 13 (6AM-7PM) |
| CT 31 | SR 160 | A St (Isleton) | SR 12 | E | 1,740 | 193 to 378 | - | 193 to 378 | - | 2,697588 to 2,882773 | 13 (6AM-7PM) |
| CT 32 | SR 160 | SR 12 | Brannan Island Rd | F | 1,740 | 530 to 894 | - | 549583 to 926983 | - | 4,1123,993 to 4,489393 | 13 (6AM-7PM) |
| CT 33 | SR 84 (Jefferson Blvd) | West Sacramento City Limits | Courtland Rd | B | 200 | 40 to 169 | - | 4245 to 177192 | - | 2,546440 to 2,684587 | 13 (6AM-7PM) |
| CT 34 | SR 84 (Courtland Rd/ Ryer Ave) | Courtland Rd | Cache Slough Ferry | C | 680 | 10 to 25 | - | 4011 to 2528 | - | 4086 to 25103 | - |
| CT 35 | I-80 EB | Suisun Valley Rd | SR 12 | C | 8,350 | 3,079 to 6,994 | - | 3,510941 to 7,9738,952 | -3 (3-6PM) | 5,292646 to 9,75510,657 | 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) | 6,5567,361 to 10,13711,382 | 27 (6-8AM ⁹ AM; 2-6PM) | 8,3389,066 to 11,94913,087 | 1213 (6AM-6PM ⁷ PM) |
| CT 37 | SR 12 EB | I-80 | Beck Ave | C | 2,880 | 528 to 1,847 | - | 612686 to 2,143401 | - | 2,394391 to 3,9254,106 | 11 (7-9AM; 10AM ¹² 7AM-7PM) |
| CT 38 | SR 12 WB | I-80 | Beck Ave | C | 2,880 | 829 to 1,625 | - | 9621,078 to 1,8852,113 | - | 2,744783 to 3,667818 | 12 (6AM-6PM) |
| CT 39 | SR 12 | Beck Ave | Sunset Ave/ Grizzly Island Rd | C | 5,060 | 2,408 to 3,573 | - | 2,7723,091 to 4,114587 | - | 6,335501 to 7,677977 | 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 | - | 1,8642,089 to 2,7293,059 | - | 5,427499 to 6,292469 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS | LOS Threshold | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPGPP Conditions | |
|-------|---------------------------------------|-------------------------------------|--------------------------------|-----|---------------|----------------------------|----------------------------------|---|--|---|----------------------------------|
| | | | | | | Hourly Volume (6AM to 7PM) | Hourly Volume Range (6AM to 7PM) | Hourly Volume (6AM to 7PM) | Hourly Volume Range (6AM to 7PM) | Hourly Volume (6AM to 7PM) | Hourly Volume Range (6AM to 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) | 727815 to 1,247398 | 4213 (6AM- 6PM 7PM) | 4,290225 to 4,810808 | 13 (6AM-7PM) |
| CT 42 | SR 12 | SR 113 | SR 84 (River Rd) | C | 790 | 1,073 to 1,544 | 13 (6AM-7PM) | 1,245395 to 4,7942,007 | 13 (6AM-7PM) | 4,808805 to 5,354417 | 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) | 1,317476 to 4,9552,191 | 13 (6AM-7PM) | 4,880886 to 5,518601 | 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) | 746859 to 1,092257 | 12 (6AM- 6PM 7PM) | 9671,074 to 1,313472 | 13 (6AM-7PM) |
| CT 45 | SR 12 | Sacramento Co./ SJ Co. Line | I-5 | C | 790 | 773 to 1,164 | 12 (6AM-6PM) | 793846 to 1,194274 | 13 (6AM-7PM) | 1,014061 to 1,415489 | 13 (6AM-7PM) |
| CT 46 | I-80 EB | SR 113 | Pedrick Rd | C | 4,400 | 2,508 to 4,632 | 2 (3-5PM) | 2,8083,066 to 5,186662 | 36 (7-9AM; 2-6PM) | 4,590771 to 6,9687,367 | 13 (6AM-7PM) |
| CT 47 | I-80 WB | SR 113 | Pedrick Rd | C | 4,400 | 3,068 to 4,191 | - | 3,316528 to 4,529819 | 4 (7-8AM; 3-5PM)6PM) | 5,098233 to 6,311524 | 13 (6AM-7PM) |
| CT 48 | SR 113 | I-80 | Dixon City Limits | C | 1,920 | 569 to 1,341 | - | 569 to 1,341 | - | 4,1323,979 to 4,904751 | 13 (6AM-7PM) |
| CT 49 | SR 113 | Dixon City Limits | SR 12 | C | 680 | 174 to 294 | - | 188212 to 318359 | - | 3,751622 to 3,881769 | 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 | - | - | 477539 to 792894 | 42 (4-5PM)6PM) | 3,304244 to 3,619599 | 13 (6AM-7PM) |
| CT 51 | SR 4 | Marsh Creek Rd | Discovery Bay Blvd | D | 1,600 | 554 to 1,224 | - | 601647 to 1,327430 | - | 3,428352 to 4,154135 | 13 (6AM-7PM) |
| CT 52 | SR 4 | Discovery Bay Blvd | Tracy Blvd | C | 790 | 412 to 746 | - | 412 to 746 | - | 3,239117 to 3,573451 | 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) | 3,694572 to 4,319197 | 13 (6AM-7PM) |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBPPP Conditions | | | |
|-------|----------|---------------------|---------------------|---------------|------------|----------------------------|--|--|--|----------------------------|--|-------------|--------------------|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than LOS Threshold | | |
| CT 54 | I-5 NB | SR 4 (Freeway) | SR 4 (Charter Way) | D | 7,280 | 2,552 to 4,815- | - | 2,855 to 5,386 | 158 to 957 | - | 4,269 to 6,800 | 513 to 312 | -1 (3-4PM) |
| CT 55 | I-5 SB | SR 4 (Freeway) | SR 4 (Charter Way) | D | 7,280 | 4,550 to 5,913- | - | 5,108 to 6,639 | 667 to 736 | -2 (7-8AM; 5-6PM) | 6,522 to 8,053 | 711 to 719 | (6-8AM; 10AM-6PM) |
| CT 56 | I-5 NB | SR 4 (Charter Way) | Eighth Street | D | 5,410 | 2,430 to 4,586- | - | 2,770 to 5,228 | 310 to 870 | -3 (3-6PM) | 4,184 to 6,642 | 465 to 725 | 5 (1-6PM; 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) | 4,940 to 6,419 | 546 to 720 | 8 (6-9AM; 1-6PM) | 6,354 to 7,833 | 901 to 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) | 1,480 to 5,560 | 610 to 048 | 4 (3-5 (2-7PM) | 2,364 to 6,444 | 455 to 893 | 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 to 5,348 | 243 to 829 | 3 (6-9AM) | 2,942 to 6,232 | 3088 to 674 | 4 (6-10AM) |
| CT 60 | I-205 EB | Mountain House Pkwy | Eleventh St | C | 4,400 | 1,431 to 5,068 | 4 (3-7PM) | 1,574 to 5,575 | 774 to 284 | 5 (2-7PM) | 2,458 to 6,459 | 619 to 129 | 5 (2-7PM) |
| CT 61 | I-205 WB | Mountain House Pkwy | Eleventh St | C | 4,400 | 1,875 to 4,117- | - | 2,063 to 4,529 | 325 to 105 | 12 (6-7AM; 8AM) | 2,947 to 5,413 | 3170 to 950 | 35 (6-9AM; 11AM) |
| CT 62 | I-205 EB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,525 to 4,200- | - | 1,617 to 4,452 | 891 to 208 | - | 2,300 to 5,135 | 546 to 863 | -3 (3-6PM) |
| CT 63 | I-205 WB | Grant Line Rd | Tracy Blvd | D | 5,410 | 1,852 to 3,079- | - | 1,963 to 3,264 | 296 to 818 | - | 2,646 to 3,947 | 951 to 473 | - |
| CT 64 | I-205 EB | Tracy Blvd | MacArthur Dr | D | 5,410 | 1,511 to 4,182- | - | 1,602 to 4,433 | 874 to 186 | - | 2,285 to 5,116 | 529 to 841 | -3 (3-6PM) |
| CT 65 | I-205 WB | Tracy Blvd | MacArthur Dr | D | 5,410 | 2,083 to 3,446- | - | 2,208 to 3,653 | 583 to 273 | - | 2,891 to 4,336 | 3238 to 928 | - |

