

4.3.15 Transportation

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

NEPA Effects: Traffic volumes generated during construction of Alternative 4A would be identical to those evaluated under Alternative 4. As shown in Table 19-25 in the Draft EIR/EIS, under baseline plus background growth (BPBG) conditions, a total of 23 roadway segments would exceed level of service (LOS) for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Construction associated with Alternative 4A 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 38 roadway segments under baseline plus background growth plus project (BPBGPP) conditions. Alternative 4A would therefore exacerbate an already unacceptable LOS under BPBG conditions on 15 roadway segments (38 minus the 23 that would already be operating at an unacceptable LOS under BPBG conditions). The effect of increased traffic volumes in excess of LOS thresholds would be adverse.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the project proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

CEQA Conclusion: Construction under Alternative 4A would add hourly traffic volumes to study area roadways that would exceed acceptable LOS thresholds. This would be a significant impact. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The project proponents cannot ensure that required roadway capacity improvements outlined under TRANS-1c will be fully funded or constructed prior to the project's contribution to the impact. If an improvement identified in the mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

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

Please refer to Mitigation Measure TRANS-1a under Impact TRANS-1 in the discussion of Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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

Please refer to Mitigation Measure TRANS-1b under Impact TRANS-1 in the discussion of Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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 under Impact TRANS-1 in the discussion of
4 Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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

7 **NEPA Effects:** Traffic volumes generated during construction of Alternative 4A would be identical to
8 those evaluated under Alternative 4. As shown in Table 19-26 in the Draft EIR/EIS, construction of
9 Alternative 4 would deteriorate existing pavement conditions to less than the acceptable pavement
10 condition index (PCI) or similar applicable threshold on a total of 46 roadway segments. Damage to
11 roadway pavement is also expected throughout the study area on various local and state roads, as
12 well as on a few interstates. The effect of roadway damage in excess of PCI thresholds would be
13 adverse.

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

22 **CEQA Conclusion:** Construction under Alternative 4A would add traffic trips to study area roadways
23 that would exacerbate unacceptable pavement conditions. This would be a significant impact.
24 Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not
25 necessarily to less-than-significant levels, as the project proponents cannot ensure that the
26 agreements or encroachment permits will be obtained from the relevant transportation agencies. If
27 an agreement or encroachment permit is not obtained, a significant impact in the form of deficient
28 pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If,
29 however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or
30 replacement of pavement are obtained and any other necessary agreements are completed, impacts
31 would be reduced to less than significant.

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

34 Please refer to Mitigation Measure TRANS-2a under Impact TRANS-1 in the discussion of
35 Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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

38 Please refer to Mitigation Measure TRANS-2b under Impact TRANS-1 in the discussion of
39 Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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

3 Please refer to Mitigation Measure TRANS-2c under Impact TRANS-1 in the discussion of
4 Alternative 4 in Chapter 19, *Transportation*, of the Draft EIR/EIS.

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

7 **NEPA Effects:** The potential for Alternative 4A to increase safety hazards during construction would
8 be identical to those impacts described under Alternative 4. Increases in heavy construction traffic
9 on local roadways could increase safety hazards, such as conflicts with recreational and commuter
10 traffic and with farming operations. The increase in heavy construction traffic using emergency
11 routes could also interfere with emergency service response times. Minor delays and congestion
12 created by rerouted traffic during the temporary realignment of Byron Highway/South Pacific
13 Railroad could create localized interferences with emergency service response times in the vicinity
14 of Bryon Highway. The effect of increased safety hazards from increased heavy construction traffic
15 on local roadways and emergency routes would be adverse.

16 Mitigation Measure TRANS-1c is available to reduce this effect, but not necessarily to a level that
17 would not be adverse, as the project proponents are not solely responsible for the timing, nature, or
18 complete funding of required improvements. If an improvement identified in the mitigation
19 agreement(s) is not fully funded and constructed before the project's contribution to the effect is
20 made, an adverse effect in the form of increased safety hazards would occur. Accordingly, this effect
21 would be adverse. If, however, all improvements required to avoid adverse effects prove to be
22 feasible and any necessary agreements are completed before the project's contribution to the effect
23 is made, effects would not be adverse.

