

4.15 CUMULATIVE IMPACTS

4.15.1 INTRODUCTION

Cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA *Guidelines* Section 15355).” CEQA requires that discussions of cumulative impacts reflect the severity of the impacts and their likelihood of occurrence. The CEQA *Guidelines* state that the discussion should be guided by the standards of practicality and reasonableness.

SIGNIFICANCE CRITERIA

Less-than-significant direct and indirect impacts may be cumulatively considerable (i.e., significant) if the potential exists for significantly compounding, aggravating, or otherwise significantly contributing to impacts outside of the immediate project site. A cumulative impact may result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The relevant thresholds or criteria previously established for each area of consideration (**Sections 4.2** through **4.13**) are applied to a broader geographic area, with greater time depth, in the cumulative analysis.

ANALYSIS METHODOLOGY

Section 15130(b) of the CEQA *Guidelines* identifies the following three elements that are considered necessary for an adequate cumulative analysis:

- Either a list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency (i.e., the list approach); or a summary of projections contained in an adopted general plan or related planning document designed to evaluate regional or area-wide conditions (i.e., the plan approach). Any such planning document shall be referenced and made available to the public at a location specified by the Lead Agency.
- A summary of expected environmental impacts to be produced by those projects. The summary shall include specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects. An Environmental Impact Report (EIR) shall examine reasonable options for mitigating or avoiding any significant cumulative impacts of a Proposed Project.

Growth and development trends drive the cumulative analysis and define the geographic borders and time frame of the analysis. Although the CEQA *Guidelines* only require the use of one method of cumulative analysis (i.e., the list or the plan approaches), the approach used in this EIR uses both methodologies. A list of foreseeable projects (**Section 4.15.2**) was generated by consulting with staff of relevant agencies.

In addition, planned development, infill, and other actions identified in regional governmental plans have been incorporated.

Resources identified as requiring particular attention within this EIR include traffic and the transportation network, land use, air quality, water resources, biological resources, public facilities and services, and socioeconomics. The cumulative environment is relatively quantifiable for these primary resource areas, in both geographic and temporal terms. The approach taken for the purpose of this analysis is rather conservative and broadly inclusive.

The cumulative analysis begins with defining geographic extent and time frame of the analysis. Secondly, the cumulative environment is described in terms of expected growth as well as past, present, and future actions and projects that may affect the status of the resources, ecosystems, and human communities in the project area. The discussion of the cumulative environment includes a summary of projected growth and a list of related actions and projects.

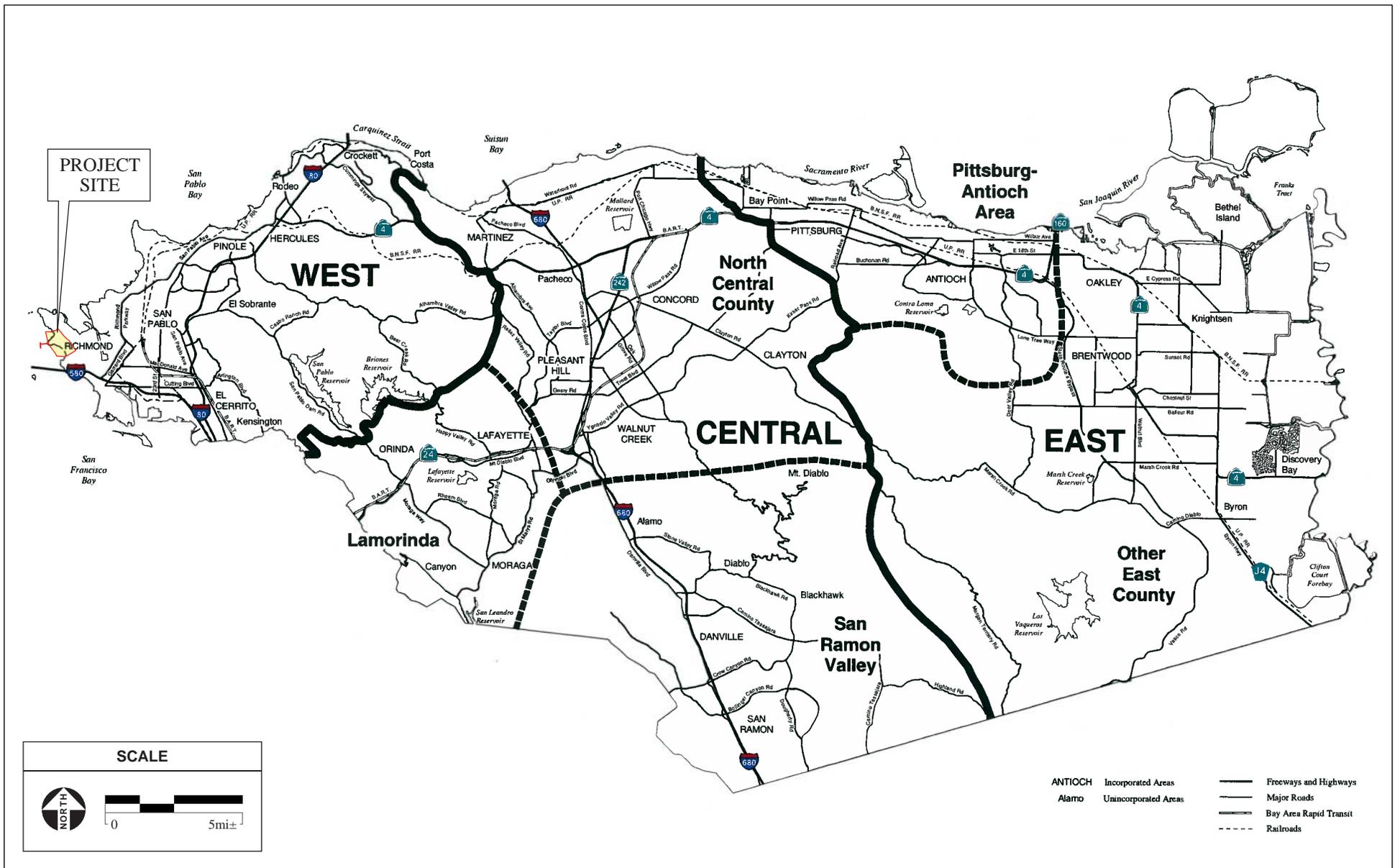
GEOGRAPHIC SCOPE OF ANALYSIS

The cumulative impact analysis in this EIR expands the geographic and temporal borders beyond the immediate project site to analyze impacts on specific resources, ecosystems, and human communities, beyond those attributable solely to the implementation of the Proposed Project alternatives. The geographic extent of the cumulative analysis is generally defined as the western portion of Contra Costa County (County), including the cities of Richmond, El Cerrito, San Pablo, Pinole, and Hercules. The analysis also considers planned or approved development projects in the unincorporated communities of Kensington, El Sobrante, Rodeo, Crockett, and Port Costa. This geographic area, referred to as the resource study area (RSA), has been delineated based on issues raised by the public during the scoping process and through consultation with the County and the City of Richmond (City). This geographic boundary generally corresponds to what the Contra Costa County General Plan terms the *Western sub-area* (**Figure 4.15-1**).

The RSA for each cumulative impact evaluated varies depending on the characteristics of the resource under consideration. For example, impacts to water resources must generally be modeled on the scale of a watershed and regional socioeconomics must be viewed in terms of cultural spheres of interaction that may extend well beyond the local hydrologic unit. Site-specific impacts may have too limited a geographic area of influence to compound or amplify impacts caused by other projects.

TEMPORAL EXTENT OF ANALYSIS

The time frame of the cumulative impacts analysis generally extends to the year 2025 ~~2010~~, which corresponds to the future planning period analyzed in the current City of Richmond General Plan. The transportation and air quality analyses project significantly further in the future (2025) to correspond with the temporal extent of the most recent version of the Contra Costa County Travel Demand Model.



