Section 4
Responses to Written Comments on the Draft EIR

4.1 INTRODUCTION

Written comments on the Draft Environmental Impact Report (EIR) are reproduced in this section. Written comments received were provided to BART by letter or by web form sent via email. Discrete comments from each letter are denoted in the margin by a vertical line and numbered. Responses immediately follow each comment letter and are enumerated to correspond with the comment number. Response 19.1, for example, refers to the response for the first comment in Letter #19. Many responses in this section refer to master responses, which are found in Section 3 of this document.

4.2 RESPONSES TO WRITTEN COMMENTS

Comment letters and responses begin on the following page.

1. Lisa Carboni, District Branch Chief, California Department of Transportation, District 4 (letter dated November 5, 2008)

By: CALTRANS TRANSPORTATIO PLANNING; 510 286 5560; Nov-5-08 3:50PM; Page 1

Letter 1

E OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

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November 5, 2008

CC000261
CC-4-R20.1-28.9
SCH#2005072100

Ms. Ellen Smith
San Francisco Bay Area Rapid Transit District
300 Lakeside Drive, 16th Floor
Oakland, CA 94612

Dear Ms. Smith:

East Contra Costa BART Extension (known as eBART) – Draft Environmental Impact Report (DEIR)

Thank you for continuing to include the California Department of Transportation (Department) in the environmental review process for the proposed eBART. The following comments are based on the DEIR.

1-1 As lead agency, the San Francisco Bay Area Rapid Transit District is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, and implementation responsibilities as well as lead agency monitoring should be fully discussed for all proposed mitigation measures and included in the Mitigation Monitoring and Reporting Plan. The project's traffic mitigation fees should be specifically identified in the Final Environmental Impact Report (EIR).

1-2 Any required roadway improvements should be completed prior to issuance of project occupancy permits. An encroachment permit is required when the project involves work in the State's right of way (ROW). The Department will not issue an encroachment permit until our concerns are adequately addressed. Therefore, we strongly recommend that the lead agency ensure resolution of the Department's California Environmental Quality Act (CEQA) concerns prior to submittal of the encroachment permit application.

1-3 The Department strongly supports the eBART project as it will provide another travel option for people in eastern Contra Costa County and we will continue to work in partnership with BART on this project. Our comments listed below are specific to potential localized impacts of this project.

Sent By: CALTRANS TRANSPORTATIO PLANNING; 510 286 5560; Nov-5-08 3:50PM; Page 2

Ms. Ellen Smith /San Francisco Bay Area Rapid Transit District
November 5, 2008
Page 2

TRAFFIC

Forecasting

General Comments: The Department believes a local area validation effort for the travel demand model used for forecasting the traffic impact for this project is needed.

- The methods used for the traffic counts and travel demand modeling to arrive at the build and no-build traffic forecasts should be documented in a technical report.

1-4 • Similarly, the methods used to combine the forecast roadway volumes with the turning movement counts to arrive at the turning movement forecasts should be documented in the above report.

1-5 • The traffic forecasts for this project show that the traffic on some roadways decreases between 2007 and 2030. This may be a realistic forecast but declining volumes typically would be expected. The reasons for these declines should be investigated. If they are due to valid occurrences, these should be documented in the forecast report. If they are due to shortcomings in the model, methods should be determined to address these shortcomings.

1-6 • The travel demand model used for this project should include the planned transit oriented development (TOD) around both new stations. If the amount of TOD is expanded after the eBART environmental document is approved, the environmental documents for the TOD will need to address the additional traffic due to the additional development.

We invite BART to work with us in a series of ongoing partnering efforts to address the specifics necessary to perform these tasks and would request that the outcome of this joint effort be included in the Final EIR or supporting technical reports.

Highway Operations

1-7 • Diagrams for 'project only' trips for all scenarios appear to be omitted.

1-8 • Please include all future ramp intersections (particularly the westbound ramp to the Hillcrest Avenue/ Sunset Drive intersection) in the Final EIR.

1-9 • Additional ramp analyses are necessary to assess impacts to state facilities.

1-10 • If the Railroad Avenue station will be operational before this project's completion please provide an interim analysis for the scenario where the station would be the eastern termini of the eBART line.

1-11 • Pages 2-10 and 2-11: Will the transfer station have an emergency exit for pedestrians that will require a temporary construction or permanent encroachment to access state facilities? If so, what are the temporary construction or permanent impacts?

"Caltrans improves mobility across California"

1-12
- Page 2-17: Will the pedestrian overcrossing construction need a complete eastbound freeway closure? If so, the construction impact section should include this discussion.

1-13
- Page 3.1-8: The cities of Pittsburg and Antioch are currently preparing Area Specific Plans for the Railroad and Hillcrest Stations. These conceptual plans add residential and commercial developments beyond the current approved general plan and will require amendment.
  - Are the additional developments accounted for in the DEIR's accumulated future forecast for the eBART project?
  - Is the half-mile-radius rezoning (intended for the Ridership Development Plan) included in the 2003/4 General Plan Amendment or has the eBART DEIR included those rezone-related trips in the forecast? If not, please include.

1-14
- Page 3.2.48 (Figure 3.2.-11 *"Railroad Avenue Station Area Intersections – 2015 No Project Conditions"*) versus Page 3.2.62 (Figure 3.2-6 *"Railroad Avenue Station Area Intersections – 2015 Proposed Project Conditions"*): The forecast movements for California Avenue/Harbor Street (Intersection #14) demand volumes were reduced as a result of the addition of eBART and a parking structure. We have similar concerns for volume reduction in the year 2030.

1-15
- Page 3.2-76 (Figure 3.2-18 *"Hillcrest Ave Station Area Intersection- 2030 Proposed Project Conditions"*): Please include the westbound State Route (SR) 4 ramp intersection at Sunset Drive.

1-16
- Pages 3.2-22, 3.2-48, and 3.2.62: The increase in volumes as depicted in Figure 3.2-5 (*"Railroad Avenue Station Area – Existing Intersection Geometrics"*) and Figure 3.2-11 (*"Railroad Avenue Station Area Intersections - 2015 No Project Conditions"*) and Figure 3.2-15 (*"Railroad Avenue Station Area Intersections - 2015 Proposed Project Conditions"*) do not reflect the volumes accessing the large eBART parking structure on Bliss Avenue off Harbor Avenue.
  - At intersection #14 (California Avenue/Harbor Street), the westbound to southbound movement for Figure 3.2-11 for the existing conditions is 279 vehicles. In Figure 3.2-11 for the Year 2015 No Project Conditions the number is 687 vehicles. And for the Figure 3.2-15 for the Year 2015 with Project Conditions the number is 431. It is unclear why the addition of the parking structure intended for eBART use would reduce that movement volume.

1-17
  - We have similar concerns for the minimal "parking trips" in the Year 2030.

1-18
- Page 3.2-69: The report states that the eastbound Hillcrest Avenue ramp intersection will be impacted. Most of the off-ramp vehicles will be turning right heading south on Hillcrest Avenue to Davison Road, Deer Valley Road, or

continuing on Hillcrest Avenue. We are concerned with the "significant and unavoidable" determination assigned to this impact. In the Final EIR, please include a discussion of potential mitigation measures needed to maintain acceptable operation levels and BART's fair-share contribution to these improvements.

- Methods for mitigating these impacts could include; intersection reconfiguration, restriping, or widening (i.e. - a three-lane left turn lane with south to east access or as a continuous east to south movement concurrent to a controlled south-through movement on the eastbound ramp intersection).
- Other specific mitigations might include the following:
  - BART and CCTA could coordinate to mitigate the impacts of the Contra Costa Transportation Authority (CCTA) sponsored SR4 Widening Project.
  - The City of Antioch's *"Northeast Antioch Circulation and Access Study"* dated May 26, 2005 has identified viable options to improve freeway access---BART could implement major modifications to the SR 160/East 18th Street interchange, with minor modifications to SR 4/Hillcrest Avenue Interchange or major modifications to the Hillcrest Avenue interchange with minor modifications to the SR 160/East 18th Interchange.

1-18 (cont'd)

- Page 3.2-76: We would like to see the queue lengths as part of the ramp intersection analyses. We are concerned about the queue length and impact to upstream facilities. Please provide additional information from the SR 4 Railroad Avenue and Hillcrest Avenue Interchange ramp intersection analysis regarding queuing for all scenarios (with and without the Proposed Project, Years 2015 and 2030 respectively).

1-19

- Page 3.2-76: The Department is concerned about consistency of intersection forecast volumes between this project document and the Final Traffic Analysis Report for SR 4 Widening Project (dated November 2003). For example, there is a significant variance between the two documents at SR 4/ Hillcrest Avenue intersection regarding the through and right-turn (to on-ramp) volumes. The percentage of SR 4 eastbound on-ramp volumes is 27% (500 right-turns versus 1,800 through movement in the AM peak period) of the through movement volumes in widening document but is only 10% (260 right-turns versus 2694 through movements in the AM peak period) in the eBART DEIR. This variance also extends to the PM peak. Please address and clarify these forecast volumes.

1-20

Signal Operations

For Hillcrest Avenue and Sunset Drive Intersection, we would like clarification of the following figures:

1-21 • In the Year 2015 Proposed build option, AM, the westbound lane volume (125), should be higher than the no-build option (160) since people are being dropped off and they are making a westbound lane change from Sunset Drive to Hillcrest Avenue.

1-22 • In the Year 2015 Proposed build option, AM, the northbound lane volume is 568. (The no-build option number is 112.) This is an extremely high volume of right turn movements and a double right turn should be provided. At the very least one (1) exclusive right turn and a shared right turn should be provided. In the DEIR, all that is depicted is a shared through and right turn.

1-23 • In the Year 2015 Proposed build option, AM, the southbound lane volume is 76; the no-build alternative figure is 52. There is an increase here but is it enough given the new BART station and work/live housing which will generate the increase in traffic? Please discuss this in the Final EIR.

1-24 • In the Year 2015 Proposed build option, PM, northbound ramp volume is only 10% higher than the no-build alternative. These figures should be revisited since there are only two ways (the third way, the westbound turn does not generate traffic) into the station at this intersection (northbound right and southbound left) and people will be picked up at the BART station. Please note, the southbound left volume shows essentially no change from build to no build option as the figures are 171 and 179, respectively; as mentioned, there are only two ways into the BART station at this intersection.

1-25 • In the Year 2030 Proposed build option, AM, the southbound lane volume is 93 and the no build figure is 89. In the westbound lane, the build figure is 718 and the no build number is 665. These figures may not adequately predict the projected volumes.

1-26 • In the Year 2030 Proposed build option, PM, the northbound ramp volume is 507 but the no-build figure is 548. The southbound lane for the build is 181 while the no- build figure is 204. Please revisit the analysis of these figures.

Hillcrest Avenue and eastbound ramps (and Larkspur Drive and Hillcrest Avenue, when mentioned):

1-27 • The Year 2015 Proposed build option, AM, the northbound turn volume of 2,356 is lower than the no build alternative which is 2,411. Based on this type of project (BART station, work/live housing) the lower figure for the build alternative should be verified.

1-28
- The same argument above applies at Larkspur Drive where the Year 2015 Proposed build option, AM, the northbound turn volume of 2,221 is essentially unchanged from the no build alternative which is 2,232. In the PM build option, the southbound turning volume is 2,246 and the southbound left is 233 while the no-build figures are 2,280 and 260, respectively. Again, these figures need clarification.

1-29
- In the Year 2030 Proposed build option, AM, the northbound turn volume is 2,743 while the build alternative is 2,592. Please clarify.

1-30
- At Larkspur Drive, in the Year 2030 build option, AM, the northbound turn volume is 2,483 and the no-build figure is 2,498. Please clarify. Please verify the southbound turn volumes, as well.

1-31
- The Year 2030 Proposed build option, PM, the northbound turning movement is 1,865 but the no-build is 2,234. Again, please revisit these figures.

LOS at Hillcrest Avenue:
According to our calculations, in Section 3 (Transportation) for the Hillcrest Avenue and westbound ramps, in the year 2015, the proposed build option in the AM peak, the intersection operates at LOS F not E. For the Hillcrest Avenue and eastbound ramps, in the year 2030, the proposed build option in the AM peak, the intersection operates at LOS F not E.

1-32

The discrepancies are because the eBART DEIR utilizes a very high saturated flow figure. The Department typically uses a saturated flow figure no higher than 1,600 vehicles per hour per lane (vphpl) but the DEIR uses a figure that is over 1,700 on non-shared lanes. This figure may need to be revisited. In order to get a saturated flow of 1,700 vphph all vehicles would need to average 15 feet in length, moving at all times at a speed of 25 mph and keep a headway space of 1.7 seconds.

Hillcrest Avenue, Tregalles Road/Larkspur Drive:

- The intersections of eastbound ramps and Hillcrest Avenue, Tregalles Road/Larkspur Drive and Hillcrest Avenue and the westbound ramps and Hillcrest Avenue should be analyzed as an interconnected system for the Year 2015 Proposed build option.

1-33

- The intersections of eastbound ramps and Hillcrest Avenue and Tregalles Road/Larkspur Drive and Hillcrest Avenue should be analyzed as an interconnected system for the Year 2030 Proposed build option since that is how they will operate. In this case, using an interconnected mode operational analysis may lead to an even lower level of operation as the intersection must operate in tandem (movement restrictions occur) and storage is severely limited.

1-33 (cont'd)
- These intersections must be analyzed as interconnected since the space between them is exceedingly close (under 200 feet separation). The analysis of these 2 intersections in free mode may lead to better LOS figures but it should not be done for the reasons listed above.

Queuing:

1-34
- The Department would like to see how the queue from right turn or left turns affects intersections. In particular, in the DEIR there is a heavy queue for the northbound right at Hillcrest Avenue and Sunset Drive. Is there a way to add a right turn lane there for that movement? We believe that a right turn lane would be a cost effective mitigation.

1-35
- The analysis for the re-design of the Hillcrest Avenue and the westbound ramps exit is missing. A queue analysis should be done if any of the turns are very heavy (i.e. - more than 150 vehicles).

1-36
Storage lengths for the Year 2015 Proposed build option and the Year 2030 Proposed build option for all right and left turn intersections that are on Hillcrest Avenue are needed. This would include:
- Hillcrest Avenue and Sunset Drive
- Hillcrest Avenue and the westbound ramps (existing as well as re-designed ramps)
- Hillcrest Avenue and the eastbound ramps
- Hillcrest Avenue and Tregalles Road/Larkspur Drive

This data is needed to perform an appropriate analysis of queuing movements.

1-37
- Additionally, an analysis of the redesigned westbound ramps should include a time-space diagram of intersections working in tandem with Sunset Drive and Hillcrest Avenue. If the two intersections are assumed to be in free mode, a queue analysis should be included to determine how movements may affect other intersections.

PROJECT COORDINATION

1-38
- Under the section "Coordination with Caltrans", the DEIR states that the primary access to the median work is via SR 4. To minimize impact to the operation of SR 4, we encourage BART to minimize the access from the freeway for construction of eBART.

1-39
- Under the section "Project Specific Environmental Analysis-Operational Impacts" the Final EIR should specifically identify all impacts (i.e. - the number of vehicles) to the SR 4 eastbound and westbound off ramps and any backup to SR 4.

1-40
- Pages 3.2-17 and 3.2-42 of the DEIR state that SR 4 Bypass is currently under construction. Construction for the entire SR 4 Bypass is complete and the last

1-40 (cont'd) segment was opened to traffic on September 30, 2008. The Bypass Authority is currently preparing design plans for the proposed SR 4 Bypass/Sand Creek Road Interchange. The Final EIR should reflect the updated status of the SR 4 Bypass.

- 1-41 Under the section "Roadway Network Changes", please include the proposed Main Street Widening from SR160/Main Street interchange to Big Break Road, which is sponsored by the City of Oakley.
- 1-42 Given the existing funding constraints, there is a substantial financial shortfall for the ultimate improvements for the Hillcrest Avenue interchange and those improvements will not be in place by 2015 when eBART becomes operational. Please clarify eBART's interim or short term impacts to the interchange before the ultimate Hillcrest Avenue interchange improvements.
- 1-43 Please explain the long term impacts to the Hillcrest Avenue interchange from the proposed eBART stations and the ultimate interchange improvements.
- 1-44 Please work with CCTA and the City of Antioch on the CC4 Widening Project to interconnect and utilize signal timing to help minimize impact to the Hillcrest Avenue interchange.
- 1-45 In Figure 2-3, please include the proposed location of emergency access within State ROW.
- 1-46 In Figure 2-5, please include the pedestrian bridge that crosses over SR 4.

PLANNING

- 1-47 Any improvements on the State Highway System should be consistent with plans and policies affecting respective jurisdictions such as CCTA, the Association Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), Tri Delta Transit, Contra Costa County, the cities of Pittsburg and Antioch, and the Department.
- 1-48 The Department encourages a coordinated and ongoing effort between BART, the Department, CCTA, and the Cities of Pittsburg and Antioch to continue working toward a mix of mitigation measures and project alternatives to address project impacts. Development plans should require traffic impact fees based on projected traffic. We suggest the development of a regional impact fee for funding necessary transportation improvements.
- 1-49 All travel demand forecasting assumptions in the Final eBART EIR should be consistent with the Ridership Development Plan (RDP) amendments.
- 1-50 Please discuss when the RDP approval is anticipated.

1-51 • RDPs should be specific and provide mitigation for induced vehicle miles traveled where appropriate and to ensure intermodal connectivity. They should include bike paths, pedestrian crossings, easy access to alternative transportation and neighborhood interconnectivity, where demand is demonstrated. RDPs should also include preferential parking for city car share riders and carpoolers at stations and express buses should be synchronized with local and feeder bus services and shuttle services. Additionally, RDPs should include potential programs and subsidies for commuters to use alternative transportation as viable incentives in reducing VMTs and enhancing transit oriented communities. These measures would reduce potential VMTs for the proposed project. RDPs should also be consistent with general plans and specific plans for the Cities of Pittsburg and Antioch.

1-52 • Scheduling and costs associated with planned improvements in the RDPs affecting Departmental ROW should be listed in addition to identifying viable funding sources correlated to the pace of improvements for additional roadway improvements, if any (Governor's Office of Planning and Research General Plan (OPR-GP) Guidelines, p. 106).

1-53 • Any additional associated future infrastructure improvements due to vehicle traffic in the proposed RDPs should be funded by traffic impact fees based on projected vehicle traffic and/or based on associated cost estimates for public transportation facilities necessitated by development (OPR-GP Guidelines, p. 163).

1-54 • The Department's plans include several projects on SR 4 and SR 160 in the vicinity of Pittsburg and Antioch. Scheduling of the following construction and other project phases are subject to change:

- Widening SR 4 from the SR 160 junction to Big Break Road, Oakley, which is scheduled to begin Summer 2009 and end Fall 2010;
- Widening SR 4 from Loveridge Road to Somerville Road, which is scheduled to begin Summer 2009 and end Spring 2013;
- Install six foot median buffer zone and standard shoulders on SR 4 from Marsh Creek Road to the San Joaquin/Contra Costa County line, which is scheduled to begin Spring 2010 and end Fall 2011.