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | | Baseline Plus Background Growth Conditions | | | BPGPP Conditions | | |
|--------|-------------------------------------|------------------------|-------------------------------|---------------|---------------------|---------------|----------------------------------|--|----------------------------------|--|----------------------------------|--|---------------|
| | | | | | LOS | Hourly Volume | 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 | |
| | | | | | | | | | | | | | Hourly Volume |
| ISL 01 | A St/4th St/Jackson Blvd. | SR 160 | Isleton City Limits | D | 1,410 | 17 to 75 | - | 17 to 75 | - | 1792 to 75150 | - | - | |
| OAK 01 | Main Street (Old SR 4) ¹ | SR 160 | Cypress Rd | C | 1,920 | 752 to 1,663 | - | - | - | - | - | - | |
| | | | | D | 3,540 | - | - | 795872 to 1,759927 | - | 3,622577 to 4,586632 | 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 | - | - | 823924 to 1,522709 | - | 3,650629 to 4,349414 | 13 (6AM-7PM) | | |
| OAK 03 | Cypress Rd | Main Street (Old SR 4) | Bethel Island Rd | D | 1,600 | 304 to 764 | - | 304371 to 764932 | - | 304446 to 7641007 | - | - | |
| OAK 04 | Bethel Island Rd | Cypress Rd | Oakley City Limits | D | 1,410 | 140 to 367 | - | 140171 to 367448 | - | 140246 to 367523 | - | - | |
| OAK 05 | Delta Rd | Main Street (Old SR 4) | Byron Hwy | D | 1,410 | 155 to 334 | - | 155157 to 334339 | - | 155232 to 334414 | - | - | |
| SAC 01 | Pocket Rd | I-5 | Freeport Blvd (Old SR 160) | D | 3,540 | 789 to 2,191 | - | 789 to 2,191 | - | 789864 to 2,191266 | - | - | |
| SAC 02 | Freeport Blvd (Old SR 160) | Pocket Rd | Sacramento City Limits | D | 1,760 | 152 to 492 | - | 152185 to 492600 | - | 152260 to 492675 | - | - | |
| SC 01 | Freeport Bridge | River Rd | SR 160 (Freeport Blvd) | D | 1,410 | 98 to 346 | - | 98118 to 346415 | - | 98193 to 346490 | - | - | |
| SC 02 | Hood Franklin Rd | SR 160 (River Rd) | I-5 | D | 1,410 | 77 to 137 | - | 7785 to 137151 | - | 77160 to 137226 | - | - | |
| SC 03 | Lambert Rd | SR 160 (River Rd) | Herzog Rd | D | 1,410 | 10 to 29 | - | 1012 to 2934 | - | 1087 to 29109 | - | - | |
| SC 04 | Lambert Rd | Herzog Rd | Franklin Blvd | D | 1,410 | 19 to 38 | - | 1920 to 3840 | - | 1995 to 38115 | - | - | |
| SC 05 | Franklin Blvd | Lambert Rd | Twin Cities Rd | D | 1,410 | 41 to 71 | - | 4142 to 7172 | - | 41117 to 71147 | - | - | |
| SC 06 | Twin Cities Rd | River Rd | I-5 | D | 1,410 | 130 to 248 | - | 133137 to 254262 | - | 878852 to 999977 | - | - | |