SOURCE: Contra Costa County Community Development, 12/1/2004; AES, 2008

Point Molate Mixed-Use Tribal Destination Resort and Casino / 204536 ■

Figure 4.15-1
Sub-Area of Contra Costa County

The Draft EIS/EIR initially used a cumulative temporal horizon that corresponded to the timeframe considered in the City's General Plan (2010) for several of the resource/issue areas. The transportation and air quality analyses used a more distant future date (2025) to correspond with the temporal extent of the Contra Costa County Travel Demand Model in effect at the time of preparation of the Draft EIS/EIR. The cumulative analysis in the Final EIR has been revised to project further into the future for all resource areas. However, the exact year used in the analysis is not a significant factor given the approach used in the cumulative analysis, as discussed below.

4.15.2 PLANNING DOCUMENTS AND DEVELOPMENT PROJECTS

The regional actions, plans, and projects that have been identified to potentially affect the environmental resources in the region, plus the planned and foreseeable projects expected to occur through 2010 are presented in **Table 4.15-1**. The regional action plans and several of the larger planned projects are discussed below.

RICHMOND GENERAL PLAN

The City of Richmond General Plan was adopted in 1994 to guide development within the City. The goals and policies of the General Plan are a reflection of the City's philosophy on development, while the regulatory standards direct the way in which executive decisions are made. The Plan establishes standards and guidelines for managed growth and allows for increases in public services demand generated from development.

As discussed in **Section 3.9**, the City is in the process of updating its General Plan and circulated a Draft General Plan Update in the fall of 2009. anticipates a release of a Draft EIR to the public in late summer 2008. Currently, there is no publicly available information regarding anticipated growth estimates that will be reflected in the updated General Plan.

CONTRA COSTA COUNTY GENERAL PLAN 2005-2020

The Growth Management Element within the Contra Costa General Plan is used to control and manage new development. The Plan seeks to ensure that new projects bear their fair share of the cost of public facilities and services (Contra Costa County, 2005). With a County population of 1,128,800 residents, 428,870 residential units, and 470,480 jobs projected in 2020, the County's Western-Subarea is projected to grow at a rate of nearly 20 percent through the year 2020.

POINT MOLATE REUSE PLAN

The Point Molate Reuse Plan was developed by the City of Richmond, following the closure of the Point Molate Naval Fuel Depot in 1995. The Reuse Plan was designed to act as a guiding document for future use and redevelopment at the recently annexed Point Molate site. The Reuse Plan presents development goals and objectives that focus on balancing economic development with community needs (City of

TABLE 4.15-1
CUMULATIVE PLANNING DOCUMENTS AND DEVELOPMENT PROJECTS –
CITY OF RICHMOND AND CONTRA COSTA COUNTY (REVISED)

Cumulative Planning Documents			
Document	Overview/Function of Document		EIS/EIR Reference Location
City of Richmond General Plan	<ul style="list-style-type: none"> Developed in 1990, this document guides development within the City of Richmond. The City is currently updating the General Plan, a draft of which was released in July 2009. 		Section 3.9.1
Contra Costa General Plan 2005-2020	<ul style="list-style-type: none"> Growth Management Element is used to manage new developments so that public services and facilities are not over extended. Currently no updates. 		Section 4.15.2
Point Molate Reuse Plan	<ul style="list-style-type: none"> Drafted in 1995 when Point Molate Navy Fuel Depot closed. Guides future uses of project site. 		Section 3.9.1
Contra Costa County- "Shaping Our Future Plan"	<ul style="list-style-type: none"> This program intends to manage and guide future County growth. Developed and adopted by various City and County jurisdictions. 		Section 4.15.2
San Francisco Bay Plan	<ul style="list-style-type: none"> Adopted in 1968, the Bay Plan describes values and future uses of the Bay and surrounding shorelines. Directs protection of waters and wetlands inherent to the Bay Area. 		Section 3.9.1
Planned or Approved Development Projects			
Project Name	Description		
	Approximate Distance from Project Site	Number of Units	Size of Project (square feet)
100 Macdonald Ave:	Mixed-use residential and retail development within the City.		
Residential:	3.5 miles	27 units	—
Retail:	3.5miles	—	9,870 sq. ft.
400 Ohio Ave:	Industrial infill project located along Ohio Ave. near Harbor Blvd.		
Industrial:	3.5 miles	—	52,000 sq. ft.
Westshore Marina	Residential development including a community facility, lawn area and picnic facilities, and pedestrian walkways that would provide shoreline access		
Residential:	4.0 miles	300 condominiums	10.2 acres
Point Richmond Shores:	Proposed condominium/residential development along the Bay. Includes a portion of Bay Trail and public park facilities.		
Residential	4.0 miles	330 units	14.0 acres
Goodrick Avenue Warehouse:	Dual purpose warehouse/office structure along Richmond Parkway.		
Warehouse:	4.0	—	20,000 sq. ft.
Office:	4.0	—	15,500 sq. ft.
Richmond Transit Village- "Metrowalk"	Dual phase infill project located within the City, at the site of the existing Bay Area Rapid Transit (BART) station.		
Mixed-Use	4.5 miles	231 units (approximate)	16.7 acres
12th St. and Macdonald Avenue:	A dual-phase development project with a mixed-use design that includes condominiums.		
Residential:	4.5 miles	237 units	—
Retail:	4.5 miles	—	25,000 sq. ft.

Development Projects			
Project Name	Description		
	Approximate Distance from Project Site	Number of Units	Size of Project (square feet)
Honda Point of Entry Industrial:	Improvements to Point Potrero Marine Terminal and ship berths. 3.0 miles	—	4,791,600 sq. ft.
Artisan Cove: Light-Industrial:	Live/work development near Marina Bay in the City of Richmond. 5.0 miles	65 units	—
Anchorage Cove Residential: Commercial/Retail:	Mixed-use development at Marina Bay in the City of Richmond. 5.0 miles 5.0 miles	150 multi-family units —	— 52,000 sq. ft.
The Anchorage at Marina Bay: Residential:	Condominium and live/work units along the Bay. 5.0 miles	204 units	—
Macdonald 80 Shopping Center: Retail:	Proposed commercial center including major chain retail located on Macdonald Ave. near I-80 in the City of Richmond. 6.2 miles	—	203,430 sq. ft.
Parkway Commerce Center: Light-Industrial:	Approved light industrial development within industrial zone, located east of the Richmond Parkway. 6.5 miles	—	244,100 sq. ft.
Parkway Transit Village: Residential:	Residential development project that includes a trail system, the Bay Trail, and wetland restoration. 6.5 miles	1,052 units	243.7 acres
Sunset Court Project: Residential: Open Space:	Proposed single family residential development located along a private road. 10.0 miles 10.0 miles	9 units —	1.37 acres 1.88 acres
Scotts Valley Casino: Gaming/Retail	Proposed Tribal gaming facility with retail, food service, event center, and parking components. 6.0 miles	—	225,000 sq. ft.
Forest Green: Residential:	Proposed residential subdivision within the El Sobrante area of the City of Richmond. Includes a public park and open space preservation. 10.0 miles	120 units	—
Canyon Oaks II: Residential:	Residential subdivision on rezoned lands within the City, a portion of which will be transferred to a land conservation bank. 12.0 miles	36 units	—
El Sobrante Subdivision: Residential: Open Space:	Residential development along Hilltop Drive to the east of the City of Richmond. 6.5 miles 6.5 miles	40 units —	9 acres 9 acres
Conoco-Phillips Rodeo Refinery Clean Fuels Expansion Project: Heavy-Industrial:	Proposed upgrade and retrofit project of the refinery facilities. 16.0 miles	—	—
Chevron Energy and Hydrogen Renewal Project Heavy-Industrial:	Proposed project to modify, replace, and install refining equipment. 2.0 miles	—	—
Atlas Road Bridge: Transportation:	Vehicular and pedestrian bridge crossing for the Union Pacific Railroad at Atlas Road. 8.0 miles	—	—
Civic Center Revitalization Project: Residential: Commercial/Retail:	A multi-phase development project to revitalize the Civic Center Complex. 5.0 miles 5.0 miles	165 units —	— 250,000+ sq. ft.