24 **CEQA Conclusion:** Construction of Alternative 4A would increase the amount of trucks using the
25 transportation system in the study area, which could increase the potential for safety hazards,
26 including conflicts with farming operations, emergency services, and recreational and commuter
27 traffic. Minor delays and congestion created by rerouted traffic during the temporary realignment of
28 Byron Highway/South Pacific Railroad could also create localized interferences with emergency
29 service response times in the vicinity of Bryon Highway. This would be a significant impact.

30 Mitigation Measure TRANS-1c will reduce the severity of this impact, but not to less-than-significant
31 levels since the project 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 identified in the
33 mitigation agreement(s) is not fully funded and constructed before the project's contribution to the
34 impact is made, a significant impact in the form of increased safety hazards would occur. If, however,
35 all improvements required to avoid significant impacts prove to be feasible and any necessary
36 agreements are completed before the project's contribution to the effect is made, impacts would be
37 less than significant.

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

40 Please refer to Mitigation Measure TRANS-1c in Alternative 4, Impact TRANS-1 in Chapter 19,
41 *Transportation*, of the Draft EIR/EIS.

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

2 **NEPA Effects:** The potential for Alternative 4A to disrupt marine traffic during construction would
3 be identical to those impacts described under Alternative 4. Commercial barges would be used to
4 transport tunnel segments from three concrete precast yards to temporary barge unloading
5 facilities on Bouldin Island and at the Clifton Court Forebay. Tugboats would also be used during
6 intake and forebay construction.

7 Approximately 5,500 barge trips are projected to carry tunnel segments from existing precast yards
8 to project sites via the Sacramento River and other waterways, averaging approximately 8 trips per
9 day through the segment hauling period (2020 to 2025). This potential effect is not considered
10 adverse because construction of Alternative 4A would not require modification to existing deep
11 water channels, interfere with Port of Stockton navigation, or substantially increase the volume of
12 barge movement within the study area, such that existing marine traffic would be disrupted. Barge
13 routes and landing sites will be selected to maximize continuous waterway access and a minimum
14 waterway width greater than 100 feet. Moreover, Mitigation Measure TRANS-1a would also reduce
15 any potential disruptions as it includes stipulations to notify the commercial and leisure boating
16 community of proposed barge operations in the waterways.

17 **CEQA Conclusion:** Construction of Alternative 4A would not require modification to existing deep
18 water channels, interfere with Port of Stockton navigation, or substantially increase the volume of
19 barge movement within the study area such that existing marine traffic would be disrupted (on
20 average, only 8 additional barge trips per day are expected through the segment hauling period).
21 Accordingly, this impact would be less than significant. While no mitigation is required, it is
22 important to note that Mitigation Measure TRANS-1a (implemented to reduce effects from Impact
23 TRANS-1) would reduce any potential disruptions as it includes stipulations to notify the
24 commercial and leisure boating community of proposed barge operations in the waterways.

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

26 **NEPA Effects:** The potential for Alternative 4A to disrupt rail traffic during construction would be
27 identical to those impacts described under Alternative 4. The water conveyance alignment crosses
28 under the existing BNSF/Amtrak San Joaquin line between Bacon Island and Woodward Island and
29 would therefore have no effect on freight service. Similarly, construction of the Clifton Court
30 Forebay would not disrupt UPRR Tracy Subdivision service since the line is currently inactive.
31 However, if the UPRR Tracy Subdivision branch line is reopened, construction activities may
32 adversely affect new service. Mitigation Measure TRANS-1a, which includes stipulations to
33 coordinate with rail providers to develop alternative transportation modes (e.g., trucks or buses) is
34 available to address this effect.

35 **CEQA Conclusion:** Construction of Alternative 4A would not physically cross or require modification
36 to an active railroad. However, if the UPRR Tracy Subdivision branch line is reopened, construction
37 activities at the Clifton Court Forebay may affect new service. This would be a significant impact.
38 Mitigation Measure TRANS-1a, which includes stipulations to coordinate with rail providers to
39 develop alternative transportation modes (e.g., trucks or buses) would reduce this impact to less
40 than significant.

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

3 Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1 in Chapter 19,
4 *Transportation*, of the Draft EIR/EIS.

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

6 **NEPA Effects:** The potential for Alternative 4A to disrupt transit service during construction would
7 be identical to those impacts described under Alternative 4. Construction activities associated with
8 Alternative 4A would increase LOS below applicable thresholds, as well as exacerbate already
9 unacceptable LOS conditions (refer to Impact TRANS-1). Increased congestion resulting from
10 construction traffic would result in an adverse effect on transit routes and schedules, particularly
11 along the SCT Link/Delta Route and Greyhound bus lines.