1-55 • On page 2-4 (second paragraph, first sentence) please clarify how the proposed project would attain or has attained median ROW.

1-56 • Providing free parking will encourage people to drive to stations. Given this, we recommend implementing a Transportation Demand Management (TDM) program at the beginning of the project that consists of providing less parking and priced parking

1-56 (cont'd) at the proposed stations, as opposed to TR-7.1 (page 3.2-94 and 3.2-95) which states that BART may "implement parking monitoring programs and institute appropriate parking controls if necessary."

- Implementing a proactive parking policy will decrease future problems and providing bicycle parking (racks and lockers) and shaded bus shelters will encourage people to drive less and lower the impacts on both SRs 4 and 160.

1-57
- On pages 3.2-32 and 3.2-33, sections titled "Railroad Avenue Station Area" and "Hillcrest Avenue Station Area", please identify deficiencies in the surrounding pedestrian facilities. In order to reduce impacts on SRs 4 and 160 and promote an alternate mode of transportation, please provide a complete pedestrian network in the station areas.

1-58
- Please include TR-8-1 on page S-26 in the overall TMP as well. Please notify the East Bay Bicycle Coalition and Delta Peddlers of construction dates and times for this project. Also please notify all bicycle groups of scheduled closures along Hillcrest Avenue and Slatten Ranch Road.

1-59
- Please include a discussion of transit connection between eBART and the existing California Amtrak station in Antioch. The Antioch Station connects passenger service from Oakland to the Stockton area, north to Sacramento, south to all the major cities of the San Joaquin Valley, Los Angeles, and on to San Diego. The proposed eBART extension will pass so close to the Antioch station that developing a reliable connection between the two systems is an opportunity that should not be missed.

  Roughly 450,000 passengers pass by the Antioch Station on California Amtrak trains annually. The Department is planning to add two train sets daily on this route over the next 2-3 years due to increasing demand. The proposed eBART extension will make rail commuting more appealing to over 1 million people from the greater Stockton area. Coordination on ticketing, parking and scheduling between BART and California Amtrak would be beneficial.

  The Tri Delta Transit Service may be consulted on the possibility of providing coordinated service between the two stations in Antioch. Alternatively, California Amtrak provides bus connections throughout California to connect our trains, but is limited to providing bus service only where commercial bus service is not available.

1-60 ***CULTURAL RESOURCES***
The Department is in agreement with the findings and mitigation measures in the Cultural Resources section in the DEIR. Should ground-disturbing activities take place within State ROW as part of this project, these mitigation measures will need to be expanded to incorporate State land.

1-60 (cont'd) If there is an inadvertent archaeological or burial discovery, the Department Office of Cultural Resource Studies, District 4, Oakland, shall be immediately contacted at (510) 266-5618. A staff archaeologist will evaluate the finds within one business day of being contacted. Any subsequent archaeology reports or treatment plans for work in the State ROW must be reviewed and approved by the Office of Cultural Resource Studies.

HYDRAULICS

- 1-61 The Draft EIR indicates that all hydrology/hydraulic related impacts are potentially significant but will be mitigated to less than significant. The median reserved for eBART will drain to Department's systems. We would like to review the project plans as they progress.
- 1-62 Page S-17, paragraph 1: The Department encourages BART to continue to work with CCTA to resolve the issue of construction phasing for the eBART project.
- 1-63 Page 1-26, paragraph 2 states that median drainage will be placed on the SR 4 widening project. To clarify, drainage inlets are being placed in the median approximately 500 to 800 feet apart. These inlets will drain to either existing or proposed crossings. No longitudinal system is being constructed as part of the SR 4 widening. Please also address this issue on page 2-42, paragraph 2.
- 1-64 Page 2.20, paragraph 3 states that for the median station, maintenance operations would take place in the SR 4 median. Train storage and cleaning, train washing and fueling would take place on the tail tracks east of the median passenger platform. BART must ensure that pollutants from these operations do not enter the Department's systems.
- 1-65 Page 3.8-4, paragraph 3: The existing Kirker Creek culvert is designed for a 100-year event. Both the proposed pump at Loveridge Road and the proposed SR 4 culvert at Old Kirker Creek have been designed for a 100-year storm on the SR 4 widening project (Loveridge Road Interchange). The benefit of upgrading the culvert at Old Kirker Creek will not be fully realized until the City of Pittsburg improves capacity downstream of SR 4.
- 1-66 Table 3.8-1 states that the roadway does not overtop during a 100-year flood at Los Medanos Wasteway, Markley Creek and West Antioch Creek. However, the last paragraph on page 3.8-4 states that there is minor flooding at all three of these locations. This statement is inconsistent. Our records show that the freeway at all three locations would not flood during a 100-year event; however, the local streets adjacent to West Antioch Creek would experience flooding.
- 1-67 Only Zone AE was identified on Figure 3.8-2. The text on page 3.8-7 describes four zones. Please identify all referenced zones in Figure 3.8-2

1-68 • The 100-year peak discharge values in Table 3.8-1 are inconsistent with values the Department received from the Contra Costa County Flood Control District. The 100-year design discharges the Department recognizes are 2880 cubic feet per second (cfs) for Kirker Creek (which does not overtop), 1090 cfs for Old Kirker Creek (which does overtop), 600 cfs for Los Medanos Wasteway, 1060 cfs for Markley Creek and 2660 cfs for West Antioch Creek. Values for Old Kirker Creek should be added to the table.

1-69 • Page 3.8-7: The description of Zone X needs to be corrected. It appears as if there are two definitions combined here. If it is protected from a 500-year event, there isn't going to be flooding in a 100-year event.

1-70 • Page 3.8-8, paragraph 1: Some of the drainage facilities that lie within the project corridor are under the Department's jurisdiction.

1-71 • Figure 3.8-9 shows proposed tracks that connect to the proposed remote maintenance facility (Northside East Station Option) crossing SR 160 in the vicinity of the east branch of the East Antioch Creek. The Department may improve this cross culvert in the future. The eBART DEIR should reflect this fact.

1-72 • Page 3.8-17, paragraph 4 states that the drainage along the SR 4 median consists of a longitudinal underdrain system. This is a proposed condition, not an existing one.

1-73 • Page 3.8-18: The SR 4 widening project is not upgrading all culverts beneath the proposed guideway in the SR 4 median as indicated in the first paragraph. The Department is making use of existing crossings where reasonable.

1-74 • Page 3.8-22, paragraph 3: Please clarify the second sentence. A 100-year storm does not impact the project area at Los Medanos Wasteway, Markley Creek or West Antioch Creek. There are however, impacts to the local street at West Antioch Creek. See the comment regarding Table 3.8-1 above.

1-75 • Page 3.8-22, paragraph 4: SR 4 at Loveridge Road is a depressed section of freeway, with Kirker Creek to the west and Old Kirker Creek to the east, both at higher elevations. To maintain the existing drainage pattern, this portion of SR 4 must drain to Kirker Creek and cannot do so without the use of a pump. The pump that drains this section and the culvert at Old Kirker Creek will be upgraded to pass a 100-year storm as part of the corridor widening (Loveridge Road Interchange project). The culvert at Kirker Creek was previously upgraded to pass a 100-year storm.

1-76 • Page 3.8-23, paragraph 1: The Department is upsizing the box culvert at Old Kirker Creek to pass a 100-year storm.

1-76 (cont'd)
- Page 3.8-23, paragraph 3: See the references above. When Old Kirker Creek overtops, these flows drain into the depressed section on SR 4 and the inlets, pipes and underdrain system will be temporarily inundated.

1-77
- Page 3.8-34, Impact HY-10: See comments on Figure 3.8-9 above.

1-78
- Page 3.8-40, paragraph 1 states that the SR 4 project crosses five floodplains. Page 3.8-4 states that BART's project only crosses four. Please address this discrepancy. Both projects cross Kirker Creek/Old Kirker Creek, Los Medanos, Markley Creek, West Antioch Creek and East Antioch Creek.

Encroachment Permit

Any work or traffic control within the State ROW requires an encroachment permit that is issued by the Department. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information: http://www.dot.ca.gov/hq/traffops/developserv/permits/

1-79 To apply for an encroachment permit, submit a completed encroachment permit application, environmental documentation, and five (5) sets of plans which clearly indicate State ROW to the address at the top of this letterhead, marked ATTN: Michael Condie, Mail Stop #5E.

Again, we look forward to working with BART on the eBART project. Should you have any questions regarding this letter, please contact Lisa Courington of my staff at (510) 286-5505 or via email at lisa.ann.courington@dot.ca.gov.

Sincerely,

lisa Carboni

LISA CARBONI
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

"Caltrans improves mobility across California"

1. California Department of Transportation, District 4, Lisa Carboni (letter dated November 5, 2008)

1.1 All mitigation measures identified in the Draft EIR will be included in the Mitigation Monitoring and Reporting Plan (MMRP) for the Proposed Project. The MMRP will discuss scheduling and implementation responsibilities for all mitigation measures. The Proposed Project will provide funding for all mitigation measures, unless otherwise noted. The need for BART to provide a fair share contribution for required improvements has been identified in the Draft EIR and will be acknowledged in the MMRP. Actual dollar figures for fair share contributions may not be available prior to final project design, which will not be completed prior to approval of this Final EIR and the MMRP.

BART, as the lead agency for the Proposed Project, is fully aware of its role to implement mitigation measures, where feasible. Section 3.2, Transportation, of the Draft EIR documents the transportation effects of the Proposed Project. In particular, Impacts TR-1 through TR-4 identifies impacts to local intersections, including those connecting to the SR 4 on- and off-ramps, and to freeway segments. The analysis shows that freeway segments would improve with the Proposed Project and would operate better than future No Project conditions, so the effects on the SR 4 mainline are beneficial. By contrast, there are several local intersections where project-related traffic would violate applicable congestion standards. The Draft EIR recommends improvements at these intersections where feasible. In certain instances, such as for improvements to the State highways, including ramps, BART does not have the authority to implement those mitigation measures identified in the Draft EIR. Modifications to the State highways lie within the jurisdiction of Caltrans, and Caltrans would have the ultimate authority to decide whether a particular improvement would be approved. In the case of the SR 4 Eastbound Ramps/Hillcrest Avenue intersection, the City of Antioch has reviewed the possible improvements and determined that they are infeasible because of cost and potential displacement to residential and commercial properties.

It is important that BART, the CCTA, the City of Antioch and Caltrans continue to work to seek solutions to the traffic impacts at the SR 4 Eastbound Ramps/Hillcrest Avenue interchange. Plans for the widening of SR 4 in this area are subject to review and refinement to address funding issues and the need to accommodate the Proposed Project. Also, the recent opening of the SR 4 Bypass has altered traffic patterns in the area. Once these changes are better understood, minor changes in geometrics and traffic signal timing and coordination modifications may serve to lessen the impacts at this location. However, all the parties involved have yet to find a feasible solution to the cumulative growth in traffic at this location and, at this point in time, the selection and implementation

of a solution is still speculative. Thus, the impact at the SR 4 Eastbound Ramps/Hillcrest Avenue intersection is assumed to remain significant and unavoidable.

1.2 BART is aware of, and will adhere to Caltrans' procedures for seeking an encroachment permit. BART will obtain the necessary permits from the state pursuant to the terms of the Cooperative Agreement to be negotiated between the parties.

1.3 The commentor expresses support for the Proposed Project. This comment concerns the merits of the project and does not concern the adequacy of the Draft EIR or BART's compliance with CEQA. Accordingly, no further response is necessary; however, Caltrans' support and continued partnership with BART are acknowledged and appreciated.

1.4 The CCTA regional model was used to develop the travel demand forecasts for the Draft EIR traffic analysis in accordance with standard practices and the *CCTA Technical Procedures Manual*. Prior to its use for the Proposed Project, the CCTA model had already been validated through a comprehensive local review process. The model validation process is documented in the report *Decennial Model Update CCTA Travel Model Documentation* which was published in June 2003. In addition, as part of the forecasting work for the Draft EIR, link-level output adjustments were made to account for any additional difference between the Base Year Model output and actual counts in accordance with the CCTA technical procedures methodology (page 8 of the *CCTA Technical Procedures Manual*). Model outputs were converted into turning movement forecasts using the Furness method as specified in the *CCTA Technical Procedures Manual*. In response to this comment, additional model validation checks and adjustments have been made to further improve the performance of the model. As requested, the Transportation Technical Report has been revised to document this information.

Furthermore, as requested in the comment, the Transportation Technical Report has been expanded to provide documentation of the methods used for the traffic counts and travel demand modeling to arrive at the build and no-build traffic forecasts. Similarly, the methods used to combine the forecast roadway volumes with the turning movement counts have been documented in this report.

1.5 Traffic on some roadways can be expected to decrease between 2007 and 2030. The explanation for these forecasts lies in part in the changes to the highway network that have occurred and will occur between now and 2030 as follows:

- The SR 4 Bypass – In May 2008 the SR 4 Bypass was opened as a continuous route from the SR 4/SR 160 interchange to Brentwood. Prior to the opening of the Bypass, it was readily observed that traffic desiring to

travel to and from southeast Antioch, Oakley, Brentwood, and the unincorporated areas of Bryon and Discovery Bay would use local arterial routes such as Lone Tree Way, Deer Valley Road, Hillcrest Avenue, Balfour Road, and March Creek Road rather than use the current SR 4 route which is longer and requires out of direction travel. With the opening of the SR 4 Bypass, there was a significant drop in the amount of traffic using these routes. In some cases, the decline in arterial traffic due to the bypass more than offsets the growth anticipated by the Year 2030, which results in a decrease in the forecast traffic volume.

- SR 4 Widening – Currently, SR 4 narrows from four lanes in each direction including an HOV lane to two general traffic lanes at Railroad Avenue. The narrow, two-lane section extends from Railroad Avenue to SR 160. By the Year 2015, it is expected that SR 4 will be widened to four lanes in each direction all the way to SR 160. This narrow section is currently a major traffic bottleneck in both directions. Due to the bottleneck, there is a significant diversion of traffic to the routes that parallel SR 4 including the Pittsburg Antioch Highway, Leland Road, Buchanan Parkway, James Donlon Parkway, and 18th Street. This diverted traffic uses the various interchanges along SR 4 between Willow Pass Road and 18th Street to reach these parallel routes or to reenter the freeway once past the queues at either end of the bottleneck. This results in high volumes of traffic on the on-ramps and off-ramps that eventually would use SR 4 when the widening of the freeway is complete all the way to SR 160. As a result of the current bottleneck in the narrow section of SR 4, there are instances where the volumes observed in 2007 will be greater than those expected in 2030 on particular freeway ramps and roadway links.

1.6 The forecasts from the travel demand model do take into consideration the planned transit-oriented development that would occur around both the Railroad Avenue and the Hillcrest Avenue Stations. As explained on page 3.2-100 of the Draft EIR, the traffic forecasts in the Draft EIR were based on a version of ABAG Projections 2003 that included adjustments requested by the local jurisdictions to better represent actual development plans. Both the cities of Pittsburg and Antioch have prepared station area plans in the form of Specific Plans. BART has been working closely with the cities to assure that the land use assumptions in this EIR regarding development density are greater than or equal to those that the cities ultimately adopt for the station areas in order to ensure that the cumulative impacts from project-related traffic and from planned transit-oriented development around the stations are fully evaluated in the eBART EIR.

The development assumptions for the Hillcrest Station Area Specific Plan are presented in Table 3.2-28 on page 3.2-100 of the Draft EIR for the four station

options under consideration. An evaluation of the traffic implications of these options is provided in the Draft EIR. Similarly, the development assumptions for the Railroad Avenue Specific Plan have been reviewed and they are less than the assumptions in the adjusted ABAG Projections 2003 dataset that was used in the traffic analysis for the Draft EIR.

1.7 The Transportation Technical Report has been revised to include figures showing the additional trips generated by the Proposed Project for the Year 2015 and 2030 scenarios.

1.8 The information for the intersection of the westbound ramp to Hillcrest Avenue and Sunset Drive is available and has been added to the tables and diagrams in the Draft EIR. This is a new intersection that will exist after the planned improvements to the Hillcrest Avenue interchange are completed. These improvements are expected to occur after the Year 2015, so this intersection would not appear as part of the Year 2030 analysis. The first two paragraphs on page 3.2-43 of the Draft EIR are revised as follows to acknowledge changes to local roadways and intersections:

> *Local Roadways*. A ~~small~~ number of intersection and lane configuration changes are expected to be in place by the Year of Opening (2015) and the Long-Term Future Year (2030). These changes to future intersection configurations, which were taken into account in the model, are shown for the Railroad Avenue Station area and the Hillcrest Avenue Station area in Figure 3.2-9 and Figure 3.2-10, respectively. ~~The~~ Near the Railroad Avenue Station, the intersection of Harbor Street/Bliss Avenue will be signalized under future conditions.
>
> Also, in both the Year 2015 and Year 2030 scenarios, the intersection at Railroad Avenue/Center Drive would no longer exist. In the Year 2030 scenario, the reconfiguration of the SR 4/Hillcrest Avenue interchange is expected to be completed, and this redesign is included in the analysis of the project and no project scenarios. T~~t~~he intersection at SR 4 Westbound Ramps/Hillcrest Avenue ~~would no longer exist but would be replaced by the planned improvements to the Hillcrest/SR 4 interchange~~ will be reconfigured to include a two-lane loop on-ramp, replacing the existing westbound off-ramp, for vehicles traveling from northbound Hillcrest Avenue to westbound SR 4. The off-ramp will be diverted onto Sunset Drive, at a location just east of Hillcrest Avenue, and access would also be provided from Sunset Drive to the loop on-ramp. The eastbound off-ramp at Hillcrest Avenue will also be widened to two lanes, and the westbound approach of the SR 4 Eastbound Ramps/Hillcrest Avenue intersection would

provide a total of four lanes. Additionally, the overpass between the east- and westbound ramps along Hillcrest Avenue would be reconfigured to provide an additional left turn lane for the southbound approach at this intersection.

Table 3.2-18 (2030 AM conditions, pages 3.2-77–78), Table 3.2-19 (2030 PM conditions, pages 3.2-79–80), Figure 3.2-10 (Hillcrest Avenue Station Area – Future Intersection Geometrics), Figure 3.2-14 (2030 No Project, page 3.2-55), and Figure 3.2-18 (2030 Proposed Project, page 3.2-75) have been updated accordingly.

1.9 This comment requesting additional ramp analysis was reviewed with the Caltrans Traffic Operations group. It was agreed that this ramp analysis would focus on the Hillcrest Avenue interchange ramps where the Draft EIR indicated that there could be significant impacts. Because the Proposed Project was shown not to have significant impacts at the Railroad Avenue interchange, there was no need to conduct the ramp analysis there.