Source: City of Richmond, 2008; Contra Costa County, 2008; and AES, 2008.

Richmond, 1997b). As described in **Section 3.9**, the project area is divided into sections, with a conceptual version of the Proposed Project as one land use option identified in the Reuse Plan.

CONTRA COSTA COUNTY - SHAPING OUR FUTURE PROGRAM

The Shaping Our Future Program (2003) has been adopted by various jurisdictions including Contra Costa County, the Association of Bay Area Governments (ABAG), and various cities within Contra Costa County. The intention of the program is to manage and guide future County growth. The program focuses on the following:

- Using land more efficiently;
- Preserving the integrity of existing neighborhoods;
- Reducing traffic congestion in key areas;
- Developing transit strategies and funding sources;
- Redeveloping business districts that may be underutilized or blighted; and
- Preserving open spaces and hillsides.

Proposed policies have been created to coordinate regional general plans, with an approach towards creating specific Urban Limit Lines for each jurisdiction, as well as developing an open space, housing, and transportation plan (CCTA, 2004). The project site is located within the Urban Limit Line identified in the program.

CONTRA COSTA TRANSPORTATION AUTHORITY – 2009 COUNTYWIDE COMPREHENSIVE TRANSPORTATION PLAN

The 2009 Countywide Comprehensive Transportation Plan (CTP), developed by the Contra Costa Transportation Authority (CCTA), articulates a strategy for achieving for major goals:

- Enhance the movement of people and goods on highways and arterial roads;
- Manage the impacts of growth to sustain Contra Costa's economy and preserve its environment;
- Expand safe, convenient and affordable alternatives to the single-occupant vehicle; and
- Maintain the transportation system.

The CTP incorporates recommendations made by Regional Transportation Planning Committees (RTPC) throughout four major subregions of the County (eastern, western, central, and southwestern) for the management of the transportation system (CCTA, 2009a). The RTPCs codified their recommendations in Action Plans for Routes of Regional Significance (APRRS), which are detailed in the CTP. Point Molate is located within the western subregion of the County, which is under the jurisdiction of the West Contra Costa Transportation Advisory Committee (WCCTAC). WCCTAC's APRRS outlines a series of principals, goals, and tenets intended to enhance regional vehicular corridors and improve other facilities to diversify the mode split for daily commuters. A Program Environmental Impact Report has been

prepared for the proposed CTP, which analyzes potential environmental impacts associated with implementation of the CTP (CCTA, 2009b).

SAN FRANCISCO BAY PLAN

The San Francisco Bay Conservation and Development Commission (BCDC) was created by the passing of the McAteer-Petris Act in 1965 to guide the future development of the San Francisco Bay Area, and to protect the waters and the surrounding natural resources.

The San Francisco Bay Plan (Bay Plan) was submitted to the California Legislature in 1969, whereupon, subsequent revisions were made specifying the size, scope, and permitting authority of the regulation of the Bay and its shoreline. The Bay Plan contains information that describes the values associated with the Bay and policies regarding future uses of the Bay and shoreline. The Bay Plan also provides maps that direct the protection and development of the Bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline in accordance with these policies. The Bay Plan Maps communicate “enforceable policies and have the same authority as the policies in the text of the Bay Plan (BCDC, 2007: 83).” The designated policies that cover the proposed project site are described in **Section 3.9** of this document.

TRANSPORTATION PROJECTS

Richmond Transit Village (Metrowalk)

The Richmond Transit Village (RTV), also known as Metrowalk, is a dual phase infill project located on 16.7 acres within the City of Richmond, at the site of the existing Bay Area Rapid Transit (BART) Station. The existing station provides access to BART, Amtrak, and AC Transit Buses. Phase I of the construction of the RTV will expand the on-site parking with the construction of a five-story (800 space) garage structure at the Richmond BART station which will include 9,000 square feet of retail, along with 132 separate residential units ~~and 7,500 square feet of retail~~ (City of Richmond, 2008). The proposed increase in parking allows for future construction of residential units within a mixed-use development along the east side of the station. Phase II of the project will develop 99 units within an additional mixed use, transit orientated community to the east of the BART station.

Atlas Road Bridge

A vehicular and pedestrian/bike bridge crossing is planned for the Union Pacific Railroad at Atlas Road, approximately 8 miles north of the project site. The bridge will provide additional access to Point Pinole Regional Shoreline and will provide a connection between the Bay Trail and the Carquinez Strait Trail (CCTA, 2008).

DEVELOPMENT PROJECTS

The analysis takes into consideration proposed development projects in the vicinity of the project site. Numerous development projects have been proposed within the region. Planned or approved

development projects in the City of Richmond are listed in **Table 4.15-1**. When applicable, the table presents the distance from the project site, number of units, and the size of projects are provided. The size of the development footprints is given in square feet, where such information is available. Where not available, the approximate size of the respective project sites is provided. Proposed development in the immediate vicinity of the Point Molate is shown in **Figure 4.15-1**. The major planned development projects are discussed below.

These planned development projects have been considered in combination with the Proposed Project to assess whether the combined impacts of all the projects in the vicinity would result in cumulatively considerable environmental impacts.

Contra Costa County

ConocoPhillips Rodeo Refinery Clean Fuels Expansion Project

In November 2006, ConocoPhillips Rodeo Refinery published a Draft Environmental Impact Report (DEIR) for the proposed expansion of its oil refinery in Rodeo, California. The proposed expansion would consist of the addition of new facilities and modification of existing facilities for the production of clean fuels (Contra Costa County, 2007b). As stated in the DEIR, the project would increase the production of fuel oil to over 1,000,000 gallons/day, an approximate 30 percent increase. Gasoline production would increase to approximately 791,000 gallons/day, while diesel and jet fuel production would increase to approximately 290,000 gallons/day (Contra Costa County, 2007b).

El Sobrante Subdivision Project

Contra Costa County has published a Final EIR for the proposed El Sobrante Subdivision project that proposes to subdivide a 10.09-acre project site into 40 single-family residential units in western Contra Costa County one-mile north of downtown El Sobrante.

Scotts Valley Fee to Trust and Gaming Development Project

The Scotts Valley Band of Pomo Indians applied to have the Bureau of Indian Affairs take six parcels totaling 29.87± acres into federal trust. The Scotts Valley project site is located on the east-side of the Richmond Parkway, within unincorporated Contra Costa County, roughly six miles north of Point Molate. The foreseeable consequences of the federal actions will be the development of one of four related commercial alternatives, three of which have a casino component. While this project is considered highly speculative, comments received during the scoping period, as well as from Cooperating Agencies, merit its inclusion in the cumulative analysis.

City of Richmond

Chevron Energy and Hydrogen Renewal Project

In May 2007 the City of Richmond released the Final EIR for the Chevron Energy and Hydrogen Renewal Project, which proposes to modify, replace, and install refining equipment. "In general, the

project would modify, replace and install typical refining equipment such as piping, heat exchangers, instrumentation, catalytic reactors, fractionation equipment, pumps, compressors, furnaces, tanks, hydrogen sulfide absorption capacity, hydrogen generation capacity and their associated facilities, including steam and electrical generation as well as some refinery buildings and infrastructure (ESA, May 2007).” These changes would include construction and installation of new facilities as well as replacement of or modifications to existing facilities. This project is located approximately two miles southeast of the project site.

Civic Center Revitalization Project

The City is currently developing a Phase I of the proposed Civic Center Revitalization Project, which would consist of a comprehensive retrofit of the existing Civic Center Complex. The project has been divided into five phases each is described below.

Phase I consists of the following:

- Renovation of the 71,000 sq ft City Hall building;
- Construction of a new 82,000 sq ft Hall of Justice building;
- Renovation and retrofit of the existing 53,600 sq ft Hall of Justice Building; and
- Renovation and seismic retrofit of the existing 26,300 sq ft Arts Center/Human Services building.