12 Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect, but not
13 necessarily to a level that would not be adverse, as the project proponents are not solely responsible
14 for the timing, nature, or complete funding of required improvements. If an improvement identified
15 in the mitigation agreement(s) is not fully funded and constructed before the project's contribution
16 to the effect is made, an adverse effect in the form of disruptions to transit service would occur. If,
17 however, all improvements required to avoid adverse effects prove to be feasible and any necessary
18 agreements are completed before the project's contribution to the effect is made, effects would not
19 be adverse.

20 **CEQA Conclusion:** Construction activities associated with Alternative 4A would increase LOS below
21 applicable thresholds, as well as exacerbate already unacceptable LOS conditions. Increased
22 congestion resulting from construction traffic would result in a significant impact on transit routes
23 and schedules, particularly along the SCT Link/Delta Route and Greyhound bus lines. Mitigation
24 Measures TRANS-1a through TRANS-1c are available to reduce this impact, but not necessarily to a
25 level that would not be less than significant, as the project proponents are not solely responsible for
26 the timing, nature, or complete funding of required improvements. If an improvement identified in
27 the mitigation agreement(s) is not fully funded and constructed before the project's contribution to
28 the effect is made, a significant and unavoidable impact in the form of disruptions to transit service
29 would occur. If, however, all improvements required to avoid adverse effects prove to be feasible
30 and any necessary agreements are completed before the project's contribution to the impact is
31 made, impacts would be less than significant.

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

34 Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1 in Chapter 19,
35 *Transportation*, of the Draft EIR/EIS.

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 in Chapter 19,
39 *Transportation*, of the Draft EIR/EIS.

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 in Chapter 19,
4 *Transportation*, of the Draft EIR/EIS.

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

6 **NEPA Effects:** The potential for Alternative 4A to interfere with bicycle routes during construction
7 would be identical to those impacts described under Alternative 4. Increased traffic and vehicle
8 delays during construction could temporarily disrupt bicycle routes on SR 160/River Road and
9 potentially on SR 12. The effect of disruption to bicycle routes during construction would be
10 adverse. Mitigation Measure TRANS-1a, which requires alternative access routes via detours or
11 bridges be provided to maintain continual circulation for bicyclists, is available to reduce this effect.

12 **CEQA Conclusion:** Increased traffic and vehicle delays during construction could temporarily
13 disrupt bicycle routes on SR 160/River Road and potentially on SR 12, resulting in a significant
14 impact. However, Mitigation Measure TRANS-1a would reduce the severity of this impact to less-
15 than-significant levels because project proponents would provide alternate access routes via
16 detours or bridges to maintain continual circulation for local travelers in and around construction
17 zones, including bicycle riders.

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

20 Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1 in Chapter 19,
21 *Transportation*, of the Draft EIR/EIS.

22 **Impact TRANS-8: Increased Traffic Volumes and Delays during Operations and Maintenance**
23 **of Conveyance Facilities**

24 **NEPA Effects:** Traffic volumes generated during long-term operation of Alternative 4A would be
25 identical to those evaluated under Alternative 4. It is estimated that routine operations and yearly
26 maintenance activities would require approximately 40 and 35 employees, respectively. Given the
27 limited number of workers involved and the large number of work sites, it is not anticipated that
28 routine operations and maintenance activities or major inspections would result in substantial
29 increases of traffic volumes or roadway congestion. The impact of increased traffic volumes and
30 delays during project operations would not be adverse.

31 **CEQA Conclusion:** Given the limited number of workers involved and the large number of work
32 sites, it is not anticipated that routine operations and maintenance activities or major inspections
33 under Alternative 4A would result in substantial increases of traffic volumes or roadway congestion.
34 The impact of increased traffic volumes and delays during operations would therefore be less than
35 significant. No mitigation is required.

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

38 **NEPA Effects:** The potential for Alternative 4A to permanently alter transportation patterns during
39 operations and maintenance would be identical to those impacts described under Alternative 4.
40 Impacts on public roadways would be limited to the intake areas and would not substantially alter

1 traffic patterns. The design and construction of all project components (i.e., conveyances, intakes,
2 and forebays) would provide for on-going continuity of all rail operations following completion of
3 construction. Impediments to boat traffic associated with the intakes would continue for the life of
4 the project, but would not substantially affect boat passage or usage. The effect of permanent
5 alteration of transportation patterns during operations would therefore not be adverse.