| ID | Segment | From | To | LOS Threshold | Baseline Conditions | | | Baseline Plus Background Growth Conditions | | | BPGPP Conditions | | | |
|-------|-------------------------------|---|-------------------------------------|---------------|---------------------|---------------|----------------------------------|--|---------------|----------------------------------|----------------------------|---------------|----------------------------------|----------------------------|
| | | | | | LOS | Hourly Volume | Hourly Volume Range (6AM to 7PM) | Hours Operating Worse Than | Hourly Volume | Hourly Volume Range (6AM to 7PM) | Hours Operating Worse Than | Hourly Volume | Hourly Volume Range (6AM to 7PM) | Hours Operating Worse Than |
| | | | | | | | | | | | | | | |
| SC 07 | Twin Cities Rd | I-5 | Franklin Blvd | D | 1,410 | 141 to 318 | - | 1491162 to 335365 | - | 252262 to 438465 | - | | | |
| SC 08 | Sutter Slough Bridge Rd | Sacramento Co./Yolo Co. Line | Paintersville Bridge | D | 1,410 | 51 to 113 | - | 5562 to 422138 | - | 2,559457 to 2,626533 | 13 (6AM-7PM) | | | |
| SC 09 | River Rd (Sac Co.) | Paintersville Bridge | Twin Cities Rd | D | 1,410 | 85 to 134 | - | 8687 to 435137 | - | 834802 to 880852 | - | | | |
| SC 10 | River Rd (Sac Co.) | Twin Cities Rd | Walnut Grove Bridge | D | 1,600 | 223 to 365 | - | 229236 to 375386 | - | 974951 to 1,120101 | - | | | |
| SC 11 | Walnut Grove Rd/River Rd | Walnut Grove Bridge | Sacramento Co./SJ Co. Line | D | 1,410 | 175 to 332 | - | 481187 to 343355 | - | 926902 to 1,088070 | - | | | |
| 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 | - | 429416 to 654638 | - | | | |
| SC 13 | Race Track Rd/Tyler Island Rd | Walnut Grove Rd | Southern End of Tyler Island | D | 1,410 | 17 to 34 | - | 1718 to 3436 | - | 1793 to 34111 | - | | | |
| SC 14 | Tyler Island Rd | Southern End of Tyler Island | SR 160 (River Rd) | D | 1,410 | 14 to 39 | - | 14 to 39 | - | 1489 to 39114 | - | | | |
| SC 15 | Jackson Slough Rd | Isleton City Limits | SR 12 | D | 1,410 | 4 to 53 | - | 45 to 5365 | - | 480 to 53140 | - | | | |
| SC 16 | Jackson Slough Rd | Brannan Island Rd | SR 12 | D | 1,410 | 16 to 52 | - | 4620 to 5263 | - | 4695 to 52138 | - | | | |
| SJ 01 | Walnut Grove Rd | Sacramento Co./SJ Co. Line | I-5 | C | 790 | 141 to 232 | - | 445151 to 239248 | - | 890866 to 984963 | 13 (6AM-7PM) | | | |
| SJ 02 | Peltier Rd | Blossom Rd | I-5 | C | 680 | 8 to 23 | - | 8 to 23 | - | 883 to 2398 | - | | | |
| SJ 03 | Tracy Blvd | SR 4 | Clifton Court Rd | C | 790 | 108 to 209 | - | 108 to 209 | - | 1,472413 to 1,573514 | 13 (6AM-7PM) | | | |
| SJ 04 | Tracy Blvd | Clifton Court Rd | Tracy City Limits | C | 790 | 69 to 171 | - | 7284 to 178209 | - | 1,436389 to 1,542514 | 13 (6AM-7PM) | | | |
| SJ 05 | Byron Hwy | Alameda Co./San Joaquin Co. Line | Mountain House Pkwy | D | 1,600 | 521 to 824 | - | 563636 to 8901005 | - | 2,331326 to 2,658695 | 13 (6AM-7PM) | | | |
| SJ 06 | Mountain House Pkwy | Byron Hwy | Arnaudo Blvd | D | 1,410 | 190 to 298 | - | 205232 to 322364 | - | 1,973922 to 2,090054 | 13 (6AM-7PM) | | | |