It is anticipated that Phase II would consist of the following:

- Construction of up to approximately 165 multifamily residential condominium units
- Construction of a new parking structure (650 to 800 spaces) in the area between the new Hall of Justice building, and Nevin Avenue, 24th Street and 25th Street to accommodate Civic Center parking demands, plus up to approximately 20,000 square feet of ground floor retail space; and
- Construction of an extension of Civic Center Plaza in front of the existing City Hall building from Nevin Avenue south to Macdonald Avenue.

As directed by City Council, the multifamily housing component is to be comprised of 85 percent market rate housing units and 15 percent affordable housing units.

Phase III:

- Construction of a new, approximately 10,000-square-foot Senior Center building.

Phase IV:

- Renovation of the existing approximately 37,500-square-foot, Main Library building and/or construction of a new library building of similar size; and
- Additional renovation (seismic upgrade) of the existing, approximately 40,000-squarefoot, Auditorium building.

Phase V:

- Construction of a new mixed use retail/office building with up to approximately 170,000 square feet of office (private or civic) atop up to approximately 60,000 square feet of ground floor retail, probably on the site of the existing 27th and Macdonald parking lot.

Honda Point of Entry

In September 2008, the City of Richmond released the Final EIR for the Honda Point of Entry, which consists of “expansion of existing automobile import and distribution operations at the Point of Richmond’s Point Potrero Marine Terminal (PPMT), including construction and operation of a rail yard terminal on the PPMT property” (Douglas Herring & Associates, 2008). Excluding the submerged areas, the PPMT occupies approximately 4,791,600 square feet. The project includes rehabilitation of Berth 6C including repaving the deck surface, repairing the steel bollards, and replacing the existing tire bumpers with rubber dock fenders. Miscellaneous improvements associated with the project include: construction of an access road, gate and guard house, and employee parking lot; and installation of fifteen 100-foot-tall light towers. The Honda Point of Entry site is located approximately three miles southeast of the project site.

Parkway Transit Village

In January 2006, the Initial Study for the proposed Parkway Transit Village was released to the public. This project consists of the development of approximately 1,052 single and multi-family residential units on a 243.7-acre site along the shoreline north of Goodrick Avenue south of Point Pinole Regional Park in Richmond, California (City of Richmond, 2006). The project would also consist of wetland restoration, flood control improvements of Rheem Creek, and construction of publicly accessible trails, including a portion of the Bay Trail.

Point Richmond Shores

The Point Richmond Shores project would redevelop a 14-acre Bay front site on Dornan Drive at Brickyard Cove Road in Point Richmond. The project includes up to 330 residential condominiums in two 5-story buildings, a public park, with a Bay Trail loop and pier improvements.

4.15.3 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE A

GEOLOGY AND SOILS

4.15.1 Construction and operation of Alternative A would not result in any cumulatively considerable impacts such as soil erosion or the loss of topsoil.

The geographic area for the analysis of cumulative impacts to land resources is the coastal upland and the tidal flats of the San Francisco Bay (Bay) in Contra Costa County (County). The principal impacts associated with Alternative A and other development projects in the City and County would be localized topographical changes and soil attrition, both of which

are evaluated in terms of runoff characteristics, sedimentation and flow under permitting authorities and criteria. Local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards, as well as the incorporation of a Stormwater Pollution Prevention Plan (SWPPP) described in **Section 4.2** and **Mitigation Measure 1-1**. Other development projects would also follow appropriate local, state, or federal permitting procedures; therefore, no significant cumulative impacts related to geology or soils would occur as a result of Alternative A.

HYDROLOGY AND WATER QUALITY

4.15.2 Construction and operation of planned development projects and Alternative A would not result in cumulatively considerable impacts to surface and groundwater quality. A less-than-significant impact would occur.

Concurrent construction and operation of Alternative A and other development and expansion projects within the same drainage basin could result in temporary cumulative impacts to surface water quality through incremental increase in pollutant concentration of stormwater runoff.

As discussed in **Section 3.3**, all development projects over one acre in size (such as the projects listed in **Table 4.15-1**) are required by the Clean Water Act (CWA) to obtain a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities (General Construction Permit), which would require the implementation of best management practices (BMPs) through development of a SWPPP. Non-federal projects would also be required under the City Municipal Code to develop Sediment and Erosion Control Plans (SECP) and Stormwater Control Plans (SCP) prior to construction. The implementation of BMPs at all major construction sites (greater than one acre) including the project site would reduce each development project's incremental impacts to surface water quality to a less-than-significant level. Therefore, the incremental impact during construction of Alternative A, with respect to surface water and groundwater quality, would not be cumulatively considerable. Construction of Alternative A would have a *less-than-significant* cumulative impact on surface and groundwater quality.

4.15.3 Operation of planned development projects and Alternative A would not result in cumulatively considerable impacts related to flooding. A less-than-significant impact would occur.

As indicated in **Section 4.3**, operation of Alternative A would introduce new impervious surfaces potentially resulting in additional off-site flows. As discussed in **Section 2.2.2**, development of the Proposed Project includes the installation of bioretention basins to reduce stormwater runoff rates during storm events. The watersheds on the project site would

continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the Bay, would not be impacted by the relatively small increase in stormwater runoff as a result of the development of the Proposed Project.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. Furthermore, additional development within the region would be required to comply with the County's *Stormwater C.3 Guidebook*, which incorporates countywide design guidelines for reducing potential cumulative impacts on stormwater runoff and downstream drainages.

With incorporation of the grading and drainage plan (**Appendix H**) for Alternative A and discharges from the project site continuing directly into the Bay, drainage- and flooding-related impacts from the development of Alternative A would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

4.15.4 Construction and operation of proposed development projects and Alternative A would not significantly impact floodplain management.

The proposed project site is not located within a floodplain and therefore the grading and development of the project site would not result in a cumulatively considerable impact to floodplain management. *No cumulative impact* would occur.

AIR QUALITY

4.15.5 Operation of the proposed development under Alternative A in the year 2025 would result in emissions of ROG, NO_x, and PM₁₀ emissions above the established BAAQMD threshold. A potentially significant cumulative impact would occur.

Significance After Mitigation

Implementation of **Mitigation Measures 3-17** and **3-18** would reduce ROG, NO_x, and PM₁₀ emissions in the cumulative year 2025 by 23.5 percent under the BAAQMD and SMAQMD guidelines. **Mitigation Measure 3-19** would further reduce ROG, NO_x, and PM₁₀ emissions below the BAAQMD CEQA thresholds; therefore, air quality impacts due to operation of Alternative A would be *less-than-significant*. **Mitigation Measures 3-20** through **3-25** would further reduce criteria pollutant emissions.

Impact Discussion

Cumulative air quality impacts are assessed by comparing the incremental emissions associated with Alternative A to countywide emissions forecasted by the California Air

Resources Board (CARB) for long-term 2020 cumulative conditions. Note that while 2025 criteria pollutants have been estimated, the furthest planning horizon available for the San Francisco Bay Area Air Basin (SFBAAB) is 2020. The San Francisco Bay Area Air Basin's emissions trends from 1975 to 2020 are presented in **Table 4.15-2**. As shown, ozone (O₃) precursor emissions (NO_x and ROG) have decreased dramatically from 1975 to 2005, and are projected to decrease further in the future with new national vehicle emission standards (CARB, 2008). However, PM₁₀ emissions have more than doubled since 1975 and are projected to continue to increase slightly in the future (CARB, 2008). PM_{2.5} emissions have moderately increased since 1975 and are projected to continue to increase slightly in the future (CARB, 2008). O₃, a pollutant that affects the Bay Area (see **Section 3.4.1**), is regulated under the Clean Air Act (CAA).