A queuing analysis using SimTraffic was performed in coordination with Caltrans. In compliance with Caltrans standards, WSA conducted 10 SimTraffic model runs to evaluate the queuing at the off-ramps at SR 4 and Hillcrest Avenue. A summary of the queuing results for the AM and PM peak hours for the 2015 No Project, 2015 Proposed Project, 2030 No Project, and 2030 Proposed Project are provided below in Table 1.9. The detailed results of the queuing analysis have been provided in the Transportation Technical Report.

Table 3.2-18
2030 AM Peak Hour Intersection Operations with and without the Proposed Project

		Existing Conditions			2030 No Project			2030 Proposed Project		
#	Intersection	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Civic Avenue – W.17th Street/Davi Avenue		7.8	A		27.2	D		19.7	C
2	Power Avenue/Davi Avenue	0.05 (SB)	12.1 (SB)	B	0.44	12.4	B		11.5	B
3	Railroad Avenue/Civic Avenue	0.46	15.7	B	0.85	43.2	D	0.74	31.9	C
4	Railroad Avenue/Center Drive	0.59 (EB)	27.3 (EB)	D	Not present in future			Not present in future		
5	Railroad Avenue/SR 4 Westbound On-Ramp	**1.2**	**>80**	**F**	**1.33**	**>80**	**F**	1.05	45	D
6	Railroad Avenue/SR 4 Eastbound Ramps	0.66	17.3	B	0.85	21.4	C	0.75	21.3	C
7	Railroad Avenue/Bliss Avenue	0.55	15.3	B	0.94	23.7	C	0.69	18.7	B
8	Railroad Avenue/Leland Road	0.8	33.7	C	0.93	55.6	E	0.9	45	D
9	Leland Road/Harbor Street	0.76	33.6	C	**1.15**	**>80**	**F**	0.91	40.8	D
10	Leland Road/Freed Avenue	0.31 (SB)	42.1 (SB)	E	**3.18**	**>50 (SB)**	**F**	**1.41 (SB)**	**>50 (SB)**	**F**
11	Leland Road/Loveridge Road	0.67	34.8	C	0.75	42.6	D	0.7	40.6	D
12	Loveridge Road/SR 4 Eastbound Ramps	0.53	15	B	0.77	13.2	B	0.64	10.2	B
13	California Avenue/SR 4 Westbound Ramps	0.56	27.3	C	0.81	36.1	D	0.71	20.5	C
14	Harbor Street/California Avenue	0.64	30.9	C	**1.09**	**>80**	**F**	0.83	41.4	D
15	Harbor Street/Bliss Avenue	**2.04 (EB)**	**>50 (EB)**	**F**	1.05	47.1	D	0.63	9.6	A
16	Hillcrest Avenue/E. 18th Street	0.8	43.8	D	**0.93**	**60.2**	**E**	0.9	47.7	D
17	Hillcrest Avenue/Arzate Lane – PG&E Service Center Driveway.	0.05 (WB)	17.4 (WB)	C	~~0.03~~ 0.04 (WB)	~~12.4~~ 14.8 (WB)	B	~~0.09~~ 0.04 ~~(EB)~~ (WB)	~~11.7~~ 15.5 ~~(EB)~~ (WB)	~~B~~ C
18	Sunset Drive/Hillcrest Avenue	0.5	21	C	~~0.78~~ 0.89	~~31.7~~ 47.3	~~C~~ D	~~0.87~~ 0.91	~~32.3~~ 53.0	C
19	SR 4 Westbound Ramps/Hillcrest Avenue	0.96	32.3	C	Not present in future			Not present in future		

Table 3.2-18
2030 AM Peak Hour Intersection Operations with and without the Proposed Project

		Existing Conditions			2030 No Project			2030 Proposed Project		
#	Intersection	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
20	SR 4 Eastbound Ramps/Hillcrest Avenue	0.98	26.5	C	~~1.04~~ 0.90	~~52.8~~ 24.4	~~D~~ C	~~1.12~~ 0.91	~~56~~ 30.2	~~E~~ C
21	Larkspur Drive/Hillcrest Avenue	0.79	26.4	C	~~**1.09**~~ **0.96**	~~**67.1**~~ **35.5**	~~**E**~~ **D**	1.04 0.90	~~63.4~~ 30.0	~~E~~ C
22	Davison Drive/Hillcrest Avenue – Deer Valley Road	0.89	43.7	D	~~**1.15**~~ **1.16**	**>80**	**F**	**1.15**	**>80**	**F**
23	E. 18th Street/Viera Avenue	**0.95**	**63.3**	**E**	0.85	47.1	D	0.85	44.9	D
24	E. 18th Street/Willow Avenue	0.64 (NB)	32.7 (NB)	D	0.54 (NB)	26.1 (NB)	D	0.54 (NB)	25.1 (NB)	D
25	Oakley Road/Willow Avenue		9.6	A		14.2	B		14.3	B
26	Phillips Lane/Oakley Road	0.06 (SB)	11.7 (SB)	B	0.05 (SB)	10.9 (SB)	B	0.04 (SB)	11.0 (SB)	B
27	E. 18th Street/Phillips Lane – Dirt Driveway	0.02 (NB)	12.5 (NB)	B	0.09 (NB)	10.4 (NB)	B	0.14 (NB)	10.5 (NB)	B
28	SR 4 WB Ramps– K-Mart Driveway/Main Street	**0.88**	**76.5**	**E**	0.84	26.0	C	0.76	18.8	B
29	Main Street/SR 160 Northbound Ramps	0.62	11.7	B	0.73	19.3	B	0.67	21.8	C
30	Main Street/Neroly Road – Bridgehead Road	0.86	36.6	D	0.79	42.0	D	0.77	36.4	D
31	Oakley Road/Neroly Road		**>50**	**F**		15.6	C		12.1	B
77	SR 4 Westbound Ramps/Sunset Drive		Not present		0.33	9.5	A	0.56	11.8	B

Source: Wilbur Smith Associates, 2009.
Notes:
Delay presented in seconds per vehicle.
Delay and LOS presented for worst approach for two-way stop controlled intersections.
Boldfaced type indicates unacceptable values.

Table 3.2-19
2030 PM Peak Hour Intersection Operations with and without the Proposed Project

#	Intersection	Existing Conditions			2030 No Project			2030 Proposed Project		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Civic Avenue – W.17th Street/Davi Avenue		8.2	A		32.4	D		17	C
2	Power Avenue/Davi Avenue	0.11 (SB)	13.5 (SB)	B	0.38	11	B		10.3	B
3	Railroad Avenue/Civic Avenue	0.38	13.8	B	0.74	26.4	C	0.62	25.3	C
4	Railroad Avenue/Center Drive	0.87 (EB)	34.6 (EB)	D	Not present in future			Not present in future		
5	Railroad Avenue/SR 4 Westbound On-Ramp	0.65	16.6	B	0.9	24.2	C	0.7	18.5	B
6	Railroad Avenue/SR 4 Eastbound Ramps	**1.08**	**52.2**	**D**	**1.11**	**56.4**	**E**	0.99	32	C
7	Railroad Avenue/Bliss Avenue	0.73	18.1	B	0.93	30.1	C	0.93	33.1	C
8	Railroad Avenue/Leland Road	0.97	48.2	D	**1.27**	**>80**	**F**	1.15	67.8	E
9	Leland Road/Harbor Street	0.88	42.8	D	**1.03**	**71.7**	**E**	0.91	41	D
10	Leland Road/Freed Avenue	**0.94 (NB)**	**>50 (NB)**	**F**	**7.38**	**>50 (NB)**	**F**	**2.65 (NB)**	**>50 (NB)**	**F**
11	Leland Road/Loveridge Road	0.77	31.2	C	0.71	32.8	C	0.59	26.7	C
12	Loveridge Road/SR 4 Eastbound Ramps	0.59	9.8	A	0.71	7.2	A	0.47	8.9	A
13	California Avenue/SR 4 Westbound Ramps	**0.85**	**49.1**	**D**	**1.24**	**>80**	**F**	**1.10**	**77.9**	**E**
14	Harbor Street/California Avenue	0.82	35.5	D	**1.3**	**>80**	**F**	**1.09**	**73.9**	**E**
15	Harbor Street/Bliss Avenue	**2.05 (EB)**	**>50 (EB)**	**F**	0.7	17.3	B	0.51	15.3	B
16	Hillcrest Avenue/E. 18th Street	0.87	49.6	D	**0.99**	**72.9**	**E**	**1.00**	**73.7**	**E**
17	Hillcrest Avenue/Arzate Lane – PG&E Service Center Dwvy.	0.01 (EB)	16.9 (EB)	C	**0.19 (WB)**	**19.5 (WB)**	**C**	0.18 (WB)	19.0 (WB)	C
18	Sunset Drive/Hillcrest Avenue	0.51	24.5	C	0.88	~~40.6~~ 39.7	D	~~1.11~~ **1.17**	**>80**	**F**
19	SR 4 Westbound Ramps/Hillcrest Avenue	0.88	16.7	B	Not present in future			Not present in future		
20	SR 4 Eastbound Ramps/Hillcrest Avenue	**1.17**	**68.3**	**E**	~~1.64~~ **1.14**	**>80**	**F**	~~1.72~~ **1.21**	**>80**	**F**
21	Larkspur Drive/Hillcrest Avenue	0.86	46.7	D	0.9	~~38.4~~ 28.8	~~D~~ C	~~0.85~~ 0.84	~~33.5~~ 23.7	C

Table 3.2-19
2030 PM Peak Hour Intersection Operations with and without the Proposed Project

#	Intersection	Existing Conditions			2030 No Project			2030 Proposed Project		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
22	Davison Drive/Hillcrest Avenue – Deer Valley Road	0.86	45.4	D	**0.98**	**67.0**	**E**	**0.92**	**55.6**	**E**
23	E. 18th Street/Viera Avenue	0.54	18.4	B	0.57	18.2	B	0.57	17.2	B
24	E. 18th Street/Willow Avenue	0.35 (NB)	25.5 (NB)	D	0.25 (NB)	22.0 (NB)	C	0.29 (NB)	23.0 (NB)	C
25	Oakley Road/Willow Avenue		8.5	A		29.6	D		34.8	D
26	Phillips Lane/Oakley Road	0.09 (SB)	11.6 (SB)	B	0.15 (SB)	9.4 (SB)	A	0.13 (SB)	9.3 (SB)	A
27	E. 18th Street/Phillips Lane – Dirt Driveway.	0.05 (NB)	11.4 (NB)	B	0.20 (NB)	26.4 (NB)	D	0.29 (NB)	23.6 (NB)	C
28	SR 4 Westbound Ramps– K-Mart Driveway/Main Street	**0.84**	**38.3**	**D**	0.80	36.7	D	0.85	32.2	C
29	Main Street/SR 160 Northbound Ramps	0.93	32.8	C	0.76	35.7	D	0.66	18.4	B
30	Main Street/Neroly Road – Bridgehead Road	**1.26**	**>80**	**F**	0.93	50.6	D	0.88	48.8	D
31	Oakley Road/Neroly Road		**>50**	**F**		24.6	C		23.2	C
77	SR 4 Westbound Ramps/Sunset Drive		Not present		0.46	10.0	B	0.65	15.0	B

Source: Wilbur Smith Associates, 2009.

Notes::

Delay presented in seconds per vehicle.

Delay and LOS presented for worst approach for two-way stop controlled intersections.

Boldfaced type indicates unacceptable values.

EXISTING CONDITIONS

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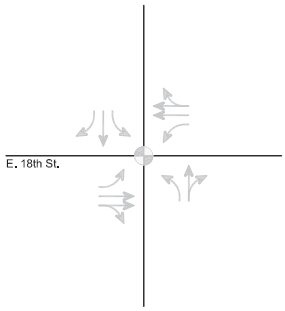	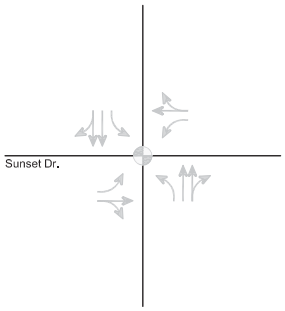	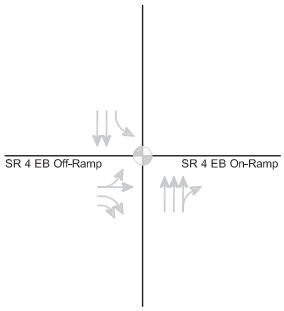	

2015 CONDITIONS

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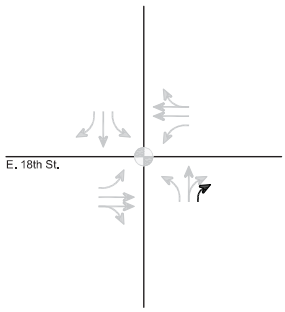
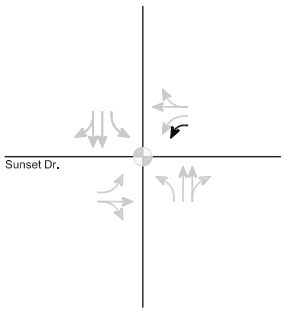
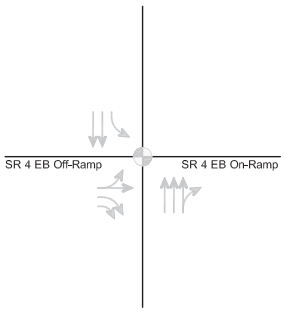
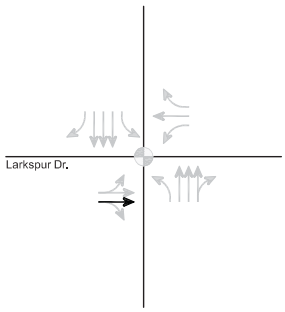
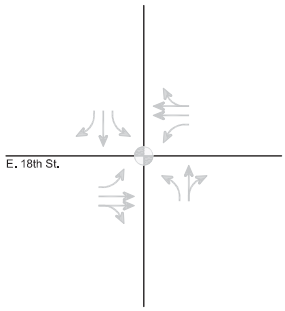
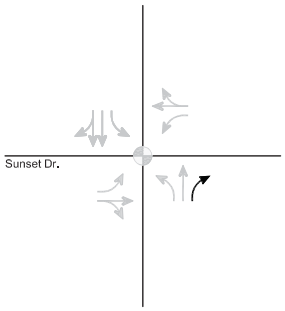
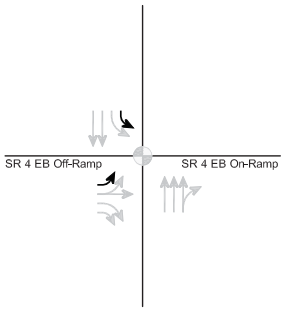
			

2030 CONDITIONS

6. E. 18th St./Hillcrest Ave.	18. Sunset Dr./Hillcrest Ave.	20. SR 4 EB Ramps/Hillcrest Ave.	21. Larkspur Dr./Hillcrest Ave.
			

Source: WSA, 2008.

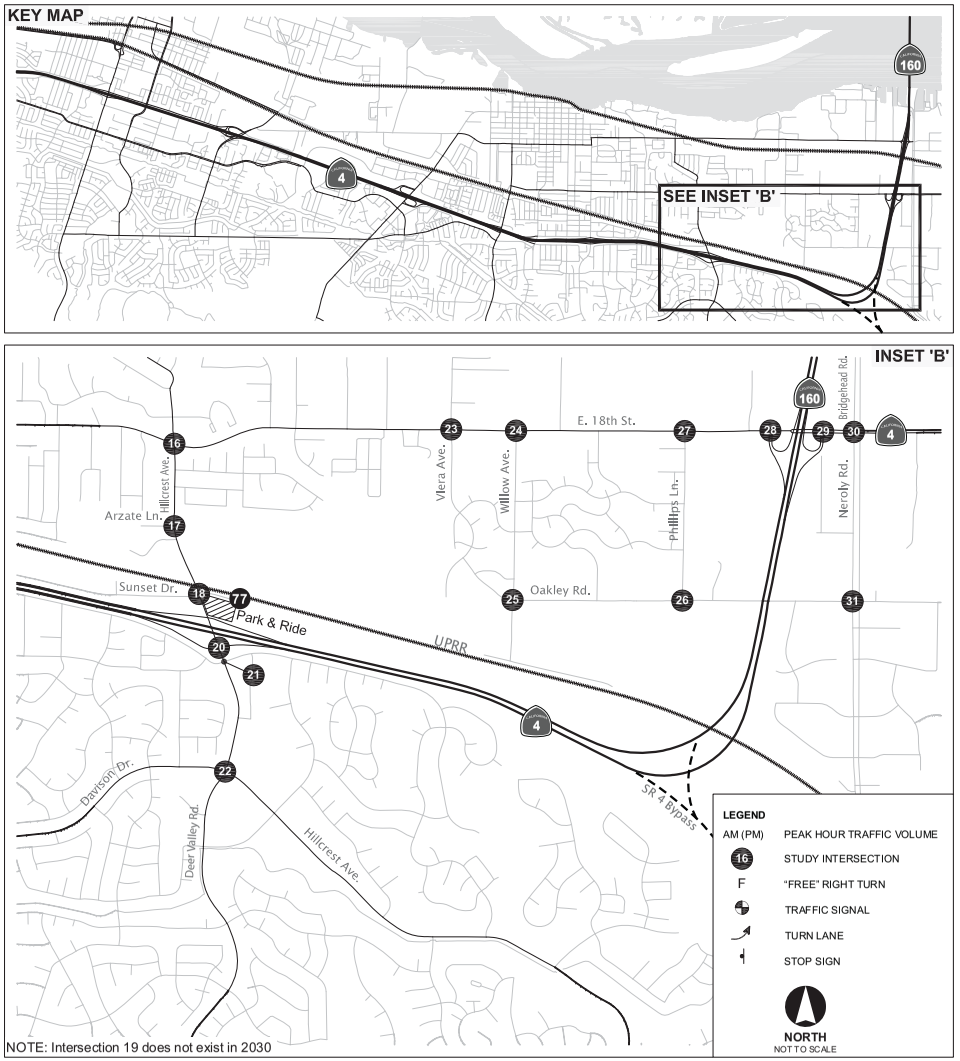
LEGEND

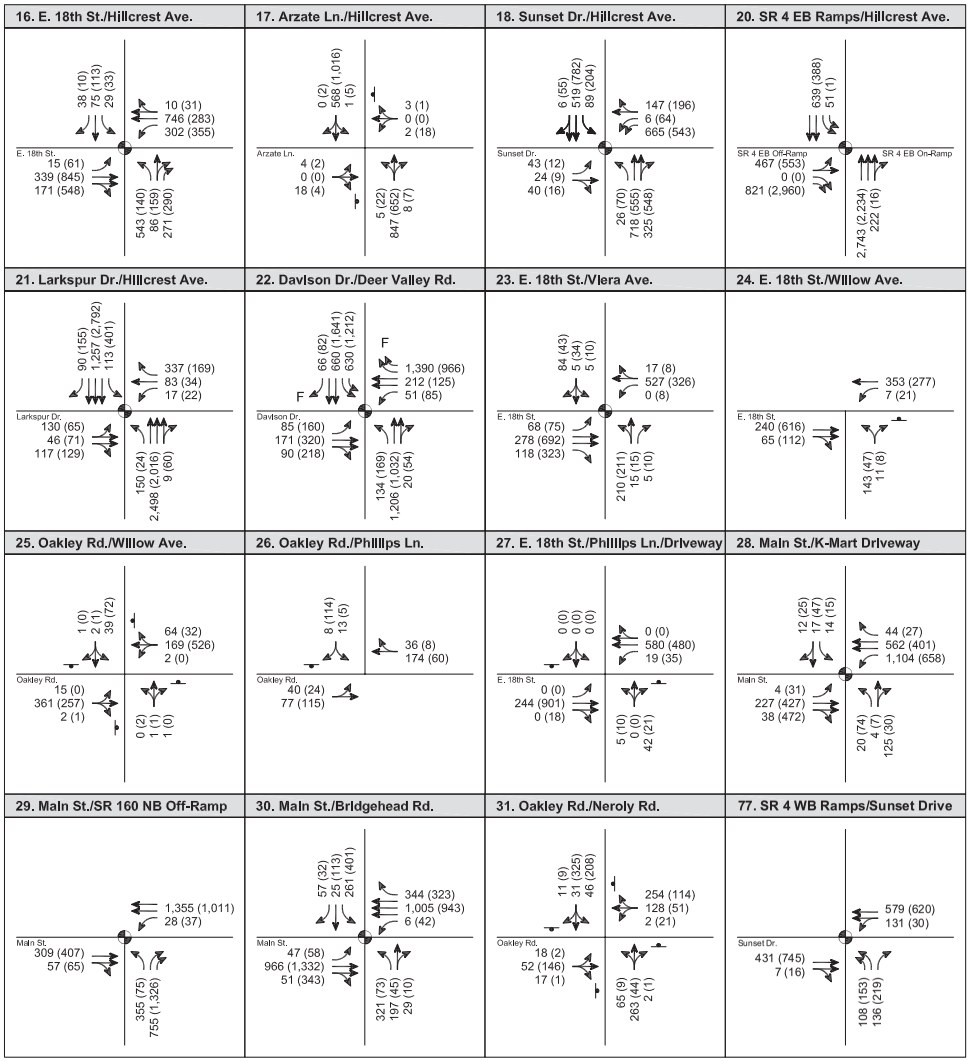
- Existing Traffic Signal
- Future Traffic Signal
- Existing Turn Lane
- Future Turn Lane
- Existing Stop Sign

Source: WSA, 2008.