| ID | Segment | From | To | LOS Threshold | LOS Volume | Baseline Conditions | | Baseline Plus Background Growth Conditions | | BPBGPP Conditions | |
|--------|---------------------------------------|------------------------|-------------------------------|---------------|------------|----------------------------|----------------------------------|--|----------------------------------|----------------------------|----------------------------------|
| | | | | | | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than | Hourly Volume (6AM to 7PM) | Hours Operating Range Worse Than |
| SJ 07 | Mountain House Pkwy | Arnaudo Blvd | I-205 | D | 3,540 | 418 to 769 | - | 477535 to 877984 | - | 2,245225 to 2,645674 | - |
| STK 01 | Eight Mile Rd | Stockton City Limits | I-5 | E | 1,870 | 309 to 769 | - | 309377 to 769938 | - | 309452 to 7691013 | - |
| TRA 01 | Tracy Blvd | Tracy City Limits | I-205 | E | 1,870 | 309 to 759 | - | 321377 to 789926 | - | 1,685682 to 2,153231 | 10 (8AM-11 (7AM-6PM) |
| WS 01 | Harbor Blvd | Industrial Blvd | US 50 | D | 3,540 | 1,140 to 2,317 | - | 1,218355 to 2,476753 | - | 3,722750 to 4,9805148 | 13 (6AM-7PM) |
| WS 02 | Industrial Blvd/ Lake Washington Blvd | Harbor Blvd | Jefferson Blvd (Old SR 84) | C | 1,920 | 773 to 1,858 | - | 835943 to 2,007267 | 1 (2 (7-8AM; 5-6PM) | 3,339338 to 4,511662 | 13 (6AM-7PM) |
| WS 03 | Jefferson Blvd (Old SR 84) | Lake Washington Blvd | Southport Pkwy | C | 1,920 | 546 to 1,718 | - | 586655 to 1,8432062 | -1 (5-6PM) | 3,090050 to 4,347457 | 13 (6AM-7PM) |
| WS 04 | Jefferson Blvd (Old SR 84) | Southport Pkwy | West Sacramento City Limits | C | 680 | 42 to 146 | - | 4549 to 155172 | - | 2,549444 to 2,659567 | 13 (6AM-7PM) |
| YOL 01 | River Rd (Yolo Co.) | Freeport Bridge | Courtland Rd | C | 680 | 74 to 249 | - | 7478 to 249263 | - | 74153 to 249338 | - |
| YOL 02 | River Rd (Yolo Co.) | Courtland Rd | Sacramento Co./ Yolo Co. Line | C | 680 | 25 to 63 | - | 2731 to 6877 | - | 2,531426 to 2,572472 | 13 (6AM-7PM) |
| YOL 03 | Courtland Rd | SR 84 (Jefferson Blvd) | River Rd | C | 680 | 28 to 77 | - | 3034 to 8394 | - | 2,534429 to 2,587489 | 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.