TABLE 4.15-2
SAN FRANCISCO BAY AREA AIR BASIN EMISSIONS TRENDS

	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
	Tons per day									
ROG	1430.3	1320.2	1047.2	763.6	646.0	524.9	381.8	330.0	302.1	290.1
NO _x	943.2	918.1	821.0	797.0	719.8	621.9	496.2	423.3	348.0	300.9
PM ₁₀	177.7	178.8	193.4	192.00	188.9	219.3	213.5	225.8	238.4	251.2
PM _{2.5}	86.5	85.4	86.5	88.3	86.4	92.7	90.5	94.3	98.5	102.9

Note: ROG= Reactive Organic Gas

NO_x= Nitrogen Oxide

PM₁₀= Particulate Matter between 2.51 and 10 micrometers in diameter

PM_{2.5}= Particulate Matter less than 2.5 micrometers in diameter

Source: California Air Resources Board, 2008.

Emissions for the year 2025 were estimated using the Urban Emissions (URBEMIS) 2007 computer modeling program. URBEMIS default mitigation measures were implemented to further reduce emissions and are provided in **Appendix R**. **Table 4.15-3** shows 2025 mitigated and unmitigated operational emission estimates and compares each alternative with conformity and BAAQMD CEQA thresholds.

Operational emissions associated with Alternative A were compared to regional 2020 emissions forecast. Alternative A would generate 0.017 percent of the SFAAB total ROG and 0.019 percent of NO_x. Alternative A would generate 0.085 and 0.039 percent of PM₁₀ and PM_{2.5}, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative A would continue to exceed BAAQMD CEQA thresholds for PM₁₀ in 2025. This is a potentially significant impact. Mitigation measures are provided in **Section 5.2.3**.

TABLE 4.15-3
2025 MITIGATED (UNMITIGATED) OPERATION EMISSIONS - ALTERNATIVE A (REVISED)

Alternative A	ROG	NO _x	PM ₁₀	PM _{2.5}
	tpy	tpy	tpy	tpy
Area	1.31 (1.47)	2.03 (2.53)	0.00 (0.00)	0.00 (0.00)
Mobile Sources	18.43 (18.78)	21.62 (22.06)	92.25 (94.14)	17.36 (17.70)
Ferry Trips	0.22	5.36	0.07	0.02 ¹
Total Emissions	19.96 (20.47)	29.01 (29.95)	92.32 (94.21)	17.38 (17.72))
<i>Conformity Threshold</i>	100	100	N/A	100
Exceeds Conformity Threshold	No (No)	No (No)	N/A (N/A)	No (No)
<i>BAAQMD Threshold</i>	4510	4510	15	N/A10
Exceeds BAAQMD Threshold	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)N/A (N/A)

Notes: ROG= Reactive Organic Gas;

NO_x= Nitrogen Oxide

PM₁₀= Particulate Matter between 2.51 and 10 micrometers in diameter

PM_{2.5}= Particulate Matter less than 2.5 micrometers in diameter

¹ PM_{2.5} emissions estimated as 33 percent of PM₁₀ emissions.

tpy = tons per year;

N/A = Not Applicable

Source: URBEMIS, 2007.

Conformity Review

Alternative A does not exceed conformity thresholds; therefore, Alternative A would conform to General Conformity Rules and conform to the applicable State Implementation Plan (SIP). A *less-than-significant* impact would occur.

4.15.6 Operation of the proposed development under Alternative A in the year 2025 would result in CO emissions below the established threshold. This is a less-than-significant cumulative impact.

In the year 2025 operation of the Alternative A would result in emissions of carbon monoxide (CO). Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated under Hot Spot analysis, in accordance with the *Transportation Project-Level Carbon Monoxide Protocol* (UCD, 1997). Hot Spot analysis was conducted on intersections that diminish from and acceptable LOS (A, B, C, or D) to an unacceptable LOS E or F (UC Davis, 1996).

Under Alternative A and after mitigation, no intersections within the study area would have a LOS to E or F under 2025 cumulative conditions; therefore, Hot Spot analysis is not warranted (**Appendix S**). This is a *less-than-significant* cumulative impact.

4.15.7 Construction and operation of the proposed development under Alternative A in the year 2025 would result in greenhouse gas (GHG) emissions, which could be a potentially significant cumulative impact.

Significance After Mitigation

Mitigation Measures 3-16 through 3-19 and 3-26 through 3-35 ~~3-29, 3-30 and 3-31~~ in **Section 5.2.3** would ensure consistency with all applicable GHG reduction strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a *less-than-significant* cumulative impact. Implementation of **Improvement Measures** 3-36 through 3-43 ~~3-32, 3-33, and 3-34~~ would further reduce cumulative impacts related to GHG emissions.

Impact Discussion

Climate change would not only have global impacts, such as more erratic weather patterns, more frequent droughts, and rising sea level, but climate change would cause regional and local impacts as well. Climate change has the potential to reduce the snow pack in the mountain regions, increase drought periods, reduce water tables, increase seawater intrusion, and ~~reduce or~~ reconfigure the coast line in California, potentially directly affecting the project site, which fronts the San Francisco Bay (Climate Change, 2007). However, the project site would not be impacted by rising sea levels, even if a worst case scenario of a 55 inch increase in sea level over the next 100 years is assumed (refer to the discussion in Section 3.4). As depicted in Figure 3.4-1, the only portion of the project site that would be subject to inundation under the worst case scenario of sea level rise predicted by the BCDC is located below the existing sea wall, and no project components would be located in this area. As such, no impacts related to sea level rise would occur under any of the alternatives considered in the Final EIR.

Development of Alternative A would result in an increase in GHG related to mobile sources (trips generated), area sources (components of the Proposed Project that directly emit GHG), and indirect sources related to electrical power generation, water conveyance, and wastewater treatment. While devegetation is thought to be one contributing cause of climate change, ~~no net loss of carbon-sequestering plants would occur~~ biogenic emissions are not considered under the BAAQMD CEQA guidelines for analyzing project-level GHG impacts.

Methodology

Following the circulation of the Draft EIS/EIR for public comment, the BAAQMD released CEQA guidelines for the analysis of GHG emissions. The analysis presented in the Final EIR has been revised to reflect the most recent regulatory guidance. Specifically, as recommended in the latest BAAQMD CEQA guidelines, direct construction, mobile, and area GHG emissions were quantified using the EPA and CARB approved air quality modeling program URBEMIS 2007 and Local Government Operations Protocol (LGOP) (2008) emission factors. Indirect GHG emissions from electricity usage, water conveyance, and wastewater treatment were quantified using emission factors from the LGOP. Indirect and direct emissions were totaled and compared to the BAAQMD CEQA guideline threshold.

Two recent federal court decisions (*Massachusetts v. Environmental Protection Agency*, U.S., 1275 S.Ct. 1438, 1462 [2007] and *Center for Biological Diversity v. National Highway Safety Administration*, 508 F.3d 508 [9th Cir. 2007]), the passage of California Assembly Bill 32 (AB 32), and slowly increasing scientific consensus have resulted in general guidance regarding appropriate GHG analysis (**Section 3.4**).

No governmental agency has provided specific guidance on how to conduct GHG analysis for NEPA or CEQA documents. Therefore, the following method for assessing the impact levels of the project was developed in accordance with several approaches outlined in white papers provided by the California Air Pollution Control Officers Association (CAPCOA, 2008), and the Association of Environmental Professionals (AEP, 2007). The approach used herein involves a combination of quantitative and qualitative analysis focusing on the project's impact on California's efforts to reduce cumulative statewide GHG emissions.

As noted in **Section 3.4**, global warming is a global issue that is not being caused by any single development project, but by global increases in atmospheric GHG concentrations. Thus, global warming is most effectively addressed on a global or regional level. California's global warming policies and legislation (most notably Executive Order S-3-05 and AB 32) are intended to be regional approaches to ensure that statewide emissions are reduced substantially in the future (to levels much lower than existing levels).