HILLCREST AVENUE STATION AREA - FUTURE INTERSECTION GEOMETRICS

FIGURE 3.2-10

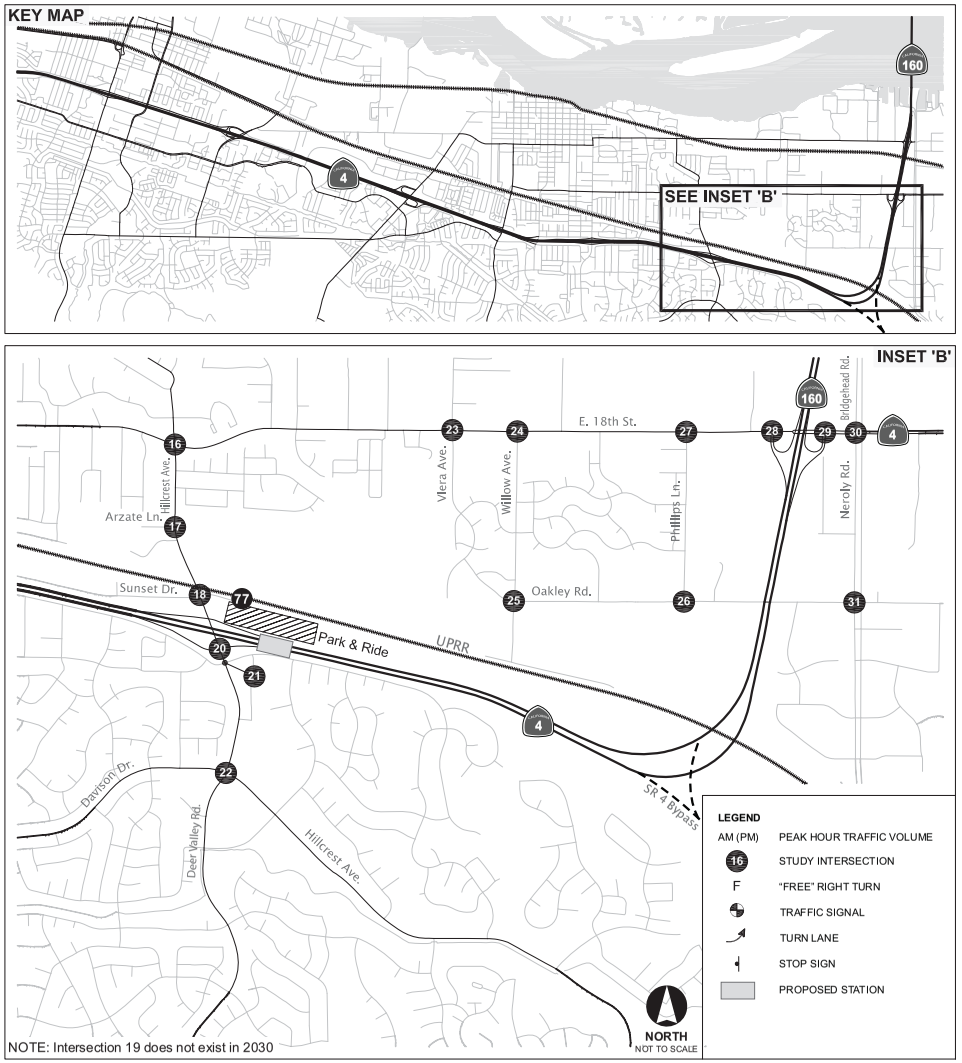


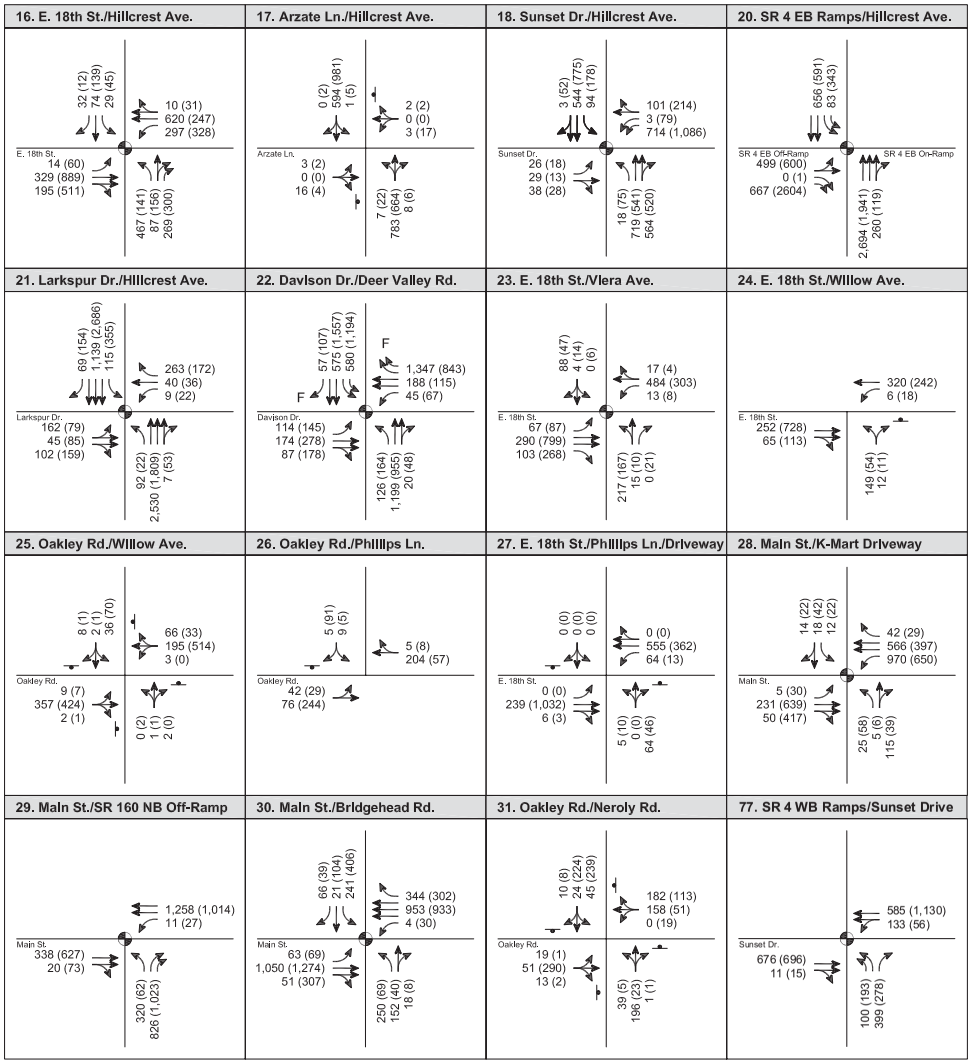


Source: WSA, 2008.

HILLCREST AVENUE STATION AREA INTERSECTIONS - 2030 NO PROJECT CONDITIONS

FIGURE 3.2-14





Source: WSA, 2008.

HILLCREST AVENUE STATION AREA INTERSECTIONS - 2030 PROPOSED PROJECT CONDITIONS

FIGURE 3.2-18

Table 1.9
Maximum 95th Percentile Queue Lengths,
with and without Proposed Project, 2015 and 2030

#	Intersection	Approach	Storage Length (ft)	Length (ft)	
				No Project	Project
2015 AM Peak					
18	Sunset Drive/Hillcrest Avenue	NB	210	**271**	**283**
19	SR 4 WB Ramps/Hillcrest Avenue	WB	786	315	631
		NB	514	233	508
		SB	210	**282**	**269**
20	SR 4 EB Ramps/Hillcrest Avenue	EB	1358	327	386
		NB	138	**183**	**199**
		SB	514	407	156
21	Larkspur Drive/Hillcrest Avenue	SB	138	**170**	**283**
2015 PM Peak					
18	Sunset Drive/Hillcrest Avenue	NB	210	**272**	**251**
19	SR 4 WB Ramps/Hillcrest Avenue	WB	786	619	558
		NB	514	**578**	501
		SB	210	**267**	**309**
20	SR 4 EB Ramps/Hillcrest Avenue	EB	1358	**1618**	817
		NB	138	**196**	**185**
		SB	514	**601**	**582**
21	Larkspur Drive/Hillcrest Avenue	SB	138	**191**	**193**
2030 AM Peak					
18	Sunset Drive/Hillcrest Avenue	NB	210	**350**	**224**
19	SR 4 WB Ramps/Hillcrest Avenue	NB	529	284	438
		SB	210	55	89
20	SR 4 EB Ramps/Hillcrest Avenue	EB	1358	388	257
		NB	132	**177**	**181**
		SB	529	384	278
21	Larkspur Drive/Hillcrest Avenue	SB	132	**178**	**155**
77	SR 4 WB Ramps/Sunset Drive	NB	914	63	168

Table 1.9
Maximum 95th Percentile Queue Lengths,
with and without Proposed Project, 2015 and 2030

#	Intersection	Approach	Storage Length (ft)	Length (ft)	
				No Project	Project
2030 PM Peak					
18	Sunset Drive/Hillcrest Avenue	NB	210	**331**	**347**
19	SR 4 WB Ramps/Hillcrest Avenue	NB	529	115	141
		SB	210	139	70
20	SR 4 EB Ramps/Hillcrest Avenue	EB	1358	**1434**	**1409**
		NB	132	**133**	**143**
		SB	529	168	235
21	Larkspur Drive/Hillcrest Avenue	SB	132	**189**	**184**
77	SR 4 WB Ramps/Sunset Drive	NB	914	89	107

Source: Wilbur Smith Associates, 2009.
Note: **Boldface** type indicates that the queue length exceeds the available storage length.

For the queuing analysis, adjustments were made to the signal timings and simulation settings in Synchro, including mandatory and positioning distances, in order to model more realistic flows. Signal timing adjustments were made in conjunction with assumptions described later in Response 1.32.

The queuing analysis indicated that queues under both AM and PM peak hour conditions dissipate fairly quickly, and that Proposed Project conditions are operationally better than No Project conditions for most locations under both Year 2015 and Year 2030 scenarios. Also, traffic operations are better under Year 2030 scenarios compared to Year 2015 primarily due to the planned reconfiguration of the Hillcrest Avenue interchange. The analysis also suggests that a substantial reduction of the queuing on the SR 4 Eastbound Ramp/Hillcrest Avenue could be accomplished through signal timing and coordination improvements along the Hillcrest Avenue corridor and in the area of the interchange. However, this intersection would remain at unacceptable levels of congestion.

To better describe efforts by the City of Antioch to identify solutions for improving traffic volume at this interchange, the third paragraph on page 3.2-69 of the Draft EIR is revised as follows:

> The CCTA and Caltrans have plans to improve the Hillcrest Avenue interchange as a part of the SR 4 widening project. These plans eliminate the intersection of SR 4 Westbound Ramps/Hillcrest Avenue by providing a new northbound to westbound loop on-ramp and improve and widen the approaches to the SR 4 Eastbound

Ramps/Hillcrest Avenue intersections. These improvements would mitigate the impacts at the SR 4 Westbound Ramps/Hillcrest Avenue intersections but would not mitigate the impacts at the SR 4 Eastbound Ramps/Hillcrest Avenue intersection. These improvements are prohibitively costly in the near term and there is no identified funding that would allow this project to be completed by the Year 2015. It is expected, however, that these improvements would be funded and in place by the Year 2030. Further improvements to address the conditions at the SR 4 Eastbound Ramps/Hillcrest Avenue intersection have been studied by the City of Antioch. ~~but have been determined to be infeasible due the potential displacement of homes and commercial property.~~ The most comprehensive evaluation of alternative improvements for the Hillcrest Avenue interchange is the City of Antioch's "Northeast Antioch Circulation and Access Study" dated May 2, 2005. The following excerpts offer a summary of the alternative improvements that were evaluated in that report:

- A-1 – *CCTA Route 4/Hillcrest Env Doc Improvements + WB Loop on-ramp, and reconstruct EB off-and on-ramps* – This is the planned SR 4 widening project for the interchange. The analysis indicated that it would be sufficient to accommodate Year 2030 traffic.

- A-2 – *Hillcrest loop ramp collector distributor system with realigned Larkspur/Tregallas* – The report indicated that the cost of this improvement would be approximately $50 million and that it would have major impacts to an existing commercial center, church, and vacant developable property.

- A-3 – *Reconstruct Hillcrest interchange as a single-point urban interchange* – The report indicated that the cost of this improvement would be approximately $100 million and that it would have insufficient operations benefit on Hillcrest due to the close spacing of the required intersections.

- A-4 – *Reconstruct Hillcrest interchange along an alignment perpendicular to Route 4* – This option involved the construction of a completely new interchange located to the east of the current interchange. The cost of this project was reported as $150 million and it would involve realignment of Larkspur/Tregallas and acquisition of church, office, commercial, and vacant commercial property (greater than with A-2).

- A-5 – *A-1 + construct a local north/south over-crossing (over Route 4) to relieve Hillcrest traffic* – The cost of this option was placed at less than $50 million. It would involve realignment of Larkspur/Tregallas and acquisition of church, office, commercial, and vacant commercial lands.

- A-6 – *A-1 + construct Viera Avenue Undercrossing* – The cost of this option was placed at less than $50 million. It would involve acquisition of single-family homes and Hillcrest Park parking lot to accommodate the lowering of Larkspur Drive at Viera undercrossing. It would provide no long-term improvement to the Hillcrest interchange.

The study also identified two potential new interchange concepts to address the problem:

- B-1 – *Relocate Hillcrest interchange east to Hillcrest Park* – The cost of this project was identified as approximately $100 million. It would involve tremendous impacts to a residential area due to the new connection with Hillcrest Avenue, realignment of local roads and topography, and a major design exception for non-standard interchange spacing.

- B-2 – *Route 4/Route 160 Interchange with local interchange (Phillips Lane)* – This project involves a new interchange in addition to the Hillcrest Avenue interchange. The cost was identified as less than $150 million. Unlike the other projects A-2 through A-6 and B-1, it would not involve acquisition of existing developed properties south of the freeway, but would require purchase of vacant lands north of the freeway. It would involve a design exception for interchange spacing. The City of Antioch is currently pursuing the approvals to implement this project.

The report also evaluated a series of improvements involving creation of a new interchange at Oakley Road and SR 4/SR 160, coupled with improvements at the East 18th Street interchange. Five of the six options involve new freeway ramps connecting to Oakley Road. The report notes that each of these options involves a major design exception for interchange spacing. Only option C-6, which is termed the *SB East Eighteenth/Main St Hook Ramp option*, would not involve design exceptions. This option involves construction of a new roadway link running parallel to and west of SR 160 between East 18th Street and Oakley Road. The southbound SR 160 on and off-ramps at East

18th Street would then be rebuilt as hook ramps that intersect with this new roadway. This would simplify the East 18th Street interchange and provide a "back door" access route to the Hillcrest Avenue Station area. Traffic using this new route to access the station would not have to use the Hillcrest Avenue interchange. However, because the roadway network assumed for the Year 2030 in the Draft EIR already assumed a connection from East 18th Street to Oakley Road and Slatten Ranch Road via either Viera Street or Phillips Lane, the traffic forecasts already include the sub-regional benefit of this improvement. There would be a localized improvement in conditions at the East 18th Street interchange, but no improvement at the Hillcrest Avenue interchange beyond that already accounted for in the Draft EIR due to the new connection between East 18th Street and Oakley Road that the City of Antioch is planning. Based on the evaluation of all of the above options, the study concluded that there were three primary options to improve freeway access:

1. Major modifications to the SR 4/Hillcrest Avenue interchange, with minor modifications to the SR 160/East Eighteenth interchange;

2. A new interchange at SR 4 and the Phillips Lane extension; and

3. Major modifications to the SR 160/East Eighteenth interchange, with minor modifications to the Hillcrest Avenue interchange.

The City of Antioch and the CCTA have reviewed all of the alternatives that fall under option 1 above for improvements at the SR 4/Hillcrest Avenue interchange. It was concluded that only option A-1 which is the interchange improvement project assumed in this EIR for the Year 2030 is feasible. Option A-2 would provide substantial mitigation beyond that provided by Option A-1, but it has been rejected because of its high cost and major disruption to commercial and residential property in the area. Option A-3, which requires a new freeway ramp connection to Oakley Road, involves significant design exceptions and would only provide minor relief in term of mitigation at the Hillcrest Avenue interchange.