1 The decrease in LOS below applicable thresholds during construction would be adverse at the
 2 locations identified in Table 19-27 because construction associated with Alternative 9 would cause
 3 LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM
 4 analysis period. Alternative 9 would also temporarily exacerbate an already unacceptable LOS under
 5 BPBG conditions at ~~34-33~~ roadway segments (~~51-56~~ minus the ~~17-23~~ that would already be
 6 operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will
 7 occur throughout the study area, the highest concentration of roadway segments below applicable
 8 LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also
 9 be exceeded on several local roadways, include all segments studied in West Sacramento and the
 10 majority of segments in San Joaquin County.

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

23 **CEQA Conclusion:** Construction under Alternative 9 would add hourly traffic volumes to study area
 24 roadways that would exceed acceptable LOS threshold (Table 19-~~257~~). As shown in Table 19-27,
 25 traffic volumes during construction of Alternative 9 would temporarily exacerbate already
 26 unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the
 27 time of project construction. This impact would be temporary, but significant. Mitigation Measures
 28 TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-
 29 significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or
 30 constructed prior to the project's contribution to the impact. If an improvement that is identified in
 31 any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and
 32 constructed before the project's contribution to the impact is made, a significant impact in the form
 33 of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If,
 34 however, all improvements required to avoid significant impacts prove to be feasible and any
 35 necessary agreements are completed before the project's contribution to the effect is made, impacts
 36 would be less than significant.

37 **Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement** 38 **Conditions**

39 **NEPA Effects:** Construction truck traffic may damage roadway surfaces. During construction,
 40 various materials would be transported to and from the construction areas in load-bearing trucks.
 41 As shown in Table 19-28, construction of Alternative 9 would contribute to further deterioration of
 42 the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~
 43 Table 19-7), on a total of ~~32-42~~ roadway segments (~~see table~~ entries in **bold type**). Figure 19-4b
 44 shows the study roadway segments that could experience substantial pavement condition effects.