6 **CEQA Conclusion:** Impacts on public roadways would be limited to the intake areas and would not
7 substantially alter traffic patterns. The design and construction of all project components (i.e.,
8 conveyances, intakes, and forebays) would provide for on-going continuity of all rail operations
9 following completion of construction. Impediments to boat traffic associated with the intakes would
10 continue for the life of the project, but would not substantially affect boat passage or usage.
11 Accordingly, the impact of permanent alteration of transportation patterns during operations would
12 be less than significant. No mitigation is required.

13 **Impact TRANS-10: Increased Traffic Volumes during Implementation of Environmental** 14 **Commitments 3, 4, 6-12, 15, and 16**

15 **NEPA Effects:** Effects of Alternative 4A related to increased traffic volumes during implementation
16 of Environmental Commitments 3, 4, 6-12, 15, and 16 would be similar to, but less than, those
17 described for Alternative 4. Habitat restoration and enhancement activities that require personnel
18 or heavy-duty equipment transport would generate traffic on area roadways. Roads and highways in
19 and around Suisun Marsh could experience increases in traffic volumes, resulting in localized
20 congestion and conflicts with local traffic. Maintenance and monitoring of the restoration areas
21 would also generate some vehicle trips. The effect would vary according to the amount of traffic
22 generated by implementation of the specific environmental commitment, the location and timing of
23 the actions called for in the environmental commitment, and the roadway and traffic conditions at
24 the time of implementation.

25 As described under Section 4.1, *Introduction*, of this RDEIR/SDEIS, the Yolo Bypass Fisheries
26 Enhancement (CM2) would not be completed as a component of Alternative 4A. Similarly,
27 Alternative 4A would only restore up to 1,396 acres of habitat under Environmental Commitments
28 3, 4, 6, 7, and 9-11 as compared with 83,839 acres under Alternative 4. Therefore, the magnitude of
29 traffic volumes and associated traffic impacts under Alternative 4A would likely be smaller than
30 those associated with Alternative 4. Nevertheless, the effect of increased traffic volumes during
31 construction and maintenance of Environmental Commitments 3, 4, 6-12, 15, and 16 would be
32 adverse.

33 Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect, but not
34 necessarily to a level that would not be adverse, as the project proponents are not solely responsible
35 for the timing, nature, or complete funding of required improvements. If an improvement that is
36 identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully
37 funded and constructed before the project's contribution to the effect is made, an adverse effect in
38 the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all
39 improvements required to avoid adverse effects prove to be feasible and any necessary agreements
40 are completed before the project's contribution to the effect is made, effects would not be adverse.

41 **CEQA Conclusion:** Impacts on roadways could result in circulation delays or the inability to
42 maintain adequate vehicular access in or around restoration or enhancement work zones. Roads
43 and highways in and around Suisun Marsh could experience increases in traffic volumes, resulting in
44 localized congestion and conflicts with local traffic. Maintenance and monitoring of the restoration

1 areas would also generate some vehicle trips. The impact of increased traffic volumes during
2 implementation of Environmental Commitments 3, 4, 6–12, 15, and 16 would be significant.
3 Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not
4 to less-than-significant levels. The project proponents cannot ensure that the improvements will be
5 fully funded or constructed prior to the project’s contribution to the impact. If an improvement
6 identified in the mitigation agreement(s) is not fully funded and constructed before the project’s
7 contribution to the impact is made, a significant impact would occur. Therefore, the project’s
8 impacts on roadway segment LOS would be conservatively significant and unavoidable. If, however,
9 all improvements required to avoid significant impacts prove to be feasible and any necessary
10 agreements are completed before the project’s contribution to the effect is made, impacts would be
11 less than significant.

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

14 Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1 in Chapter 19,
15 *Transportation*, of the Draft EIR/EIS.

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

18 Please refer to Mitigation Measure TRANS-1b in Alternative 4, Impact TRANS-1 in Chapter 19,
19 *Transportation*, of the Draft EIR/EIS.

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

22 Please refer to Mitigation Measure TRANS-1c in Alternative 4, Impact TRANS-1 in Chapter 19,
23 *Transportation*, of the Draft EIR/EIS.