Based on these findings, the City of Antioch has elected to pursue option 2, a new interchange, to be constructed at the extension of Phillips Lane and SR 4 (the Phillips Lane/SR 4 Interchange). While this improvement would help to accommodate the projected traffic growth in the Hillcrest Avenue Station Area, it would not fully mitigate the impacts at the Hillcrest Avenue interchange. As a follow up to this

analysis, the City in 2007 initiated the preparation of a Project Study Report with Caltrans for a new interchange to be constructed at the future extension of Phillips Lane and SR 4.

It is important to acknowledge that the proposed Phillips Lane interchange is still speculative, because action on the interchange is still pending before Caltrans, and no funding has been secured for the construction of the interchange. For these reasons, this project was not viewed as a feasible mitigation for the impacts at the SR 4 Eastbound Ramps/Hillcrest Avenue.

During the preparation of the EIR, another alternative was identified to address the impacts at the SR 4 Eastbound Off-Ramp/Hillcrest Avenue intersection. This alternative would involve a realignment of Tregallas Road to bring its eastern terminus at Hillcrest Avenue directly into the intersection of the eastbound SR 4 ramps and Hillcrest Avenue. This would create an intersection which five legs or approaches. In addition:

- The signal timing would be designed so that right-turn movements from the SR 4 eastbound off-ramp, Tregallas Road and Larkspur Drive would overlap with through/left-turn movements to improve operations.

- Larkspur Drive would be changed to a right-in/right-out operation only. Hence, the southbound left turn from Hillcrest Avenue into Larkspur Drive would be eliminated along with the eastbound turn movement along the SR 4 eastbound off-ramp and Tregallas Drive.

This alternative would provide improved traffic operations and prevent queues on the eastbound SR 4 ramps from extending into the mainline of the freeway. It would adversely impact access and egress for the residential neighborhood served by Larkspur Drive. It also would conflict with one of the towers supporting the high voltage electrical lines which pass through the area.

A queuing analysis was performed by conducting traffic simulations of the operation of all the study intersections in the Hillcrest Avenue interchange area. This analysis also allows the optimization of the signal timing and coordination in the area. The analysis indicated that the queuing on the SR 4 Eastbound ramps in the PM peak hour could be reduced substantially with signal improvements. With implementation of the mitigation measure below, the impacts would be reduced. For example, the ramp would be 1,360 feet in length and the maximum estimated queue would be 820 feet, no longer extending into the mainline of the freeway. Without the signal timing improvements,

the estimated queues were over 2,400 feet in length. However, even with the signal timing improvements, the level of service at the SR 4 Eastbound Ramps/Hillcrest Avenue intersection would remain at level of service F. As a result, the impacts at this location would be substantially reduced but would still be significant and unavoidable.

It is important to note that BART, the CCTA, and the City of Antioch continue to work with Caltrans to seek solutions to the traffic impacts at this interchange. Plans for the widening of SR 4 in this area are subject to review and refinement to address funding issues and the need to accommodate the Proposed Project. Also, the recent opening of the SR 4 Bypass has altered traffic patterns in the area. Once these changes are better understood, minor changes in geometrics and traffic signal timing and coordination modifications may serve to lessen the impacts at this location. However, all the parties involved have yet to find a feasible solution to the cumulative growth in traffic at this location. Thus, the impact at these two intersections is assumed to remain significant and unavoidable in the Year 2015. (SU)

TR-1.3 Hillcrest Avenue Interchange Area Traffic Signal Improvements. The traffic signals of the Hillcrest Avenue interchange area shall be interconnected and a coordinated traffic signal optimization plan which is designed to limit the queuing on the SR 4 eastbound off-ramp shall be implemented. The intersections to be included are Hillcrest Avenue/Arzate Lane – PG&E Service Center Driveway, Sunset Drive/Hillcrest Avenue, SR 4 Westbound Ramps/Hillcrest Avenue, SR 4 Eastbound Ramps/Hillcrest Avenue, Larkspur Drive/Hillcrest Avenue, and Davison Drive/Hillcrest Avenue – Deer Valley Road. Modification of the above signal operations by year 2015 is the responsibility of the City of Antioch. BART would contribute its fair share of the actual costs of signal interconnection and development of an optimization plan. In the year 2030, the intersection of SR 4 Westbound Ramps/Hillcrest Avenue would no longer exist due to the planned interchange improvements and a new intersection at SR 4 Westbound/Sunset Drive would be added to the signal system.

Based on the queue analysis, and the collaboration between BART and the different stakeholders regarding solutions to the traffic impacts at the intersection of SR 4 Eastbound ramps/Hillcrest Avenue, the fifth paragraph on page 3.2-71 of the Draft EIR is revised as follows:

For the reasons identified in the mitigation discussion for Impact TR-1, physical improvements to reduce impacts at the intersection of SR 4 Eastbound Ramps/Hillcrest Avenue are considered infeasible. However, a queuing analysis was performed by conducting traffic simulations of the operation of all the study intersections in the Hillcrest Avenue interchange area. This analysis also allows the

optimization of the signal timing and coordination in the area. The analysis indicated that the queuing on the SR 4 Eastbound ramps in the PM peak hour could be reduced substantially with signal improvements as recommended by Mitigation Measure TR-1.3 earlier. The only difference to circumstances in Year 2015 is that in Year 2030 the intersection of SR 4 Westbound Ramps/Hillcrest Avenue would no longer exist due to the planned intersection improvement and the new intersection SR 4 Westbound/Sunset Drive that would be added to the signal system. The impacts would still be significant; for example, the ramp would be 1,360 feet in length, and the maximum estimated queue would be 1,430 feet, extending into the mainline of the freeway. The simulation also showed that these extended queues would be experienced for a relatively short portion of the peak hour. Without the signal timing improvements the estimated queues were over 2,200 feet in length. As a result, the impact at this intersection would be reduced, but would remain significant and unavoidable. (SU)

TR-2.2 Contribute to Hillcrest Avenue Interchange Improvements. BART shall pay its fair share of reasonable and feasible physical or operational improvements at the Hillcrest Avenue interchange which are developed and agreed to by BART, Caltrans, and the City of Antioch in order to address the identified impacts.

1.10 BART does not plan to put the station at Railroad Avenue into operation before the completion of the terminus station at Hillcrest Avenue. Although the segment of the Proposed Project from Pittsburg/Bay Point Station to Loveridge Road would be completed before the segment from Loveridge Road to Hillcrest Avenue, neither station would be in operation until the opening year of the project, which is expected to be 2015. Accordingly, there is no need to conduct an analysis where the Railroad Avenue Station would function as a terminus.

1.11 No emergency exit for pedestrians is planned that would require encroachment and access to state facilities. The transfer platform area contains enough space for pedestrians to disperse away from the platform in an emergency. If necessary, patrons could be evacuated from the transfer platform area by train or through the maintenance-of-way tunnel that connects to the north side of SR 4. As a result, neither temporary nor permanent impacts to state facilities would be expected due to emergency exit from the transfer platform.

1.12 Although a pedestrian bridge from the east end of the Railroad Avenue Station to the south side of SR 4 is possible and is described in the Draft EIR, it subsequently has been deleted from the Proposed Project. The third paragraph on page S-4 of the Draft EIR is revised as follows:

Access to the Railroad Avenue Station platform would be from the sidewalks on the west and east sides of the Railroad Avenue overpass, where one stairway and one elevator on each side of the overpass would descend to the DMU platform below. ~~A pedestrian bridge from the east end of the station platform to the south side of the freeway over the eastbound lanes of SR 4 is also being planned, although it may not be constructed as part of the initial construction.~~

The first paragraph on page 2-17 of the Draft EIR is revised as follows:

Access. Access to the DMU station platform would be from the sidewalks on the west and east sides of the Railroad Avenue overpass, where one stairway and one elevator on each side of the overpass would descend to the DMU platform below. ~~A pedestrian bridge from the east end of the station platform to the south side of the freeway over the eastbound lanes of SR 4 is also being planned, although it may not be constructed as part of the initial construction.~~

The second paragraph on page 3.5-21 of the Draft EIR is revised as follows:

This landscape segment would include the installation of a station beneath the Railroad Avenue overcrossing of SR 4. Parking for this station would be provided on a 3.1-acre site already used as a park-and-ride lot. This parking area would offer 300 parking spaces by 2015 and is on the north side of Bliss Avenue immediately west of the Harbor Street/SR 4 overpass. No changes to the existing parking area would occur under the Proposed Project. ~~The Railroad Avenue Station could also include construction of a pedestrian bridge connecting the eastern portion of the station platform and the Transit Village Subarea of the Draft Railroad Avenue Specific Plan. This subarea is south of SR 4 near the existing park-and-ride lot off Bliss Avenue~~.

The first paragraph on page 3.5-22 of the Draft EIR is deleted as follows:

~~The pedestrian bridge that may in the future connect the Railroad Avenue Station platform to development south of SR 4 has not been designed, but it is assumed that it would be designed similarly to the pedestrian bridge proposed for the Median Station at Hillcrest Avenue. Based on this assumption, the Railroad Avenue Station pedestrian bridge would be contemporary in design, defined by a glass enclosure. The bridge would be of greater visual interest than the existing concrete highway overpasses that occur at regular intervals along SR 4, such as the existing Railroad Avenue overcrossing. Because the pedestrian~~

~~bridge is of similar height and in close proximity to the Railroad Avenue overcrossing, eastbound motorists' views of the pedestrian bridge would largely be blocked by the existing Railroad Avenue overcrossing and the proposed Railroad Avenue Station structures. Likewise, views from westbound motorists are defined by the highway corridor itself, including the travel lanes, the occasional overcrossings, and in this segment, the embankments on either side of SR 4. The pedestrian overcrossing would be viewed by these westbound motorists as part of the highway infrastructure, in context with and similar in height and mass to the Railroad Avenue overcrossing. Furthermore, SR 4 in this vicinity is depressed below the surrounding area grade and, therefore, the pedestrian bridge would not greatly intrude into the fields of view of viewers on either side of SR 4. As such, this future possible feature of the Railroad Avenue Station would not significantly impact sensitive visual receptors.~~

1.13 This comment about whether the traffic analysis includes the development anticipated by the cities of Pittsburg and Antioch in their station area Specific Plans is similar to Comment 1.6. The forecasts from the travel demand model do take into consideration the planned transit-oriented development that would occur around both the Railroad Avenue and the Hillcrest Avenue Stations. Please refer to Response 1.6 for additional details.

1.14 The reduction in volumes at the intersection of California Avenue and Harbor Street due to the Proposed Project is primarily attributed to two factors:

1. On a sub-regional level, the Proposed Project diverts approximately 1,225 peak hour trips from the SR 4 corridor. These are trips that would have used SR 4 or the parallel surface street routes, but instead are diverted to transit. The travel demand model removes these trips from the highway network which creates more capacity on SR 4. However, the model rebalances the allocation of traffic between SR 4 and the parallel routes based on the improved travel conditions. The result is a reduction in traffic using the parallel surface streets and those routes that approach the freeway ramps. California Avenue is a parallel reliever route to SR 4. Harbor Street is one of the few continuous north-south routes in Pittsburg. It carries traffic attempting to use these parallel routes to and from SR 4 as it connects to Railroad Avenue, Leland Avenue, and the Pittsburg Antioch Highway. When the model reassigns this local surface street traffic to the less congested SR 4, it results in the reduction in traffic volumes noted in the Draft EIR.

2. On a local level, access to the 300-space parking facility for park-and-ride users of the Proposed Project would be on Bliss Avenue just west of

Harbor Street. This parking lot would generate 144 trips during the AM peak hour in the Year 2030. It is anticipated that this parking facility would be used mostly by persons traveling relatively short distances, primarily residents of Pittsburg. This expectation is because there is little incentive for long distance travelers to exit SR 4 at this location when the Pittsburg/Bay Point BART Station is only another 2.8 miles west on SR 4. Those that board the Proposed Project at Railroad Avenue would experience a three-minute delay at the transfer platform, and then travel on BART a short distance and stop again at the Pittsburg/Bay Point BART Station. Once the Proposed Project is in place, there would be excess parking available at the Pittsburg/Bay Point BART Station. As a result, most of the traffic accessing the Railroad Avenue Station would be local in nature and would use Railroad Avenue and Bliss Avenue to access the station. For this reason, the Proposed Project would not add substantial traffic to the Harbor Street/California Avenue intersection.

1.15 The information for the intersection of the westbound ramp from SR 4 to Hillcrest Avenue and Sunset Drive is available and it is added to the tables and diagrams in the Draft EIR. Please refer to Response 1.8 above which presents the revised text, tables, and figures.

1.16 This comment about traffic volumes around the Railroad Avenue eBART parking facility and the intersection of California Avenue and Harbor Street is similar to Comment 1.14. The City of Pittsburg would be responsible for the provision of the park-and-ride parking for the Proposed Project. The City plans to use the existing park-and-ride lot located on Bliss Avenue just west of Harbor Street as the site for a mixed use project, which would include a parking structure that retains the existing 300 spaces for transit users. It is estimated that in the Year 2030 this parking facility would generate 144 peak hour trips. Most of these trips would be locally generated traffic using Railroad Avenue and Bliss Avenue. For more information, see Response 1.14 above. The Transportation Technical Report has been revised to include figures showing the additional trips generated by the project for the Year 2015 and 2030 scenarios.

1.17 Regarding the comment about minimal parking trips in Year 2030, please refer to Responses 1.14 and 1.16 above.

1.18 A full range of potential mitigations has been considered in the Draft EIR transportation analysis to address the identified impacts of the Proposed Project at the Hillcrest Avenue interchange. The Draft EIR indicates that there would be a significant and unavoidable impact at the intersection of the SR 4 Eastbound Ramps with Hillcrest Avenue during the PM peak hour in the Year 2015. The interchange improvements planned by the CCTA as part of the SR 4 widening project would partially, but not fully, mitigate this impact and the interchange

improvements are not planned to be in place until after the Year 2030. As noted on page 3.2-60 of the Draft EIR, the traffic generated by the Proposed Project represents 3.4 percent of the total PM peak hour traffic forecast for this intersection in the Year 2015.

Similarly, for the Year 2030 the Draft EIR indicates that there would be a significant and unavoidable impact at the intersection of the SR 4 Eastbound Ramps with Hillcrest Avenue during the PM peak hour. For this scenario, it was assumed that the interchange improvements planned by the CCTA would be in place. As noted on page 3.2-70 of the Draft EIR, the traffic generated by the Proposed Project represents 4.2 percent of the total PM peak hour traffic forecast for this intersection in the Year 2030.

One of the mitigations that was considered in the traffic analysis was an intersection reconfiguration to provide three left turn lanes for the southbound movement on Hillcrest Avenue to the Eastbound On-Ramp. This mitigation measure would require a widening and lengthening of the on-ramp to accommodate the three lanes of traffic entering the ramp from the intersection. The analysis, which included optimization of the signal timing, showed that there was a reduction in the delay with the third left-turn lane from 282.3 seconds without mitigation to 223.2 seconds (20 percent reduction in delay) for the PM peak hour. However, the intersection would still operate at LOS F. In addition, there would not be sufficient right-of-way to widen and lengthen the on-ramp. The current widening plan for SR 4 indicates that a retaining wall would be required along the north edge of Larkspur Drive to accommodate the planned widening and ramp improvements. There is no room to further widen the on-ramp in this area without relocating Larkspur Drive southward, which would impact a number of homes along the south side of Larkspur Drive.

The most comprehensive evaluation of alternative improvements for the Hillcrest Avenue interchange is the City of Antioch's "Northeast Antioch Circulation and Access Study" dated May 2, 2005. The analysis provided in this report was taken into careful consideration in the Draft EIR. Please refer to Response 1.9 for a description of these improvements and the current proposal being pursued by the City of Antioch.

1.19 Please refer to Response 1.9 above regarding additional ramp analysis and why the supplemental information focuses on the Hillcrest Avenue interchange ramps.

1.20 The differences in the projected volumes in the Draft EIR and those in the Final Traffic Analysis for the SR 4 Widening Project dated November 2003 can be explained primarily by the following three factors:

- The version of the CCTA model that was used for the Widening Project report was not subjected to the local review process which was initiated in Fall 2003. The review was done by each Technical Advisory Committee (TAC) within each Regional Transportation Planning Committee (RTPC). In July 2005, the CCTA formally adopted the Countywide Model after the second round of RTPC TAC reviews. These reviews resulted in a number of land use changes and highway network adjustments to provide greater consistency with local plans.

- As noted on page 3.2-100 of the Draft EIR, the land use assumptions used in the modeling are a version of ABAG Projections 2003 with adjustments that have been approved by the local jurisdictions to better represent actual development plans. In April 2007, CCTA completed a year-long update of the land use in the Countywide Model, with input from most of the cities in Contra Costa County. The updates were made to total households and total jobs for the forecast years 2010, 2020 and 2030, throughout Contra Costa County and in parts of Alameda County. Land use from the prior version of the Countywide Model was not changed for the seven other Bay Area counties. Some significant changes in land use assumptions occurred due to these adjustments. For example, for the three traffic analysis zones which encompass the Hillcrest Avenue Station area, there are 1,274 households in the base Projections 2003, while the adjusted version has 4,124 households and it also has 54 percent more jobs than the base projection. In 2005 Contra Costa County voters approved a relocation of the urban growth limit line that increased the amount of developable land in the southeast portion of Antioch. This change alone resulted in an increase of about 5,000 households in the model land use projections that would not have been included in the land use dataset used for the SR 4 widening project. The Hillcrest Avenue interchange is a major access point for this area of the city. Antioch also included its Rivertown Waterfront Development in the projections. This is a large mixed use, residential, and commercial project located just north of the current downtown area.

- There were changes to the roadway network from that used for the 2003 analysis. Some of the changes that would impact traffic at the Hillcrest Avenue interchange include the addition of Slatten Ranch Road, and the extension of Phillips Lane and Viera Avenue to connect with Slatten Ranch Road. These network changes, plus the land use changes above, would account for much of the changes in the Year 2030 traffic volumes that are noted by the commentor.

1.21 The eastern extension of Sunset Drive would be a new arterial street called Slatten Ranch Road, which would parallel the SR 4 freeway and the SR 4 Bypass between Hillcrest Avenue and Lone Tree Way. In the No Project condition, congestion on SR 4 results in traffic that would prefer to use SR 4 but instead would divert to the parallel arterial route. With the Proposed Project, the diversion of auto trips to transit results in a reduced travel demand on SR 4 and the parallel arterials. This reduction in demand on Slatten Ranch Road was greater than the increase in traffic due to the trip generation of the Hillcrest Avenue Station. The traffic generation analysis did include consideration of both ends of trips made to the station to drop off or pick up passengers. Even with this station-related traffic factored in, traffic on this westbound approach to the intersection would be less under Project conditions than under No Project conditions.