The CARB and the Climate Action Team (CAT) have recently identified approximately 126 strategies and measures that may be utilized for by the state to meet its emissions reduction targets in 2010, 2020, and 2050 (see **Appendix W**). Most of these measures focus on statewide action meant to curb emissions by changes in statewide planning or policies rather than changes to individual development projects. However, some of the measures may be directly applicable to specific industries or individual commercial developments. Should a development alternative comply with all directly applicable measures, the alternative would

support the State's efforts to significantly reduce its cumulative contribution to global climate change (to levels recommended by the International Panel on Climate Change (IPCC)) and the associated impacts. Thus, for the purposes of this analysis, cumulative contributions associated with a development alternative would be *less than significant* if the project complies with the strategies currently identified by CARB or CAT to comply with Executive Order S-3-05 or AB 32, provided that the strategies can be applied to proposed development alternatives.

Carbon Dioxide Equivalent

Carbon dioxide equivalent (CO₂e) is a method by which GHGs other than CO₂ are converted to a CO₂-like emission value based on a heat-capturing ratio. As shown in **Table 4.15-4**, CO₂ is used as the base and is given a value of one. CH₄ has the ability to capture 21 times more heat than CO₂; therefore, CH₄ is given a CO₂e value of 21. Emissions are multiplied by the CO₂e value to achieve one GHG emission value. By providing a common measurement, CO₂e provides a means for presenting the relative overall effectiveness of emission reduction measures for various GHGs in reducing project contributions to global climate change.

TABLE 4.15-4
GREENHOUSE GAS CO₂ EQUIVALENT

Gas	CO ₂ e Value
CO ₂	1
CH ₄	21
N ₂ O	310
HFCs/PFCs ¹	6,500
SF ₆ ¹	23,900

Notes: CO₂e = Carbon dioxide equivalent

¹ High-global warming potential pollutants

CH₄ = methane, N₂O = nitrous oxide

HFCs/PFCs = hydrofluorocarbons/perfluorocarbons

SF₆ = sulfur hexafluoride

Source: BAAQMD, 2006; AES, 2007.

Strategies and Emission Estimates

Alternative A construction would emit a maximum of approximately 6,480 metric tons (MT) of CO₂ per year (refer to **Appendix R**). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be potentially significant. Implementation of mitigation for GHG emission reductions are quantified in **Section 5.2.3**. As indicated in **Table 5-2** within **Section 5.2.3**, application of the specified mitigation measures would reduce construction emissions below the significance threshold and result in a *less than significant* cumulative climate change impact.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-5** shows the estimated operational emissions and reductions taken for project design components (gray water system). Once construction is completed, the project would emit approximately 47,70044,047 MT of CO₂e per year 41,200 tpy from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry LGOP (2008) and converted to CO₂e. ~~CH₄ and N₂O emissions from mobile sources are estimated to be approximately 1,700 tpy CO₂e.~~ Indirect emissions, which include electricity use, water conveyance, and wastewater treatment, were estimated using Climate Change Action Registry LGOP emission factors and are estimated at approximately 5,540 MT of CO₂e annually 8 tpy. After applying a reduction for the on-site gray water system, total annual operational emissions during operation of the project are estimated at approximately 52,92349,831-MT of CO₂e 42,000 tpy.

TABLE 4.15-5
ALTERNATIVE A PROJECT-RELATED GHG EMISSIONS¹ (REVISED)

Alternative A	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	<u>48,774.7145,373.41</u>	0.91	<u>44,382.2641,289.80</u>
Mobile	CH ₄ /N ₂ O	616.00	0.91	560.56
Area	CO ₂	<u>3,029.893,029.89</u>	0.91	<u>2,757.202,757.20</u>
Indirect³				
Electricity Usage	CO ₂			5,229.63
Electricity Usage	CH ₄ /N ₂ O			46.11
Water Conveyance	CO ₂ e			115.34
Water Conveyance	CH ₄ /N ₂ O			1.02
Wastewater Treatment	CO ₂ e			146.59
Wastewater Treatment	CH ₄ /N ₂ O			1.29
Subtotal Baseline Project-Related GHG Emissions				<u>53,240.0050,147.54</u>
GHG Reductions due to Project Components				
Gray Water System				316.54
Total Baseline Project-Related GHG Emissions				<u>52,923.4649,831.00</u>

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors and includes emissions from the casino/hotel/amenities.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Alternative A's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

~~Annual project GHG emissions would be approximately 0.0078 percent of California's predicted contribution to global GHG emissions in 2020 (see Table 3.4-1). Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000050 percent. While the Proposed Project's contributions to statewide and global emissions are miniscule, primarily because the Proposed Project would not emit high global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.~~

~~As discussed above and in Section 3.4, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. Of the approximately 126 strategies and measures currently under consideration that would ensure a statewide reduction in GHG emissions, only three would apply to the Proposed Project (see Table 4.15-6). The other policies do not apply because they either apply to state entities, such as CARB, or are planning level measures or they apply to particular industries, such as the auto repair industry. As shown in Table 4.15-6, the Proposed Project would not be in compliance with all three applicable state climate change strategies; therefore, this is a significant cumulative impact and mitigation is recommended in Section 5.2.3, which would result in a less than significant impact.~~

TABLE 4.15-6
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES (DELETED)

BIOLOGICAL RESOURCES

- 4.15.8 Construction and operation of Alternative A would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).**

Habitats

As stated in **Section 4.15.1**, the geographic area for the analysis of cumulative impacts to biological resources includes the region that the Contra Costa County General Plan refers to as the *Western sub-area* (RSA). The RSA falls within the Central Coast (CCo) and San Francisco Bay (SnFrB) geographic subdivisions (Hickman, 1993). Around the Bay, undeveloped areas of the CCo subdivision are largely composed of salt marsh and coastal prairie communities. Undeveloped areas within the SnFrB geographic subdivision support a diversity of vegetation communities including oak and pine woodlands, chaparral, coastal scrub, annual grasslands, riparian, marsh, and emergent wetland.

The RSA is largely urbanized with residential and industrial development. The most pristine habitat areas of the RSA are located in the adjacent hills to the east of the project site. This undeveloped portion of the RSA is bound by development to the east, south, and west, and by the Carquinez Strait to the north. Future development projects within the RSA could result in cumulative impacts to habitats via disturbance, as well as by general increases in human population and activity within the RSA. Such cumulative impacts could include new development, habitat fragmentation, net loss of open space, edge effects, and disruption of wildlife corridors.

Development of the project site under Alternative A could contribute to cumulative impacts to habitats within the RSA, but not significantly. Alternative A would not result in significant cumulative impacts to habitats because the more sensitive upland portions of the site would remain predominantly in open space. Likewise, many areas within the site are already developed and disturbed due to the previous use of the site as a military base.

Waters of the U.S.

Only 125 square kilometers (sq km) of freshwater wetlands and salt marshes remain of the original 2,200 sq km marsh and wetland areas surrounding the Bay (USGS, 1994). Future development projects within the RSA could lead to further loss of wetlands and other waters of the U.S., increased decline of riparian areas surrounding streams and waterways, and additional Bay fill and/or development. However, the U.S. Army Corps of Engineers (USACE) policy states that no net loss of wetlands shall occur, the California Department of Fish and Game (CDFG) regulates development related effects on riparian areas associated with streams and waterways, and the Bay Conservation and Development Commission (BCDC) exercises jurisdiction over fill activities within the Bay and shoreline development. As such, this project (and others) are required to comply with the provisions set forth in Sections 401 and 404 of the Clean Water Act (CWA), Section 1600 of the California Fish and Game Code, and BCDC regulations, as applicable. Compliance with these policies and implementation of recommended mitigation presented in **Section 5.2.4** would ensure that Alternative A would not contribute to the loss of wetlands within the Bay, decline of riparian

areas surrounding streams and waterways, and Bay fill/development. Thus the project in combination with other development projects in the City of Richmond would not significantly contribute to cumulative impacts to wetlands and waters of the U.S.