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

9 **CEQA Conclusion:** Construction would add trips, exacerbating unacceptable pavement conditions to
10 below acceptable thresholds (Table 19-7) at the ~~36-42~~ intersections shown in Table 19-28. The
11 impact of roadway damage during construction would be potentially significant. Mitigation
12 Measures TRANS-2a through TRANS-2c would reduce this impact, but not necessarily to a level that
13 would be less than significant, as the BDCP proponents cannot ensure that the agreements or
14 encroachment permits will be obtained from the relevant transportation agencies. If an agreement
15 or encroachment permit is not obtained, a significant impact in the form of deficient pavement
16 conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation
17 agreement(s) or encroachment permit(s) providing for the improvement or replacement of
18 pavement are obtained and any other necessary agreements are completed, impacts would be
19 reduced to less than significant.
20

1 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 | NoYes | NoYes |
| CC 01 | Bethel Island Rd | Oakley City Limits | End | Deficient | NoYes | NoYes |
| 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 | NoYes | NoYes |
| CT 02 | I-5 SB | Florin Rd | Pocket Rd | Deficient | NoYes | NoYes |
| CT 03 | I-5 NB | Pocket Rd | Laguna Blvd | Deficient | NoYes | NoYes |
| CT 04 | I-5 SB | Pocket Rd | Laguna Blvd | Deficient | NoYes | NoYes |
| CT 05 | I-5 NB | Laguna Blvd | Elk Grove Blvd | Deficient | NoYes | NoYes |
| CT 06 | I-5 SB | Laguna Blvd | Elk Grove Blvd | Deficient | NoYes | NoYes |
| CT 07 | I-5 NB | Elk Grove Blvd | Hood Franklin Rd | Acceptable | NoYes | No |
| CT 08 | I-5 SB | Elk Grove Blvd | Hood Franklin Rd | Acceptable | NoYes | 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.

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

3 Facilities constructed under Alternative 9 would include two fish-screened intakes along the
4 Sacramento River near Walnut Grove, numerous operable barriers, two diversion pumping plants
5 and other associated facilities, two culvert siphons, three canal segments, new levees, and new
6 channel connections. Some existing channels would also be enlarged under this alternative.
7 Alternative 9 does not include north Delta intakes. Instead, water continues to flow by gravity from
8 the Sacramento River into two existing channels, Delta Cross Channel and Georgiana Slough.
9 Alternative 9 operates in a manner more similar to the No Action Alternative with operational
10 criteria related to minimizing reverse flows in Old and Middle rivers applying only to Middle River
11 and not including San Joaquin River export/inflow ratio criteria.

12 As explained in Chapter 6, *Surface Water*, construction of the facilities included in Alternative 9
13 would require excavation, grading, or stockpiling at project facility sites or at temporary work sites.
14 Site grading needed to construct any of the proposed facilities has the potential to block, reroute, or
15 temporarily detain and impound surface water in existing drainages, which would result in
16 increases and decreases in flow rates, velocities, and water surface elevations. Changes in drainage
17 depths would vary depending on the specific conditions at each of the temporary work sites. As
18 drainage paths would be blocked by construction activities, the temporary ponding of drainage
19 water could occur and result in decreases in drainage flow rates downstream of the new facilities,
20 increases in water surface elevations, and decreases in velocities upstream of the new facilities.
21 These changes would not result in a substantial decrease in surface water elevation on any
22 navigable waterways and therefore would not have an adverse effect on navigation.

23 Removal of groundwater during construction (dewatering) would be required for excavation
24 activities. Groundwater removed during construction would be treated as necessary, and discharged
25 to local drainage channels or rivers. This would result in a localized increase in flows and water
26 surface elevations in the receiving channels. The increase in flows and water surface elevations in
27 the receiving channels would not affect navigation.

28 Construction of facilities within water bodies would include the installation of cofferdams at each
29 location. Intakes and screens have been designed to minimize changes to river flow characteristics.
30 Nevertheless, some localized water elevation changes will occur upstream and adjacent to each
31 cofferdam at these intake sites due to facility location within the river. These localized surface
32 elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river
33 flows (when surface elevation changes would be expected to be highest). Any decrease in surface
34 water elevations downstream of the cofferdams would be negligible and would not adversely affect
35 navigation. Under existing regulations, USACE, CVFPB, and DWR would require installation of
36 setback levees or other measures to maintain existing flow capacity in the waterways during
37 construction and operations, which would prevent unacceptable increases in river water surface
38 elevations under flood-flow conditions.