1.22 The traffic analysis indicated that, with the northbound shared through and right turn lane that currently exists at the intersection of Hillcrest Avenue and Sunset Drive, the intersection would operate at level of service C with the Proposed Project and thus there is no need for mitigation at this location. At the same location in the Year 2030, the Proposed Project would worsen conditions to a level of service F. As a result, Mitigation Measure TR-1.1, on page 3.2-69 of the Draft EIR was provided to add an exclusive northbound right turn lane at this location.

1.23 In response to the commentor's question about whether there is a sufficient increase in traffic associated with proposed station area development, the following text is added before the first full paragraph on page 3.2-42 of the Draft EIR:

> It is important to understand that in this analysis the land use development in the station area is considered to be part of the traffic growth forecast under the No Project Alternative. The difference between the Proposed Project and the No Project Alternative is strictly due to the changes in traffic volumes attributable to the transit project. These volumes relate to increased traffic generation to and from the stations, and reductions in traffic on SR 4 and the parallel surface streets due to diversion of auto trips to transit.

1.24 As noted in Response 1.22, there are several ways to access the proposed Hillcrest Avenue Station in addition to the Hillcrest Avenue/Sunset Drive intersection. About 60 percent of the station-generated traffic would use this intersection in the PM peak hour. There would also be access from the east via Slatten Ranch Road and access from the north and northeast via Viera Avenue and Oakley Road. Please refer to Responses 1.21 and 1.22 above for an explanation of the differences between the No Project and Project traffic volumes.

1.25 The 2030 volumes have been reviewed and are expected to reflect volumes in 2030. See Responses 1.21 and 1.22 above for an explanation of the differences between the No Project and Project traffic volumes.

1.26 The 2030 PM volumes have been reviewed and no errors were found. As noted in Response 1.21, the Proposed Project causes a reduction in traffic on SR 4 and the surface street routes that parallel SR 4. Hillcrest Avenue is a part of the parallel arterial network that includes the planned Slatten Ranch Road, which represents the eastern leg of the Hillcrest Avenue/Sunset Drive intersection. Hillcrest Avenue connects to East 18th Street and Wilbur Avenue/10th Street, which are popular alternatives to SR 4.

1.27 As noted in Response 1.23, it is important to understand that in the EIR traffic analysis the future land use development in the station area, as reported by the cities, along with regional growth is part of the traffic growth forecast under the No Project Alternative. The difference between the Proposed Project and the No Project Alternative is strictly the changes in traffic volumes (increases and decreases) that would be due to the transit project. These changes relate to increased traffic generation to and from the stations, and reductions in traffic on SR 4 and the parallel surface streets due to diversion of auto trips to transit. Hillcrest Avenue connects to Lone Tree Way, which is a very popular alternative route to SR 4 and the SR 4 Bypass. As requested by the comment, the traffic volume projections were reviewed and no inconsistencies were found.

1.28 With respect to the commentor's questions about traffic volumes on Larkspur Drive, please refer to Response 1.27 which also applies to the future conditions along Larkspur Drive. Also, the AM peak hour traffic generation of the Hillcrest Avenue Station would be higher than the PM peak hour. This is based on the observed traffic at existing BART stations in Contra Costa County.

1.29 This comment about AM northbound turn volumes is similar to Comment 1.27, except that it concerns Year 2030 conditions rather than Year 2015 conditions. The same explanation provided in Response 1.27 applies here also. See also Response 1.21 above for additional information on the Proposed Project's broader effects on traffic volumes on parallel arterial routes to SR 4.

1.30 This comment about AM turn volumes at Larkspur Drive is similar to Comment 1.28, except that it concerns Year 2030 conditions rather than Year 2015 conditions. The same explanation provided in Responses 1.28 applies here also. See also Response 1.21 above for additional information on the Proposed Project's broader effects on traffic volumes on parallel arterial routes to SR 4.

1.31 This comment about PM turn volumes in Year 2030 is similar to previous comments which question why the No Project volumes are greater than the Project

volumes. The same explanations provided in Responses 1.21 and 1.22 apply here also.

1.32 The guidelines provided in the *Contra Costa Transportation Authority's (CCTA) Technical Procedures Update (July 19, 2006)* were used to guide the traffic operations analysis. *Chapter 7* of the CCTA Technical Procedures document outlines the Level-of-Service methodology to be used as the basis for countywide consistency in the analysis of traffic impacts. *Section 7.1* states that CCTA modified the Circular 212 Operations and Design Method by assuming a saturation flow rate of 1,800 vehicles per hour (rather than 1,500 vehicles per hour). Table 7 below extracted from page 46 of the *CCTA Technical Procedures* document presents measured saturation flow rates at select intersections and these data were used to determine that the recommended saturation flow rate of 1,800 vehicles per hour per lane is frequently achieved within Contra Costa County. The saturation flow rates used for the traffic operations analysis reported in the Draft EIR are provided in Table 1.32 below. As discussed earlier, this range falls within the values recommended by the CCTA Technical Procedures Update document. The Transportation Technical Report has been revised to include this information.

Table 7: Measured PM Peak Hour Saturation Flow Rates Selected Intersections in Contra Costa County

Intersection	*Movement*	*Number of Samples*	*Highest Measured (Vehicles Per Hour)*
Treat Boulevard/Clayton Road	Left	4	1,752
	Left/Thru	4	2,054
	Thru	8	2,487
	Thru/Right	4	1,793
Buchanan Road/Somersville Road	Left	8	2,048
	Thru	2	2,014
Alcosta Drive/Crow Canyon Road	Left	3	2,152
	Thru	5	2,261
	Right	1	2,531
Blume Drive/HilltopDrive	Left	4	2,084
	Thru	4	1,807
WEIGHTED AVERAGE	Left	19	2,152
	Left/Thru	4	2,054
	Thru	19	2,487
	Thru/Right	4	1,793
	Right	1	2,531

Source: Patterson Associates, February, 1990

Table 1.32
Summary of Saturation Flow Rates Used in the Draft EIR

Movements	Saturation Flow Rates (*Proposed Project EIR*) in pc/hr/ln	Weighted Average Saturation Flow Rates (*CCTA Technical Procedures*) in pc/hr/ln
Left	1,770	2,152
Left/Thru	1,857	2,054
Thru	1,863	2,487
Thru/Right	1,671 – 1,678	1,793
Right	1,504 – 1,583	2,531
Left/Thru/Right	1,641 – 1,863	

Source: WSA, 2008; *Contra Costa Transportation Authority's Technical Procedures Update*, July 19, 2006.

1.33 Please refer to Response 1.8, above for the updated intersection operation results.

1.34 A queuing analysis of the Hillcrest Avenue interchange area intersections and ramps was conducted using SimTraffic. Please refer to Response 1.9 above.

The addition of a turn lane along the northbound approach for right turn movements has been identified in the EIR as a possible mitigation measure. See Mitigation Measure TR-1.1 on page 3.2-69 of the Draft EIR.

1.35 The analysis of the intersection of the SR 4 westbound ramps with Sunset Drive (future Slatten Ranch Road) has been provided as requested. Refer to Response 1.8, above, regarding the inclusion of the reconfigured westbound ramps, and Response 1.9, above, regarding the queuing analysis performed under this scenario.

1.36 Please refer to Table 1.36, below, for information on storage lengths by intersection versus project queue lengths with and without the Proposed Project.

Table 1.36
Maximum 95th Percentile Turn Lane Storage Bay Queue Lengths, with and without Proposed Project, 2015 and 2030

#	Intersection	Approach	Storage Length (ft)	Length (ft)	
				No Project	Project
2015 AM Peak					
18	Sunset Drive/Hillcrest Avenue	EBL	75	**80**	**84**
		WBTR	100	**113**	91
		NBL	150	132	**170**
		SBL	200	92	120
20	SR 4 EB Ramps/Hillcrest Avenue	SBL	200	169	82
21	Larkspur Drive/Hillcrest Avenue	WBL	100	33	27
		NBL	350	297	271
		SBR	50	**76**	**76**
2015 PM Peak					
18	Sunset Drive/Hillcrest Avenue	EBL	75	**106**	**80**
		WBTR	100	**124**	**167**
		NBL	150	142	**152**
		SBL	200	**236**	**257**
20	SR 4 EB Ramps/Hillcrest Avenue	SBL	200	87	**285**
21	Larkspur Drive/Hillcrest Avenue	WBL	100	56	55
		NBL	350	69	72
		SBR	50	**77**	**72**
2030 AM Peak					
18	Sunset Drive/Hillcrest Avenue	EBL	75	69	50
		NBL	150	64	62
		SBL	200	148	170
20	SR 4 EB Ramps/Hillcrest Avenue	EBL	980	307	257
		SBL	500	157	101
21	Larkspur Drive/Hillcrest Avenue	WBL	100	48	26
		NBL	350	177	133
		SBR	50	**81**	**73**
77	SR 4 WB Ramps/Sunset Drive	NBR	100	63	**168**

Table 1.36
Maximum 95th Percentile Turn Lane Storage Bay Queue Lengths, with and without Proposed Project, 2015 and 2030

#	Intersection	Approach	Storage Length (ft)	Length (ft)	
				No Project	Project
2030 PM Peak					
18	Sunset Drive/Hillcrest Avenue	EBL	75	26	35
		NBL	150	118	134
		SBL	200	**215**	197
20	SR 4 EB Ramps/Hillcrest Avenue	EBL	980	**1434**	**1409**
		SBL	500	7	168
21	Larkspur Drive/Hillcrest Avenue	WBL	100	48	49
		NBL	350	48	59
		SBR	50	**62**	**68**
77	SR 4 WB Ramps/Sunset Drive	NBR	100	89	**107**

Source: Wilbur Smith Associates, 2009

Note: **Boldface** type indicates that the queue length exceeds the available storage length.

1.37 A time-space diagram (displaying time on the horizontal axis and distance along the vertical axis) for the intersections along the Hillcrest Avenue interchange for the PM peak hour was analyzed to graphically determine traffic flow patterns and delays between intersections. The three intersections along Hillcrest Avenue included SR 4 Westbound Ramps, SR 4 Eastbound Ramps and Larkspur Drive. The time space diagrams are included in the Transportation Technical Report.

1.38 It is BART's intent to minimize access from the SR 4 freeway for the construction of the Proposed Project. This is one reason why it is the mutual objective of BART and the CCTA to coordinate construction schedules and phasing in such a manner that the Proposed Project can be constructed in concert with the SR 4 widening project.

1.39 This comment was reviewed with the Caltrans Traffic Operations group. It was agreed that this ramp analysis would focus on the Hillcrest Avenue interchange ramps where the Draft EIR indicated that there could be significant impacts. Because the Proposed Project was shown not to have any significant impacts at the Railroad Avenue interchange, there was no need to conduct the ramp analysis there. A queuing analysis using SimTraffic was performed in coordination with Caltrans. See Response 1.9 above, for more information.

1.40 The fourth paragraph on page 3.2-17 of the Draft EIR is revised as follows:

> *State Route 4 Bypass* is a large regional transportation project being constructed in ~~three~~ segments. Segment 1 extends from just east of the SR 4/Hillcrest Avenue interchange to Lone Tree Way in the City of Antioch and will consist of a 6-lane freeway between existing SR 4 and the Laurel Road interchange and a 4-lane freeway from there to Lone Tree Way. Segment 2~~, which is currently completed and open to traffic,~~ is a two-lane expressway between Lone Tree Way and Balfour Road ~~(existing). There are plans to convert it to a full freeway with interchanges at Sand Creek Road and Balfour Road.~~ Segment 3 extends from Balfour Road south to Marsh Creek Road as a 2-lane expressway, then along Marsh Creek Road (East-West Connector) as a 2-lane conventional highway, connecting to existing SR 4 (Byron Highway).

The last paragraph on page 3.2-42 of the Draft EIR is revised as follows:

> *State Route 4 Bypass*. The Bypass Authority is currently preparing design plans for the proposed SR 4/Sand Creek Road interchange and the proposed Bypass widening to a 4-lane freeway facility from Lone Tree Way to Sand Creek Road~~. The State Route 4 Bypass is under construction and is expected to be completed by 2009. Segment 2 of the Bypass project already been completed and is described in "Existing Conditions," while Segments 1 and 3 are under construction. Segment 1 will extend from just east of the SR 4/Hillcrest Avenue Interchange to Lone Tree Way in the City of Antioch and will consist of a 6 lane freeway between existing SR 4 and the Laurel Road Interchange and a 4-lane freeway from there to Lone Tree Way. Segment 3 will extend from Balfour Road south to Marsh Creek Road as a 2 lane expressway, then along Marsh Creek Road (East-West Connector) as a 2-lane conventional highway, connecting to existing SR 4 (Byron Highway). The southerly limits of the project (now called the Vasco Road Extension) are from Marsh Creek Road to Vasco Road at Walnut Boulevard.~~

1.41 To acknowledge the Main Street Widening, the third full paragraph on page 3.2-43 of the Draft EIR is revised as follows:

> A small number of widening projects are planned along major arterials in the study area, including a portion of Hillcrest Avenue, south of SR 4, and E. 18th Street from Hillcrest Avenue ~~into~~ to Oakley. Also the City of Oakley is sponsoring the Main Street widening project which extends from the SR 160/Main Street interchange to Big Break Road.

These projects include the addition of lanes, turn lanes, medians, and bike lanes.

1.42 As noted on page 3.2-69 of the Draft EIR, the Proposed Project would include significant and unavoidable impacts at the intersections of Hillcrest Avenue with SR 4 eastbound and westbound ramps in the Year 2015. Table 3.2-17 on page 3.2-67 of the Draft EIR shows that these significant and unavoidable impacts also would occur with the No Project condition. The proposed improvements to the Hillcrest Avenue interchange that are part of the SR 4 widening project would mitigate the impacts at the Hillcrest Avenue/Westbound SR 4 Ramps. However, as noted by the commentor, this project is not currently anticipated to be funded and in place by the Year 2015.

As a result, when the Proposed Project becomes operational in the Year 2015, the traffic analysis indicates that there would be severe congestion during the AM and PM peak hours at the intersection with the westbound ramps and during the PM peak hour at the intersection with the eastbound ramps. The most severe problem would be delays to traffic exiting eastbound SR 4. The queuing analysis, which was provided in Response 1.9, presents more detail on the nature of these delays. In summary, the queuing on the ramp would be enough to cause traffic on the ramp to queue onto the right lane of the freeway, which would cause delays for freeway traffic. The proposed interchange improvements, which are part of the SR 4 widening project, would partially mitigate this problem, but this improvement would not likely be in place by the Year 2015. Other improvements that would help to mitigate these conditions would be the completion of the planned Slatten Ranch Road and the extension of Viera Avenue to connect with Slatten Ranch Road. These improvements are part of the City of Antioch's plan for developing the Hillcrest Station Area, but currently they are not funded. It is important to note that the significant and unavoidable impacts would occur with or without the project based on the expected cumulative growth of the area and the East County as a whole. The traffic generated by the Proposed Project would represent 6 percent of the total traffic using the Hillcrest Avenue/Westbound SR 4 Ramps intersection in the AM peak hour and 12.2 percent in the PM peak hour. At the Hillcrest Avenue/Eastbound SR 4 intersection the Proposed Project would represent about 3.4 percent of the total PM peak hour traffic.

1.43 As noted on page 3.2-71 of the Draft EIR in the Year 2030, the Proposed Project would have a significant and unavoidable impact on the Hillcrest Avenue/Eastbound SR 4 intersection. The No Project Alternative would have a similar impact. By the Year 2030, it is assumed that the planned improvements at the Hillcrest Avenue interchange, which are part of the SR 4 widening project, would have been implemented. However, even with these improvements, conditions at this intersection would be unacceptable during the AM and PM peak

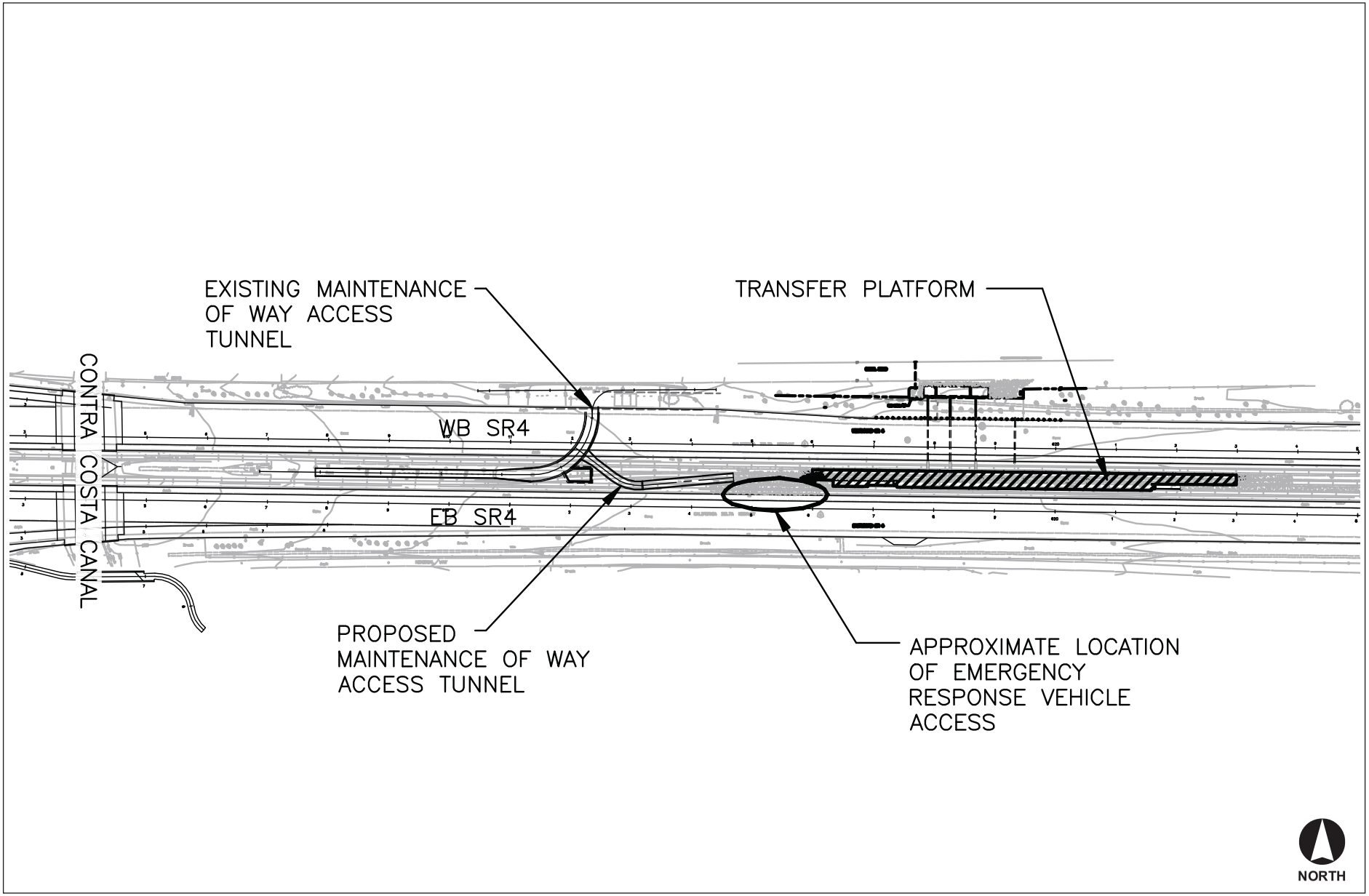
hours when congestion at the intersection would cause queues, which would extend the length of the off-ramp and onto the mainline of the freeway. Please refer to Response 1.9 above for a complete discussion of all the mitigations that have been considered to improve traffic operations at this interchange. No feasible mitigation has been found despite extensive study. Notably, the significant and unavoidable impacts would occur with or without the Proposed Project, based on the expected cumulative growth of the area and the East County as a whole. The Proposed Project would represent 4.2 percent of the total traffic using the Hillcrest Avenue/Eastbound SR 4 Ramps intersection in the AM peak hour and 7.9 percent in the PM peak hour.