24 **Impact TRANS-11: Compatibility of the Proposed Water Conveyance Facilities and Other**
25 **Environmental Commitments with Plans and Policies**

26 **NEPA Effects:** Constructing the water conveyance facilities and implementing the environmental
27 commitments under Alternative 4A would generally have the same potential for incompatibilities
28 with one or more transportation plans and policies as described for Alternative 4. As described for
29 Alternative 4, the project would be constructed with regulations related to transportation and
30 circulation enforced by local (including the local metropolitan planning organizations [MPOs]) and
31 federal agencies (including the Federal Highway Administration [FHWA] and Federal Aviation
32 Administration [FAA]). The project would also be consistent with Public Resources Code Section
33 21092.4, Delta Protection Act of 1992, and Delta Plan. Accordingly, there would be no adverse effect.

34 **CEQA Conclusion:** The potential incompatibilities with plans and policies listed above indicate the
35 potential for a physical consequence to the environment. The physical effects they suggest are
36 discussed in impacts TRANS-1 and TRANS-10, above and no additional CEQA conclusion is required
37 related to the compatibility of Alternative 4A with relevant plans and policies.

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

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

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

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

39 **Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused** 40 **by Operation of Intakes**

41 The hydraulic modeling scenario for this analysis included five intakes because that is the maximum
42 number of intakes included under any alternative. The modeling also assumed the highest North
43 Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or
44 lower diversion capacity, such as Alternative 4A (three intakes and 9,000 cfs maximum diversion

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

18 The minimal changes in surface water elevation anticipated under Alternative 4A, even assuming a
19 maximum lowering of 0.7 feet, would not likely expose any currently unexposed natural or man-
20 made features that would affect or impeded. There would be no new snags or obstructions that
21 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 to 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 Construction for Intakes 2, 3, and 5 will be accomplished using coffer dams at each location. Coffe
41 dams will isolate each construction area from the Sacramento River and will be used to de-water the
42 construction area. Construction of coffer dams would require sheet pile driving that would result in
43 incremental suspension of bed sediments. These effects would be temporary and would not have an

1 effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy
2 currents locally, but rock slope in the transition zone would limit those currents and potential
3 changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River
4 during intake construction would be minimal.

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.

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

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
25 construction of the 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-15: Potential Effects on Navigation Caused by Sedimentation From** 29 **Construction of Barge Facilities**

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

35 To address potential erosion and sedimentation impacts from barge facility construction associated
36 with Alternative 4A, the project proponents will ensure that a Barge Operations Plan is developed
37 and implemented for facility construction. The requirements for the Barge Operations Plan are
38 described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related
39 to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and
40 submitted by the construction contractors per standard DWR contract specifications. Erosion
41 control measures during construction activities at project locations are provided in Appendix 3B,
42 *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will

1 be either docking facilities built through pile and wharves or loaded and unloaded using landward
2 positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts to
3 sedimentation through construction related activities will be localized and minimal.

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

6 **NEPA Effects:** Construction and operation of the barge facilities under Alternative 4A would not
7 have an 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 from the
12 temporary barge facilities will not have a significant impact on navigation.

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

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

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

17 Clifton Court Forebay would be dredged and redesigned to provide an area where water flowing
18 from the new north Delta facilities will be isolated from water diverted from south Delta channels.
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:** Since Clifton Court Forebay is not open to navigation, there is no effect.

22 **CEQA Conclusion:** No impact.

23 **Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation** 24 **of Intakes**

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

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:** Operational criteria and design specifications for intake operations will result in no
39 change to water column or bed load sediment dynamics. Erosion and deposition patterns will

1 change little if any during intake operation. As a result, there will be no adverse effect on navigation
2 either near or downstream of the intake locations.

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 operation of
7 the proposed 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-18: Potential Effects on Navigation From Construction and Operations of Head**
11 **of Old River Barrier**

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

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

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

38 With respect to both recreational and commercial navigation, and based on analysis provided in the
39 SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14,
40 5.8-18, 5.8-21), impacts to navigation caused by water level changes during barrier operation will be
41 less than significant (p. 5.8-15, 5.8-19, 5.8-22), impact to non-recreational boaters due to temporary
42 dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on recreation
43 as a result of constructing and operating any of the alternatives will not be significant (p. 7.4-1).

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

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

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, construction and operations of the Head of Old River barrier will not have a
17 significant impact on navigation.

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 4A 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 4A facilities.

28 **NEPA Effects:** Alternative 4A 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 4A in combination with other reasonably foreseeable projects would
34 not have a cumulatively significant impact on navigation.