Special-Status Species

Current trends within the RSA include urbanization, industry growth, loss of remaining habitat to development, habitat fragmentation, overall loss of biodiversity, and degradation of remaining habitats from pollutants and waste products. These trends have a negative effect on special-status species. Projects in the RSA, including Alternative A, will comply with local, state, and federal laws designed to avoid significant cumulative impacts to special-status species, including but not limited to the California Endangered Species Act (CESA) and the Federal Endangered Species Act (FESA). Moreover, implementation of mitigation measures identified in **Section 5.24** will ensure that Alternative A does not contribute to a cumulative impact to special status species. It is anticipated that other development projects would be required to implement similar mitigation that may include, but not be limited to, complete avoidance, transplantation of affected plant species, use of set-backs, etc. Upon compliance with applicable regulatory framework and permitting requirements and adherence to appropriate mitigation measures, potential impacts to special-status species would not be cumulatively considerable.

CULTURAL RESOURCES

4.15.9 Construction and operation of planned development projects and Alternative A would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.

Significant cumulative impacts to cultural resources typically occur when important sites, features, or artifacts are lost, damaged, or destroyed without appropriate mitigation such as recordation or data recovery. As these resources are destroyed or displaced, important information is lost and connections to past events, people and cultures are diminished. As the City of Richmond and Contra Costa County continue to grow, cultural resources may be lost. Contra Costa County contains extensive cultural resources, including Native American archaeological sites and historical sites associated with early Euro-American settlement, ranching, and World War II-era facilities. Native American archaeological sites in the county include shell middens, village sites, burial grounds, procurement sites, and lithic scatters. Historic sites in the region are quite diverse and include buildings, homes, factories, a lighthouse, and churches, among others. Impacts to these cultural resources are likely to occur as residential and commercial growth occurs in Contra Costa County.

As discussed in **Section 3.6**, several significant cultural resources are located within and adjacent to the project site. Moreover, the records search and archival research indicate that

the region is sensitive for both prehistoric and historical resources. Development of Alternative A would impact known cultural resources and has the potential to impact heretofore unknown buried archaeological resources, as archaeological sites may be present with no surface manifestation. However, mitigation measures specified in **Section 5.0** would reduce impacts to known and unknown cultural resources to a less-than-significant level. Furthermore, the projects listed in **Section 4.15.1** would be required to conform to the appropriate regulatory framework(s), including local preservation ordinances, CEQA, and/or Section 106 of the National Historic Preservation Act. Adherence to these frameworks would insure that potential impacts to cultural resources are considered and mitigated. Alternative A would also comply with the requirements. Accordingly, no cumulatively significant impacts to cultural resources would occur.

SOCIOECONOMIC CONDITIONS

4.15.10 Operation of Alternative A along with other proposed developments would increase demand for businesses in the City of Richmond and Contra Costa County that provide goods and services and would increase the local area's reliance on economic activity from the travel, tourism, and leisure industry. This is a beneficial impact.

Cumulative socioeconomic impacts that affect the lifestyle and economic well being of residents could occur in the project area as the result of various developments. Alternative A would introduce new economic activity in Contra Costa County. When considered with other growth in the City of Richmond and Contra Costa County there may be cumulative socioeconomic impacts including effects to the local labor market, housing availability, and impacts to government. These impacts would occur as the region's economic and demographic characteristics change, as the population grows, and as specific industries expand or contract. It should be noted that annual ongoing effects would not occur until the first year of operation, anticipated to be 2012.

The development of Alternative A would result in approximately 16,771 (**Section 4.7**) annual employment opportunities throughout Contra Costa County, leading to employees who would relocate or commute into the project area. Other development projects occurring within the geographic scope of this cumulative assessment would result in the construction of several new homes and residential communities, which would increase the population of the City of Richmond and surrounding areas. This population growth would generate new spending in the region. Increased spending by employees introduced to the area under Alternative A, in conjunction with increased spending associated with population growth from other developments in the area, would increase the area's demand for businesses where a variety goods and services could be purchased.

The magnitude of economic output and employment opportunities generated under Alternative A (**Section 4.7**) in combination with surrounding population growth, would increase the economic reliance on the travel, tourism, and leisure industries. Additionally, the amount of overall gaming market revenue would increase with Alternative A. However, as discussed in **Impact 4.7.8**, Alternative A would result in the diversion of revenue from existing nearby casinos.

Cumulative economic influences on the region taken in conjunction with the payments to the City of Richmond per the MSA between the Tribe and City of Richmond would likely result in further development in the City of Richmond. This would further increase the City of Richmond's participation in and reliance on the travel, tourism and leisure industry. Planning documents for the City of Richmond and Contra Costa County would continue to designate land uses for businesses, industry, and housing, as well as plan public services which would anticipate growth in the region. This is a beneficial impact.

TRANSPORTATION

Methodology

Traffic volumes in 2025 were estimated by considering traffic generated by projects that are anticipated to be constructed by 2025, and growth rate projections obtained from the Contra Costa County Travel Demand Model and applied to the existing intersection and freeway segment volumes. Using the projected intersection and freeway traffic volumes, an intersection and freeway LOS analysis was completed for 2025 Cumulative Conditions. Cumulative conditions include traffic from approved projects identified in **Appendix S** and in **Table 4.15-1**.

Background Condition

Peak Hour Intersection Performance

Table 4.15-7 shows the weekday intersection delays and LOS for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections for the cumulative background conditions. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. Refer to **Appendix HH** for a detailed discussion of the cumulative background condition of Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard. Under the 2025 cumulative background conditions, all of the study intersections are projected to operate at LOS D or better with the exception of the following intersections:

- Richmond Parkway/Redwood Way/WB I-580 on/off Ramps (weekday PM peak hour)
- Marine Street/EB I-580 on/off Ramps (weekday PM peak hour)

TABLE 4.15-7
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE BACKGROUND CONDITIONS

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.54	E	0.98	B	0.67
2	Marine Street/EB I-580 On/Off Ramps	A	0.34	F	1.10	B	0.68
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	B	0.64	A	0.51	A	0.28
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.63	A	0.54	A	0.29
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.66	A	0.21	A	0.09
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.31	A	0.24	A	0.11
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ¹	B	14.5 ¹	B	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	C	0.79	B	0.66	A	0.45
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.42
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.56	A	0.49	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.38	A	0.29
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.52	A	0.56	A	0.38
17	MacDonald Avenue/S. Harbor Way	B	0.64	B	0.64	A	0.45
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.56	A	0.51	A	0.27
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	B	0.69	A	0.55	A	0.30
20	Richmond Parkway/Castro Street/Hensley Street	A	0.49	D	0.89	A	0.25
21	Richmond Parkway/Gertrude Avenue	F	1.04	F	1.21	B	0.70
22	Richmond Parkway/Parr Boulevard	F	1.00	F	1.12	A	0.60
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	B	0.74	C	0.76
26	San Pablo Avenue/Appian Way/Pinole Avenue	F	1.03	E	0.94	B	0.59
27	Western Drive and Chevron Access	-	N/A*	-	N/A*	-	N/A*
28	Sir Francis Drake Blvd./Anderson Drive	B	13.3	B	17.6	B	11.7
29	Richmond Parkway/Pittsburg Avenue	D	0.83	F	1.16	B	0.70
30	Richmond Parkway/Goodrick Avenue	D	0.81	F	1.11	B	0.68
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.27	B	0.66	A	0.37

Notes: ¹2000 HCM Unsignalized Intersection methodology, worst-case delay per vehicle reported.

* Density not reported for level of service F. **Bold text** = poor LOS.

Refer to **Appendix HH** for the existing conditions for intersections 32 through 35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009 and 2010 (**Appendix S** and **HH**).

- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- Richmond Parkway/Blume Drive/WB Interstate 80 (I-80) On/Off Ramps (weekday and Saturday PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)
- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard

Table 4.15-8 summarizes the freeway analysis for the cumulative background conditions. As shown, with the addition of 2025 cumulative background traffic, all of the study freeway segments operate at a LOS E or better except for the following freeway segments, which operate at LOS F:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hour)

Cumulative year 2025 traffic impacts were determined by applying a background growth rate of 20 percent to existing traffic volumes. 2025 project-related traffic was added to 2025 background traffic volumes to determine cumulative project-related traffic impacts at the toll plaza. Table 10 of the supplemental Traffic Impact Analysis (STIA) provided in **Appendix S** provides the LOS for westbound I-580 through the toll plaza. Under cumulative background conditions the LOS at the toll plaza is LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles-per-lane per hour westbound through the toll plaza is 5,221 in the AM peak hour and 4,614 in the PM peak hour. In the cumulative background condition the toll plaza operates at an unacceptable LOS.