1.44 BART plans to work closely with the City of Antioch and the CCTA to implement signal coordination and timing improvements to help minimize impacts to the Hillcrest Avenue intersection as noted in Response 1.9. In response to the commentor's suggestion to utilize signal timing to reduce impacts, a new Mitigation Measure TR-1.3 is included.

1.45 Emergency vehicle access from the state's ROW for the transfer platform at the Pittsburg/Bay Point Station would be from eastbound SR 4 at the western end of the platform. Details of the entrance through the median to the transfer platform will be coordinated with Caltrans. Figure 2-3A illustrates the approximate location of the emergency vehicle access.

1.46 The optional future pedestrian bridge at the Railroad Avenue Station, as discussed on page 2-17 of the Draft EIR, would have extended from the median station over the eastbound lanes of SR 4 to the south side of the freeway. It would have been located near the park-and-ride lot east of Railroad Avenue. The bridge primarily would have benefited pedestrians from proposed transit-oriented development south and east of the Railroad Avenue intersection. Ultimately, the expected pedestrian use of the bridge did not justify the cost of the structure, and it was dropped from the project (see Response 1.12 for the text changes to the Draft EIR). Pedestrians from that area will still be able to conveniently access the station from the sidewalks along Railroad Avenue. BART will continue working with Caltrans to safely enhance pedestrian access to the Railroad Avenue Station entrance. Please also refer to Response 1.57 regarding additional text changes on pages 3.2-96 and 3.2-97.

1.47 BART has actively coordinated development of the Proposed Project and its relationship to the State Highway System with Caltrans, MTC, ABAG, CCTA, Contra Costa County, Tri Delta Transit, and the cities of Pittsburg, Antioch, Oakley, and Brentwood to ensure consistency with their plans, policies, and programs.



Source: PGH Wong, BART, PBS&J, 2009.

EMERGENCY VEHICLE ACCESS
FIGURE 2-3A

1.48 BART is working closely with the City of Antioch, the City of Pittsburg, and the CCTA to implement the mitigation measures identified in this EIR and other actions to address the impacts of the Proposed Project. BART has no jurisdiction over the land use planning policies of the cities or the county. Furthermore, BART does not have the ability to set and levy traffic impact fees. There is an existing regional impact fee program in place in Eastern Costa County (East Contra Costa Regional Fee and Financing Authority) and part of the funding for the Proposed Project (approximately 1 percent) is to be from the fees collected through this program.

1.49 BART has been working closely with the cities of Pittsburg and Antioch to assure that the land use assumptions that they are developing for use in their ongoing Ridership Development Plans will be consistent with the assumptions used for the travel demand forecasts presented in this EIR. Please refer to Response 1.6 above, for more detail on the land use assumptions in the travel demand forecasts.

1.50 According to the Memorandum of Understanding between BART and the participating jurisdictions in the eBART corridor, the Ridership Development Plans must be approved and the companion environmental documents certified prior to the BART Board taking action on the Proposed Project. However, as the result of unforeseen delays, the cities of Pittsburg and Antioch may not complete the process of Specific Plan adoption in time for the scheduled consideration of the Proposed Project by the BART Board. Currently, consideration of the Ridership Development Plans is anticipated in April 2009 in the City of Antioch and in May 2009 in the City of Pittsburg. For additional details on the approval of these local station area plans, please refer to Master Response 7 in Section 3 of this document.

1.51 The responsibility for the preparation of the Ridership Development Plans (RDPs) lies with the cities of Pittsburg and Antioch. In each case, the RDPs provide for increased density and transit-oriented development for the eBART station areas. By their very nature, the RDPs are intended to minimize vehicular travel through the encouragement of transit uses and the creation of a physical environment that supports pedestrian and bicycle travel. Please refer to Master Response 7 in Section 3 of this document, regarding the relationship between the Proposed Project and the RDPs.

1.52 Scheduling and costs associated with the Proposed Project are addressed in Section 2, Project Description, of the Draft EIR. The RDPs are related to eBART, but are a separate issue. Scheduling and costs related to RDP improvements should be addressed by the cities of Pittsburg and Antioch. Please refer to Master Response 7 in Section 3 of this document, regarding the relationship between the Proposed Project and the RDPs.

1.53 The identification of the funding sources for the infrastructure improvements identified in the Ridership Development Plans is the responsibility of the cities of Pittsburg and Antioch. Please refer to Response 1.51 above for more detail.

1.54 Please refer to Response 1.41 above, which modifies the Draft EIR text to acknowledge the widening of SR 4 from SR 160 to Big Break Road. With regard to the second project, the third paragraph on page 3.2-42 of the Draft EIR is revised as follows:

> *State Route 4.* There are plans to continue widening SR 4 from four mixed-flow lanes to eight lanes, including one HOV lane and three mixed flow lanes in each direction. The median will be widened as well to accommodate future public transit improvements. Within the study area, freeway widening has already been completed on the segment from Bailey Road to Loveridge Road. The next proposed segment for widening, from Loveridge Road to ~~SR 160~~ Somersville Road is expected to be completed by ~~2015~~ 2013. By 2015 the CCTA expects that the widening will be complete to Hillcrest Avenue. Major freeway interchanges along this portion will also need to be expanded, namely at Hillcrest Avenue, where there are plans to construct a new westbound onramp and an auxiliary ~~eastbound~~ off-ramp accessing Sunset Drive. ~~However, the Hillcrest Avenue interchange reconstruction project is not yet fully funded, and for that reason, it is not included in the Year 2015 scenario.~~
>
> The eastbound ramps would retain the diamond configuration, but the off-ramp would be widened to two lanes from the mainline, extending to four lanes at the intersection with Hillcrest Avenue. This improvement is expected to be completed by 2015 and has thus been included in both the 2015 and 2030 future scenarios. Additionally, the overpass between the east- and westbound ramps along Hillcrest Avenue would be reconfigured to provide an additional left turn lane for the southbound approach at this intersection.
>
> Also, an interchange at Range Road between Bailey Road and Railroad Avenue has been included in the Year 2030 model, while the interchange at G Street has been removed in both Year 2015 and 2030 scenarios.

The third project listed in the comment, involving SR 4 beyond Marsh Creek Road is outside the study area of this EIR and has no direct relationship to the Proposed Project.

1.55 BART is expecting to obtain right-of-way through CCTA.

1.56 eBART Station parking is not expected to be free; the particular pricing structure would be determined in accordance with BART's Access Management and Improvement Policy. Please note, however, that the purpose of providing parking at the stations is to encourage use of the system. Limiting the availability of parking could be counterproductive and discourage potential riders from boarding at the Railroad Avenue Station. It should further be noted that the mitigation measure referenced by the commentor is proposed because the analysis indicated that there potentially may be insufficient parking supply at the Railroad Avenue Station and parkers who cannot find parking at the eBART lot may compete for limited on-street parking in the station vicinity. On page 3.2-95 of the Draft EIR, Mitigation Measure TR-7.1 is intended to assess the spillover parking demand and to recommend a parking management program if appropriate.

The City of Pittsburg would assume responsibility for the parking lot, which may eventually be converted to a parking structure. Lack of space would not allow bicycle lockers at the Railroad Avenue Station. However, there is the possibility that bicycle lockers could be provided by the City at a location near the Railroad Avenue Station. The design of the bus shelters would be the responsibility of Tri Delta Transit.

1.57 In response to this comment, the discussion and evaluation of pedestrian and bicycle impacts under Impact TR-8 on pages 3.2-96 and 3.2-97 of the Draft EIR (starting with the second paragraph) is revised as follows:

> **Railroad Avenue Station Area.** The Proposed Project is expected to generate a significant number of walking and biking trips to and from the stations (see Table 3.2-15). These modes of access to the station are especially notable at the proposed Railroad Avenue Station, which is expected to have 30 percent of the Proposed Project passengers arriving and departing by non-motorized modes. In the year 2030, this represents 266 pedestrian round trips and 19 bicycle round trips arriving at the station each weekday. In addition, the passengers arriving by auto would be walking to the station from where they parked or were dropped off. Both sides of Railroad Avenue have access to the DMU platform with stairs and elevator (see Figure 2-7). However, t~~T~~he design of the Railroad Avenue Station recognizes that the sidewalk along the west ~~east~~ side of the Railroad Avenue overcrossing of SR 4 is only 5 feet in width. The proposed station design provides additional sidewalk width in the vicinity of the station entrances. Though the station design includes safety railings that would occupy 6 to 8 inches along each sidewalk curb, the design ~~and~~ avoids construction of other physical elements that would reduce the effective width of the existing sidewalk. Also, the layout of the station

platform makes it more convenient to access the station from the east side of Railroad Avenue where the sidewalk is 10 feet wide.

As identified earlier, there are a number of street segments in the vicinity of the Railroad Avenue Station that lack sidewalks either on one or both sides. The Railroad Avenue Specific Plan prepared by the City of Pittsburg calls for a comprehensive program of sidewalk improvements which would result in construction of sidewalks for all the identified sidewalk gaps and upgrading the existing sidewalks in the area to a 10-foot width (with the exception of the sidewalk on the west side of the Railroad Avenue bridge over SR 4). If widening this sidewalk, which is now 5 feet in width, required a physical widening of the bridge, it could be prohibitively expensive. Other design solutions, such as narrowing the traffic lanes to expand the sidewalk, may be feasible. BART is committed to cooperating with the City of Pittsburg and others in their efforts to enhance safety and security on the Railroad Avenue overpass sidewalks. There are currently sidewalks in the station area on both sides of the primary streets that provide access to the station. One notable exception is Bliss Avenue which lacks sidewalks on either side between Railroad Avenue and Harbor Street. As the park-and-ride parking facility for the station is located on this street segment, it would be critical that the north side sidewalks on this street are completed by the time the Railroad Avenue Station opens.

The Specific Plan also calls for improvement to bicycle facilities on Railroad Avenue which in coordination with the existing bicycle lanes on Harbor Street would link the Railroad Avenue Station with the major existing and planned east-west bicycle facilities located both north and south of the station.

~~The Proposed Project along with the cities of Pittsburg and Antioch that will adopt transit-oriented development plans that specifically call for strong linkages between the surrounding development and the stations are expected to enhance the network of pedestrian and bicycle facilities.~~

Hillcrest Avenue Station Area. The primary access route for pedestrians and bicyclists to the Hillcrest Avenue Station would be Hillcrest Avenue. The linkage to the station from Hillcrest Avenue would be via improvements to existing Sunset Drive by BART. Hillcrest Avenue lacks a sidewalk along its western side between Sunset Drive and East 18th Street. While it would be desirable to complete this sidewalk, there is an adequate sidewalk along the east side of the street which is closest to the Hillcrest Avenue Station. The

City of Antioch has prepared a Ridership Development Plan for the Hillcrest Station Area. This plan includes new roadway facilities such as Slatten Ranch Road, Phillips Lane, and Viera Avenue that will provide access to the Hillcrest Avenue Station. These new roads are planned to have sidewalks on both sides and bicycle lanes. The CCTA is planning a redesign of the Hillcrest Avenue interchange with SR 4. This redesign takes into consideration the needs of pedestrians and bicyclists; however, with the plan to locate the Hillcrest Avenue Station near this interchange, it is important that the new design for the interchange include adequate sidewalks and facilities for bicyclists.

MITIGATION MEASURE. The following measure to be implemented along with Mitigation Measure TR-~~2~~1.1~~2~~, which calls for improvements at the Hillcrest Avenue/Sunset Drive intersection, would reduce the pedestrian and bicycle impact at the Hillcrest Avenue Station to a less-than-significant level. (LTS)

TR-8.1 Construct sidewalks and bicycles lanes along Hillcrest Avenue and Sunset Drive~~Slatten Ranch Road~~. For the Hillcrest Avenue Station, the Hillcrest Avenue/Sunset Drive intersection will be improved as required in Mitigation Measure TR-~~2~~1.1~~2~~. In addition to the improvements required by TR-~~2~~1.1~~2~~, improvements shall include a sidewalk along the east side of Hillcrest Avenue and a southbound bicycle lane in the areas affected by the construction of the other required intersection improvements. BART shall contribute its fair share of these intersection improvements. In addition, BART shall provide safe and convenient bicycle and pedestrian access from the Sunset Drive/Hillcrest Avenue intersection to the station platform area. ~~The portion of Slatten Ranch Road to be constructed by BART shall include sidewalks and bicycle lanes.~~

1.58 As identified on page 3.2-96 of the Draft EIR, Impact TR-8 identifies a potential impact to bicyclists in the Hillcrest Avenue/Sunset Drive area due to the Proposed Project's Hillcrest Avenue Station. The recommended mitigation calls for construction of a bicycle lane. On page 3.2-98 of the Draft EIR, Mitigation Measure TR-9.1 requires that BART ensure that a Construction Phasing and Traffic Management Plan (TMP) is developed and implemented by the contractor to address access and circulation impacts during the construction period. Mitigation Measure TR-9.1c requires the plan provide information on lane closures to the public, which would include bicycle groups, through signs, press releases, and other media tools. Mitigation Measure TR-9.1e requires the plan provide safe access and circulation routes for vehicles, bicycles, pedestrians, and emergency response vehicles during construction. It is the intent of these

measures that BART and its contractors would inform the public (including pedestrians, bicyclists, transit riders, and motorists) of potential road closures and detours.

1.59 The Antioch Amtrak Station is located in Downtown Antioch approximately three miles from the Hillcrest Avenue Station which is part of the Proposed Project. Tri Delta Transit, the local transit service provider in the project area, was consulted as part of the analysis performed to support the preparation of the Draft EIR. This consultation resulted in a restructured service plan for Tri Delta Transit. This new service plan is generally described on page 2-36 of the Draft EIR in the third paragraph under the section entitled "Interface with Existing Transit Services." Pursuant to the new service plan, Route 388, which currently serves the Hillcrest park-and-ride lot, would be shortened and split into two routes. The northern portion of the route would be named 388A, and it would extend from the Hillcrest Avenue Station to Downtown Antioch and the Amtrak Station. This line operates from 6:00 AM to 10:00 PM on weekdays and provides service every 30 – 40 minutes during this period. Route 387 would also serve the Amtrak Station and would provide a connection to the proposed Railroad Avenue Station in Pittsburg.

To clarify the availability of existing and future connections between the Proposed Project and Amtrak stations, the following text is added to the end of the third paragraph under the section entitled "Interface with Existing Transit Services" on page 2-36 of the Draft EIR:

> There is an existing Amtrak California Station in Downtown Antioch which is about three miles from the proposed Hillcrest Avenue Station. The Antioch Amtrak Station connects rail passenger service from Oakland to the Stockton area, north to Sacramento; and south to all the major cities in the San Joaquin Valley, Los Angeles, and on to San Diego. In order to provide a connection to Downtown Antioch and the Antioch Amtrak Station, Route 388 would be modified into two routes, one of which would become Route 388A. Route 388A would provide direct service to the Downtown and the Amtrak Station.

1.60 The commentor concurs with the findings and mitigation measures addressing the discovery of significant cultural resources and requests that the mitigation be expanded to include ground-disturbing activities on state ROW. BART will confer with Caltrans regarding ground-disturbing activities taking place in and around SR 4. However, based on the Cultural Resources section of the Draft EIR and the Cultural Resources section of the Draft Environmental Assessment/Initial Study for the SR4 (East) Widening Project,[1] BART does not expect that the SR 4 median

[1] Draft Environmental Assessment/Initial Study for the SR4 (East) Widening Project: Loveridge Road to SR 4, October 2004.

contains any significant archaeological resources and that the mitigation measures in the Draft EIR would not apply. Mitigation Measures CR-2.1 and CR-2.2 on pages 3.6-18 and 3.6-19 in the Draft EIR do not distinguish between private or public lands, so that significant resources identified on State lands outside the SR 4 median would be covered by these mitigation measures. As necessary, BART would consult with the Department Office of Cultural Resource Studies at District 4 if any archaeological resources are discovered.

1.61 BART is actively coordinating with Caltrans to accommodate, plan, and design eBART in the median of SR 4, including hydrology and drainage systems.

1.62 BART is currently coordinating with CCTA on construction phasing. As noted earlier in Response 1.38, it is a mutual objective of BART and CCTA to coordinate construction schedules and phasing so that the Proposed Project can be constructed in concert with the SR 4 widening project.

1.63 Based on the commentor's clarification of future drainage in the median of SR 4, the following text revisions are made.

The eighth sentence of the second paragraph on page 1-26 of the Draft EIR is revised as follows:

> Basic elements of the SR 4 East Widening Project intended to accommodate a future transit project include widening the median and construction of retaining walls, median subgrade, median ~~drainage~~ inlets that will drain to existing or proposed crossings, and median barriers.

Also, the fourth sentence in the first paragraph under "Coordination with Caltrans" on page 2-42 of the Draft EIR is revised as follows:

> ~~Also, drainage facilities for future transit will be designed to tie into inlets that discharge into cross drains that are part of the freeway facilities.~~ Caltrans will place drainage inlets in the median approximately 500 to 800 feet apart. Drainage facilities for future transit will be designed to tie into these inlets and will drain to either existing or proposed crossings.

1.64 Train storage, fueling, and train washing would take place in the SR 4 median east of the Hillcrest Avenue Station platform. A containment system would be provided to prevent fuel spills from entering the drainage system, and a water recovery system would be provided as part of the train washing system. The train wash water would be captured and recycled, or it would be pretreated and

discharged to the local sanitary sewer. No effects on the local drainage system are anticipated.