39 In total, Alternative 9 would result in alterations to drainage patterns, stream courses, and runoff,
40 and potential for minimal increased surface water elevations in the rivers and streams during
41 construction of facilities located within the waterway. Construction under Alternative 9 would not
42 result in a substantial decrease in surface water elevations on any navigable waterways and
43 therefore would not have an adverse effect on navigation. Although the increase in surface water
44 elevations in rivers and streams under Alternative 9 creates a potential impact regarding flooding

1 (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the
2 changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6,
3 Surface Water, for additional information regarding changes to surface water under Alternative 9.

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

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

19 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 20 **by Operation of Intakes**

21 Intake screens under Alternative 9 are designed to be hydrologically neutral. This is in part due to
22 the proposed position of each intake (screen) at the confluence of the Sacramento and the Delta
23 Cross Channel and Georgiana Slough and the fact that flows through the two intakes (screens) is not
24 pumped. However, surface elevations could increase locally and adjacent to the facility. These
25 localized surface elevation changes will not result in a significant decrease in surface water elevation
26 at any location. Since there is no reduction in surface flows, navigation is not expected to be effected
27 by changes in water levels near the intake screen facilities. Similarly, navigation is not expected to
28 be effected by surface water level changes further upstream or downstream from the facilities
29 during operation.

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

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

39 **Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From** 40 **Construction of Intakes**

41 As explained above under the discussion of potential effects to surface elevations during
42 construction of the intakes for Alternative 9, Intake (screen) construction would involve some

1 excavation, coffer dam installation and potential dewatering. Cofferdam installation with potential
2 sediment accumulation near the facility is likely to result on a temporary basis during construction.
3 Sedimentation that occurs near intakes during construction under Alternative 9 will be localized and
4 short-term and will not have an adverse effect on navigation.

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

17 Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and
18 Sedimentation) will further ensure that impacts from sedimentation are minimal and will not have
19 an adverse effect on navigation.

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

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

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

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

29 **Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From** 30 **Construction of Barge Facilities**

31 Under alternative 9, temporary barge unloading facilities would be constructed at locations adjacent
32 to construction work areas for the delivery of construction materials. Each of the barge landings
33 would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and
34 possibly conveyors for loading and unloading materials; and vehicles and other machinery.
35 Construction of the landings would likely involve piles at each landing.

36 To address potential erosion and sedimentation impacts from barge facility construction associated
37 with Alternative 9, the project proponents will ensure that a Barge Operations Plan is developed and
38 implemented for facility construction. The requirements for the Barge Operations Plan are
39 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
40 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
41 submitted by the construction contractors per standard DWR contract specifications. Erosion
42 control measures during construction activities at project locations are provided in Appendix 3B,

1 Environmental Commitments, as noted above in the discussion of the intakes. Fleeting facilities will
2 be either docking facilities built through pile and wharves or loaded and unloaded using landward
3 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on
4 sedimentation through construction related activities will be localized and minimal.

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

7 NEPA Effects: Construction and operation of the barge facilities under Alternative 9 would not have
8 an adverse effect on navigation.

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

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

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

16 Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From 17 Construction of Clifton Court Forebay

18 Alternative 9 would not involve expansion or modifications to Clifton Court Forebay. Moreover,
19 while Clifton Court Forebay is a “navigable water,” use of the forebay is limited to maintenance
20 operations and is not open to commercial or recreational navigation.

21 NEPA Effects: No effect.

22 CEQA Conclusion: No impact.

23 Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation 24 of Intakes

25 Alternative 9 proposes two fish screen facilities along the Sacramento River. A fish-screened intake
26 will be constructed at the head of the Delta Cross Channel and Georgiana Slough. Each of the
27 structures is about 2,500 feet long and is designed to prevent migrating fish species from entering
28 the corridor. These screens will likely impact sediment transport along the Sacramento River near
29 Walnut Grove, particularly the bed load. The sill of the intake will be constructed above the channel
30 thalweg, which will limit the movement of the bed load along the channel. The bed sediment that
31 would have entered into the Delta Cross Channel and Georgiana Slough will stay in the in the
32 Sacramento River. The channel on the downstream of the intake gate will have less sediment loading
33 which may lead to scouring of the levees. However, the potential scouring of the levees would result
34 in minimal sedimentation and would not have an adverse impact on navigation. (See Chapter 10,
35 Soils, for addition information on the potential for bank erosion.) There is also the potential for
36 sediment buildup along the Sacramento River in front of and downstream of each intake structure.
37 However, as explained in Chapter 3, Description of Alternatives, typical maintenance activities
38 associated with river intakes would be performed to ensure that sediment buildup is controlled.
39 These activities may include the following: (1) suction dredging around the intake structures using
40 raft- or barge-mounted equipment and pumping sediment to a landside spoils area; (2) mechanical