1.65 In response to the comment regarding flooding, the third paragraph on page 3.8-4 of the Draft EIR is revised as follows:

> The SR 4 profile at Loveridge Road interchange is depressed, and the low point of the road is below the 100-year water surface elevation of the Kirker Creek and Old Kirker Creek Crossing. The existing pump at Loveridge Road ~~is~~ was originally designed for a 50-year storm. ~~and would need to be upgraded to handle a 100-year storm.~~ As a result, the Loveridge Road area has historically experienced flooding. The 1997 and 1998 floods resulted in extended closures of SR 4.[7] To address this, the SR 4 widening project (Loveridge Road interchange) proposes a pump at Loveridge Road and a culvert at Old Kirker Creek designed for a 100-year storm. However, the benefit of the Old Kirker Creek culvert upgrade would not be fully realized until the City of Pittsburg implements capacity improvements downstream of SR 4.

1.66 The last paragraph on page 3.8-4 of the Draft EIR is revised as follows to be consistent with the information in Table 3.8-1:

> In the Los Medanos Wasteway, Markley Creek, and West Antioch Creek floodplains, there are cross culverts made of reinforced concrete boxes or reinforced pipes. The ~~roadway~~ ground elevations at these ~~low~~ points are above the 100-year water surface elevations at the closest creek crossings of SR 4 and, thus, SR 4 does not flood at these locations. ~~at these elevations are similar to surrounding ground elevations and therefore experience minor flooding~~.[8] Information on flood hazards and the flooding condition for the 100-year flood within the project corridor is presented in Table 3.8-1.

1.67 The comment refers to Figure 3.8-2 of the Draft EIR and whether other flood zones should be mapped. In response to the comment, Figure 3.8-2 is revised to include all flood zones (*Zone X, Zone A, Zone AH, Zone AE, Zone AO, and 0.2-percent-annual chance of flood Zone*), referenced in the text on page 3.8-7 of the Draft EIR. It should be noted that the flood zone limits have changed since the Draft EIR was published. Definitions of the flood hazard zones have been updated and text on page 3.8-7 of the Draft EIR is revised as follows:

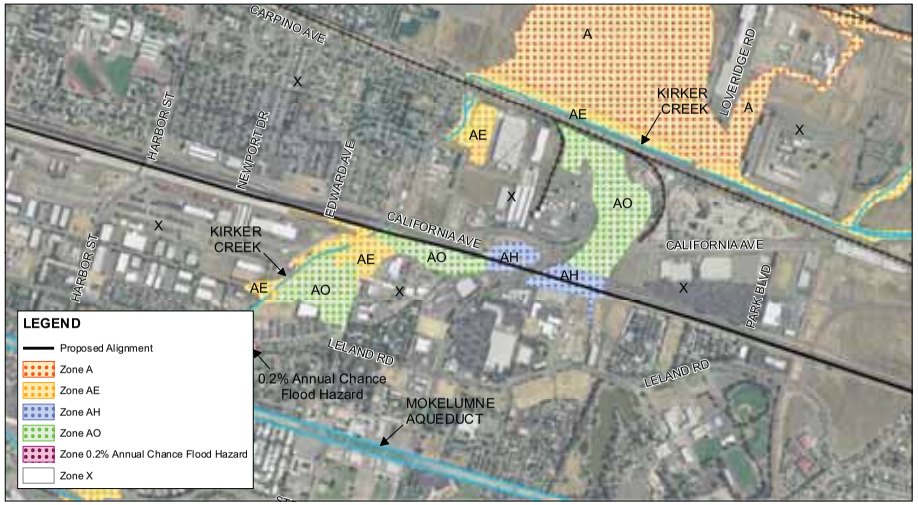
> Each of the above floodplains is rated by FEMA according to risk of flooding and depth of flooding. Several areas of flood hazard are commonly identified on the FIRM. One of these areas is the Special Flood Hazard Area (SFHA), which is defined as the area that will be

inundated by the flood event having a one-percent chance of being equaled or exceeded in any given year. The one-percent-annual-chance flood is also referred to as the "base flood." SFHAs are labeled as Zone A, Zone AE, Zone AH, and Zone AO.[2] The relevant flood hazard zones in the project corridor are described below.

- **Zone A –** 100-year floodplains (area in which one-percent chance of flooding may occur), where no base flood elevations have been determined. Base flood elevations are computed elevations to which floodwater is anticipated to rise.
- **Zone AE –** 100-year floodplains for which base flood elevations have been determined, which includes Kirker Creek, Los Medanos Wasteway, Markeley Creek, West Antioch Creek crossings and East Antioch Creek as outlined in Figure 3.8-2 and Figure 3.8-3.
- **Zone AH –** areas that would result in shallow ponding (average depth of one to three feet) during a 100-year flood. This zone includes SR 4 at Loveridge Road Overcrossing.
- **Zone AO –** areas of shallow flow in a 100-year flood, which is usually sheet flow or, in sloping terrain, areas with water elevation between one and three feet.
- **0.2-percent-annual-chance of flood Zone –** areas of moderate flood hazard located between the limits of the base flood and the 0.2-percent-annual-chance of flood area (formerly known as the 500-year flood zone).
- **Zone X** – areas outside ~~protected from a 500-year flood~~ the 0.2-percent-annual-chance floodplain. ~~areas where average depth of 100-year flood is less than one foot, and areas where the 100-year flood would expand less than one square mile, and be protected by levees The majority of the project corridor is classified as FEMA Floodplain Zone X.~~

Figure 3.8-2 and Figure 3.8-3 have been updated based on a preliminary Digital Flood Insurance Rate Map (DFIRM), dated October 24, 2008 (which was after the release of the Draft EIR in September 2008). The DFIRM will become effective June 16, 2009. As depicted in the revised Figure 3.8-3, East Antioch Creek floodplain would not cross eBART facilities in the vicinity of SR 4/SR 160 interchange. Therefore, impacts would be reduced regarding flood hazards in this area. Impact HY-10 on page 3.8-34 of the Draft EIR is revised as follows:

[2] Federal Emergency Management Agency. National Flood Insurance Program. www.fema.gov/business/nfip/fhamr.shtm. Accessed March 23, 2009.



A. Kirker Creek Crossing SR 4

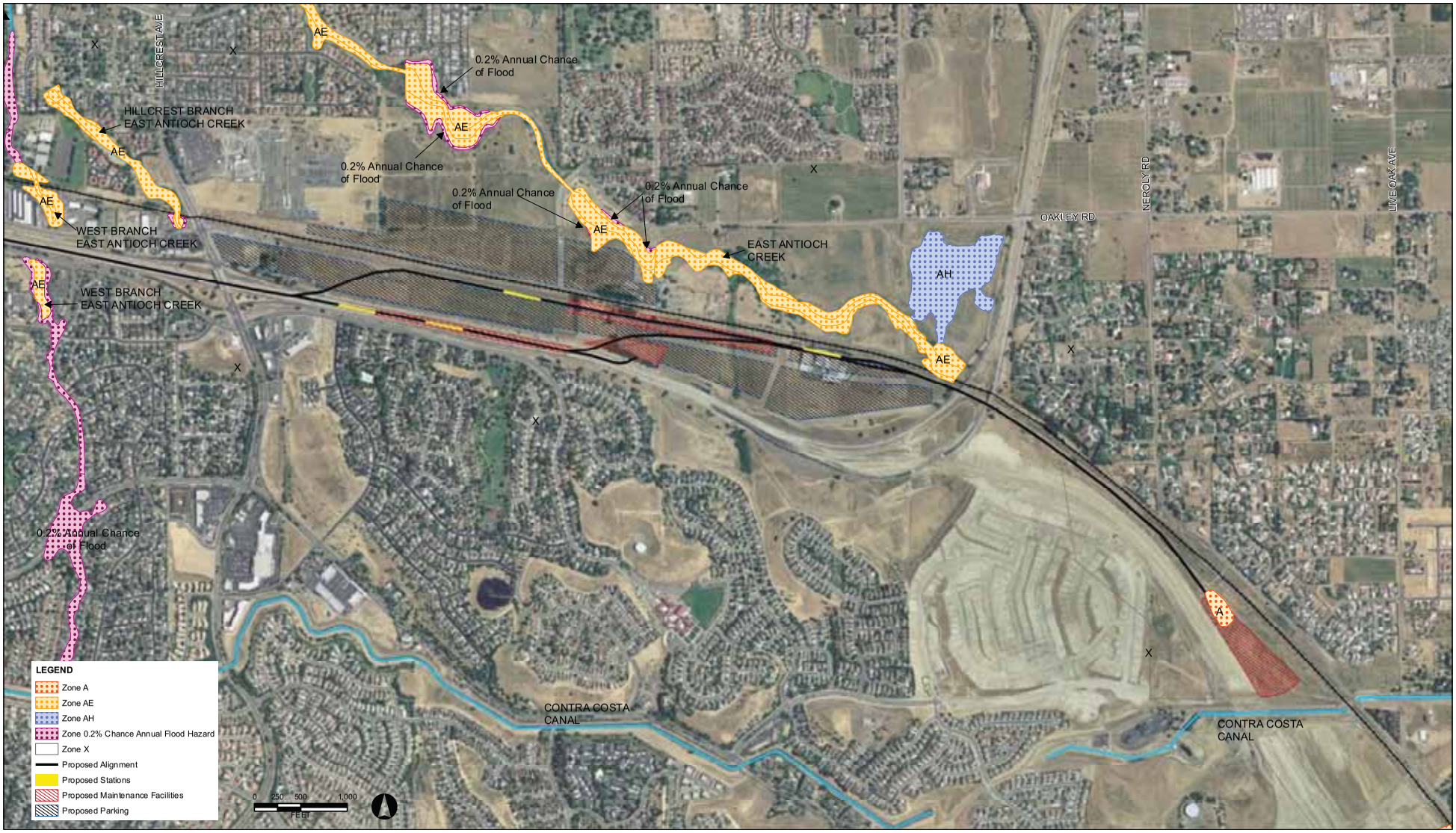
B. Los Medanos Wasteway and Markley Creek Crossing SR 4

C. West Antioch Creek Crossing SR 4

D. West and Hillcrest Branch of East Antioch Creek Crossing SR 4

Source: MAPIX (FEMA) Proof DFIRM Database, October 2008

FLOOD HAZARDS ALONG PROJECT CORRIDOR
FIGURE 3.8-2



Source: MAPIX (FEMA) Proof DFIRM Database, October 2008

FLOOD HAZARDS IN THE HILLCREST STATION AREA
FIGURE 3.8-3

HY-10 *The tracks associated with the proposed remote maintenance facility for the Northside East and Northside West options would not encroach into a 100-year floodplain.* ~~*(PS)*~~ *(NI)*

The tracks associated with the remote maintenance facility for the Northside East Station and the Northside West Station options would not cross the 100-year floodplain in the vicinity of the SR 160 and SR 4 interchange. While these tracks would not cross the 100-year floodplain, Caltrans, as part of the SR 4 widening, may still improve the culvert capacity at the SR 160 crossing, in the vicinity of the east branch of East Antioch Creek, to address flood hazards. ~~While passengers would alight the trains at the Hillcrest Avenue Station and thus not be on the trains in this segment, train operators would direct the trains into the remote maintenance facility, exposing the operators, vehicles, and trackwork to the 100-year flood hazards, a potentially significant impact.~~ Neither passengers nor train operators would be exposed to a 100-year flood hazard in the vicinity of SR 4/SR 160 interchange. Therefore, no flood hazard impacts would occur associated with the tracks for the proposed maintenance facility for the Northside East and Northside West options.

~~MITIGATION MEASURE. The following mitigation would ensure that operational impacts of the Northside West and Northside East Station options related to flood hazards are reduced to less than significant levels. (LTS)~~

~~*HY-10.1 Elevate structures above the flood zone.* The tracks shall be elevated above the flood elevation to minimize flood hazards.~~

1.68 The commentor reports 100-year peak discharge data different than indicated in the Table 3.8-1 of the Draft EIR. The source for information in Table 3.8-1 is a 1987 FEMA study. While the information provided by Contra Costa County Flood Control District is more current than information in the EIR, the existing conditions description of which waterways cause overtopping of SR 4 remains unchanged. In recognition of this more current information, which reveals higher discharges, Table 3.8-1 on page 3.8-7 of the Draft EIR is revised as follows:

Table 3.8-1
Floodplain Hydraulic Data in the Project Corridor

Reach	100-Year Peak Discharge in cubic feet per second (cfs)	U/S WS[a] Elevation (ft)	D/S WS[b] Elevation (ft)	Flooding Condition for 100-year flood	SR 4 Encroachment into Floodplain (sq ft)
Kirker Creek	~~2,168~~ 2,880	62.5	54.5	Does not o~~O~~vertop~~s~~	113,600
Old Kirker Creek	1,090	N/A	N/A	Overtops	Combined with above estimate for Kirker Creek
Los Medanos Wasteway	~~290~~ 600	55	51.5	Does not overtop	1,200
Markley Creek	~~470~~ 1,060	49	42.5	Does not overtop	1,200
West Antioch Creek	~~1,380~~ 2,660	38	34	Does not overtop	2,400

Source: WRECO*, East Contra Costa BART Extension Hydrology Report*, 2008; Contra Costa County Flood Control District, 2008.

Notes:

a. U/S WS = Upstream Water Surface Elevation

b. D/S WD = Downstream Water Surface Elevation

Data were not available for the West Branch of East Antioch Creek

1.69 The comment questions the definition of Zone X. The definition of Zone X has been revised. Please refer to Response 1.67.

1.70 The comment refers to the drainage facilities in the project corridor. The first paragraph on page 3.8-8 of the Draft EIR is revised as follows:

> **Drainage and Flood Control.** Drainage facilities in the project corridor are under the jurisdiction of local cities, the County for unincorporated areas, ~~and~~ the Contra Costa County Flood and Water Control District (CCCFCWCD), and the California Department of Transportation (Caltrans).

1.71 The comment refers to possible future improvements to the cross culvert, in the vicinity of the east branch of the East Antioch Creek. However, updated floodplain mapping illustrated in revised Figure 3.8-3 shows that the East Antioch Creek flooding no longer extends south of the SR 4 bypass (see Response 1.67 above). In response to the comment, the second paragraph of Impact HY-CU-15 on page 3.8-40 of the Draft EIR is revised as follows:

The SR 4 widening project would also have the potential to expose people and structures to flood hazards. The FIRM maps indicate ~~the~~ that the SR 4 improvements would cross ~~five~~ four floodplains (see Figure 3.8-2 and Figure 3.8-3). However, Caltrans, as part of the SR 4 widening, may improve the culvert capacity along SR 4 and may improve the cross culvert near SR 160 in the vicinity of the east branch of East Antioch Creek, which would address the flood hazards.

1.72 The comment refers to the longitudinal underdrain system. In response to the comment, the third paragraph of Impact HY-1 on page 3.8-17 of the Draft EIR is revised as follows:

~~Drainage along the SR 4 median consists of a longitudinal underdrain system collecting stormwater flow and discharge points at various existing highway cross culverts.~~ Deficiencies in culvert capacity have been identified at East Kirker Creek and east of Loveridge Road, due to downstream constrictions. However, the City of Pittsburg and Contra Costa Transportation Authority (CCTA) are proposing storm drain improvements ~~in the SR 4 median~~ as part of the SR 4 widening project which would improve the existing system deficiencies. Proposed drainage improvements along the SR 4 median include a longitudinal underdrain system to collect stormwater flow and discharge points at various existing highway cross culverts. The upgraded storm drain improvements would provide adequate system infrastructure to accommodate a 100-year storm.

1.73 The comment refers to the upgrading of culverts beneath the proposed guideway of the SR 4 median. In response to the comment, the first full paragraph on page 3.8-18 under Impact HY-1 of the Draft EIR is revised as follows:

Minimal surface runoff is expected as a result of operational activities from the Median Station and maintenance facility proposed within the SR 4 median. The proposed station and maintenance facility would encompass 0.2 and 3.7 acres, respectively. Drainage for the proposed guideway would be designed for a 100-year storm, as indicated in the Hydrology Report for the Proposed Project. The longitudinal underdrains that would drain the proposed guideway would be designed to tie into the several inlets that provide discharge into the SR 4 cross drains. The SR 4 widening project would upgrade ~~all~~ some culverts crossing beneath the proposed guideway in the SR 4 median, and would make use of existing crossings where reasonable. Additionally, runoff collected from the project alignment would filter through the pervious ballast and flow into the median underdrain pipe running along SR 4.

1.74 The comment refers to 100-year flood associated with Los Medanos Wasteway, Markley Creek and West Antioch Creek. In response to the comment, the third paragraph on page 3.8-22 under Impact HY-4 of the Draft EIR is revised as follows:

> The DMU guideway in the SR 4 median traverses four floodplain areas: Kirker Creek and Old Kirker Creek Crossing at Loveridge Road, Los Medanos Wasteway, Markley Creek, and West Antioch Creek at L Street/Contra Loma Boulevard. Stormwaters~~The floodplains~~ associated with Los Medanos Wasteway, Markley Creek, and West Antioch Creek ~~are minor floodplains and stormwaters~~ would not overtop ~~the banks of these waterways~~ SR 4 during a 100-year storm. A 100-year storm would, however, affect the local streets at West Antioch Creek. These three floodplains would not significantly affect the Proposed Project facilities or operations.

1.75 The comment refers to the drainage of the depressed section of the SR 4 at Loveridge Road. In response to the comment, the first paragraph on page 3.8-23 under Impact HY-4 of the Draft EIR is revised as follows:

> The SR 4 widening project was evaluated for flood impacts as part of that project's Initial Study/Environmental Assessment (IS/EA). The section of SR 4 at Loveridge Road is depressed and is bounded by Kirker Creek to the west and Old Kirker Creek to the east. A 100-year storm would cause Old Kirker Creek to overtop SR 4 and inundate this depressed section of the freeway, inlets, pipes, and underdrain system. Because of ~~potential~~ this known flood hazard~~s~~, the SR 4 widening project at the Loveridge Road interchange proposes measures ~~were identified to upgrade~~ upgrading the existing pump station at the Loveridge Road interchange that drains the section of the SR 4 at Loveridge Road, as well as ~~to~~ the culvert at Old Kirker Creek (to provide SR 4 with protection from a 100-year storm. Other measures include~~,~~ improving~~e~~ the existing outfall for the Loveridge drainage system, and aggressively cleaning out the box culverts and pipes downstream of SR 4. ~~In addition, Caltrans would install box culverts designed for a 100-year storm at the Loveridge Road interchange.~~

1.76 The comment refers to the drainage of the depressed section of the SR 4 at Loveridge Road. In response to the comment, the first paragraph on page 3.8-23 under Impact HY-4 of the Draft EIR is revised to reflect the planned pump upgrade. Please refer to Response 1.75 above, which shows revisions to the first paragraph on page 3.8-23.

1.77 Please refer to Response 1.67, above regarding Impact HY-10.

1.78 Please refer to Response 1.71, above. Per the revisions to Figure 3.8-3, no eBART facilities would cross East Antioch Creek floodplain. Therefore, the eBART project would cross the following floodplains: Kirker Creek/Old Kirker Creek, Los Medanos, Markley Creek, and West Antioch Creek.

1.79 BART will comply with Caltran's procedures for applying for an encroachment permit, including the description of traffic-related mitigation measures that will be incorporated into the construction plans.