1 excavation around intake structures using track-mounted equipment and a clamshell dragline from
2 the top deck after installing a floating turbidity control curtain to isolate the work area; and (3)
3 dewatering the intake bays to remove sediment buildup using small front-end loading equipment
4 and manual labor. These activities will ensure that sediment accumulation near the intakes would
5 not have an adverse effect on navigation.

6 **NEPA Effects:** Construction and operation of the intakes under Alternative 9 would not have an
7 adverse effect on navigation.

8 **CEQA Conclusion:** Because it does not involve a physical change in the environment, effects to
9 navigation caused by changes in sedimentation, by themselves, are not considered environmental
10 impacts under CEQA. Any secondary physical environmental impacts that may result are covered
11 under other impacts. Nonetheless, as explained above, changes in sedimentation caused by the
12 operable barriers proposed under Alternative 9 will not have a significant impact on navigation.

13 **Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of** 14 **Operable Barriers**

15 Alternative 9 proposes 14 operable barriers along several channels in the central and south Delta.
16 The construction and operation of the flow control barriers under Alternative 9 will block the
17 natural movement of water through the existing channels. If the bottom of the gate is not matched
18 with the bottom of the channel thalweg, it will alter the movement of bed load, which could lead to
19 significant sediment impacts on some sloughs, such as Threemile Slough (Dinehart, 2002). In
20 general, closing the barriers will create a pool of standing water on either side the gate. The standing
21 water will provide areas for sedimentation which could reduce the channel capacity. Routine
22 inspection of gate facilities and systems under Alternative 9 would occur annually. Some gates may
23 not be required to operate for extended periods and would be operated at least two times per year.
24 Each gate bay would be inspected annually at the end of the wet season for sediment accumulation.
25 Sediment would be removed during the summer. These activities would ensure sedimentation near
26 the operable barriers would not have an adverse effect on navigation.

27 **NEPA Effects:** With respect to construction and operations of the operable barriers, Alternative 9
28 would have no adverse effect on either commercial or recreational navigation activities.

29 **CEQA Conclusion:** Because it does not involve a physical change in the environment, effects to
30 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
31 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
32 explained above, construction and operations of operable barriers under Alternative 9 barrier will
33 not have a significant impact on navigation.

34 **Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and** 35 **Operations of Water Conveyance Facilities**

36 As explained above and with respect to the construction and operation of these facilities, Alternative
37 9 would not result in an adverse effects to navigation due to water level elevation changes or altered
38 sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of
39 the project to result in cumulative effects on navigation. This is because the minimal effects of these
40 elements of the project on navigation are localized and would combine only with probable future
41 projects if the projects were located immediately adjacent to the project components. There are no

1 other reasonably foreseeable projects proposed to be located near or adjacent to the planned
2 Alternative 9 facilities.

3 **NEPA Effects:** Alternative 9 in combination with other reasonably foreseeable projects would not
4 have a cumulatively adverse effect on navigation.

5 **CEQA Conclusion:** Because it does not involve a physical change in the environment, effects to
6 navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary
7 physical environmental impacts that may result are covered under other impacts. Nonetheless, as
8 explained above, Alternative 9 in combination with other reasonably foreseeable projects would not
9 have a cumulatively significant impact on navigation.

10 **19.4 References**

11 **19.4.1 Printed References**

12 California Department of Water Resources, 2010. Technical Memorandum – Initial Intake Hydraulic
13 Analyses (April 15, 2010)

14 ———, 2011. DHCCP Intake Study: Preferred Intake Technology (January 2011)

15 ———, 2012. Preliminary Estimates of Sediment Load at Proposed DHCCP Intakes (June 28, 2012)
16 Revision 2

17 Dinehart, R. L. (2002). Bedform movement recorded by sequential single-beam surveys in tidal
18 rivers. Journal of hydrology, 258, pp 35-39.
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