Cumulative Background Toll Plaza Performance

IMPACTS OF ALTERNATIVE A

- 4.15.11 Combined with increased traffic from other regional projects, increased traffic volumes from the operation of Alternative A in the year 2025 have the potential to substantially increase traffic volumes of intersections within the study area. This is a potentially significant and unavoidable cumulative impact.**

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-8** through **7-12**, **7-16**, **7-17** and **7-24** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative A in the cumulative year 2025 would have a *less-than-significant* impact. However, the full suite of required mitigation measures are considered infeasible at this time ~~due to lack of funding and/or because some of the~~ improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. **Mitigation Measures 7-6** and **7-7** and **Improvement Measure 7-19** when implemented would improve operations of intersections within the project area; however, not to a *less-than-significant* level.

TABLE 4.15-8
PEAK HOUR FREEWAY OPERATIONS – CUMULATIVE BACKGROUND CONDITIONS (REVISED)

Segment	Dir.	No of Lns	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln)	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,209	33.8	D	5,700	*	F
I-580 Western Drive to Castro Street ¹	EB	3	2,779	17.5	B	4,302	27.1	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,498	22.7	C	3,543	32.1	D
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	3,129	19.7	C	4,391	27.7	D
I-580 Canal Blvd. to Castro Street ¹	WB	3	4,264	26.9	D	3,895	24.6	C
I-580 at Castro Street On-Ramp ²	WB	3	4,147	32.7	D	3,727	29.4	D
I-580 Castro Street to Western Drive ¹	WB	3	5,365	34.7	D	4,762	30.1	D
I-580 Western Drive Off-Ramp ²	WB	3	5,365	34.7	D	4,762	32.0	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,675	22.2	C	6,505	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,380	31.5	D	5,587	20.1	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,108	31.3	F	2,363	13.7	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,218	12.5	B	2,058	47.6	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	5,240	*	F	4,675	*	F
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,732	26.0	C	4,112	43.3	E
SR-4 at I-80 EB Off-Ramp	EB	4	2,850	20.4	C	4,670	38.6	E
SR-4 at Willow Avenue	EB	4	2,150	18.4	C	3,020	26.0	C
SR-4 at Sycamore Avenue	WB	4	2,290	19.6	C	2,920	25.1	C
SR-4 at Willow Avenue	WB	4	1,340	11.5	B	2,104	18.0	B

Notes: **Bold text** = poor LOS.

1 Freeway Section

2 On/Off Ramp

3 Weave Segment

4 pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F.

[#] Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009 and 2010 (**Appendix S** and **HH**).

Impact Discussion

Table 4.15-9 shows the weekday intersection delays and LOS for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative A in the year 2025. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**.

With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS with the exception of the following intersections:

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM and Saturday peak hour)
- Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off (weekday PM peak hour)
- Marine Street/EB I-580 On/Off Ramp (weekday PM peak hour)
- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)
- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard

The intersections that are operating at a sub-standard LOS during the AM or PM peak hours for Alternative A in the year 2025 were previously operating at a sub-standard LOS during the cumulative background conditions. Therefore, as defined by the significance criteria, a significant impact would occur if Alternative A contributes more than a one percent increase to the peak hour traffic volume. For intersections in the City of Larkspur, a significant impact would occur with the addition of ten or more peak hour vehicle trips at intersections projected to operate at unacceptable level of service in the background cumulative condition.

Although the San Pablo Avenue/Appian Way/Pinole Avenue intersection operated at a sub-standard LOS previously, and will operate at a sub-standard LOS during the cumulative background conditions, it would experience less than one percent increase in peak hour traffic with the implementation of Alternative A (**Appendix S**); therefore, under the significance criteria, a *less-than-significant* impact would occur at that intersection.

TABLE 4.15-9
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE ALTERNATIVE A

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.52	F	1.01	C	0.76
2	Marine Street/EB I-580 On/Off Ramps	A	0.38	F	1.18	C	0.77
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	B	0.65	A	0.53	A	0.29
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.65	A	0.58	A	0.35
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.67	A	0.22	A	0.10
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.31	A	0.25	A	0.13
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ²	B	14.5 ¹	B	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	D	0.80	B	0.69	A	0.48
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.43
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.57	A	0.50	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.39	A	0.30
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.52	A	0.57	A	0.39
17	MacDonald Avenue/S. Harbor Way	A	0.65	B	0.65	A	0.47
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	B	0.57	A	0.56	A	0.34
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	C	0.670	A	0.60	A	0.36
20	Richmond Parkway/Castro Street/Hensley Street	A	0.51	D	0.89	A	0.26
21	Richmond Parkway/Gertrude Avenue	F	1.06	F	1.25	C	0.75
22	Richmond Parkway/Parr Boulevard	F	1.02	F	1.15	B	0.65
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	C	0.74	C	0.76
26	San Pablo Avenue/Appian Way/Pimole Avenue	F	1.04	E	0.94	A	0.60
27	Western Drive and Chevron Access	A	1.8 ²	A	2.3 ²	A	2.9 ²
28	Sir Francis Drake Blvd./Anderson Drive	B	13.0	B	18.5	B	11.8
29	Richmond Parkway/Pittsburg Avenue	D	0.85	F	1.19	C	0.75
30	Richmond Parkway/Goodrick Avenue	D	0.83	F	1.14	C	0.73
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.27	B	0.68	A	0.40

Notes: **Bold** indicates unacceptable LOS.

¹ 2000 HCM Unsignalized Intersection methodology, worst case delay per vehicle reported.

² Federal Highway Administration (FHWA) publication "Roundabouts An Informational Guide" methodology, average delay per vehicle reported.

Refer to **Appendix HH** for the existing conditions for intersections 32-35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009. (**Appendix S**)

A *significant* impact would occur at the remaining intersections noted above due to an increase in peak hour traffic in excess of the volume specified in the significance thresholds above greater than one percent. Mitigation measures are provided in **Section 5.2.7** for the above referenced intersections. Upon implementation, the mitigation would result in an acceptable LOS.

4.15.12 Combined with increased traffic from other regional projects, traffic from the operation of Alternative A in the year 2025 would substantially increase traffic volumes of roadway segments within the study area. This is a potentially significant cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-13** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative A in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time ~~due to lack of funding and/or~~ because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Volume to capacity ratios and LOS for the year 2025 under Alternative A have been calculated for study area freeway segments and are shown in **Table 4.15-10**. With implementation of Alternative A, all of the study freeway segments are projected to operate at an acceptable LOS, except for the following:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hours)
- EB I-580 Richmond/San Rafael Bridge (PM peak hours)

Under the applicable significance criteria I-80 would not experience a significant impact, despite the unacceptable LOS during the peak hour (refer to **Section 3.8**). Using significance criteria provided in **Section 4.8**, US 101/I-580 ramps would not have an increase in traffic greater than two percent; therefore, a *less-than-significant* impact would occur. The freeway segment between I-580 at Marine Street Off-Ramp (EB) and I-580 on Richmond-San Rafael Bridge (EB and WB) would operate at an unacceptable LOS in the cumulative year. This is a

significant cumulative impact. Mitigation measures are provided for the roadway segments in **Section 5.2.7**, which upon implementation would result in an acceptable LOS.

TABLE 4.15-10
BACKGROUND PLUS PROJECT ROADWAY SEGMENTS LOS - CUMULATIVE ALTERNATIVE A (REVISED)

Segment	Dir.	No of Lns	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln) ⁴	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,279	34.5	D	5,826	*	F
I-580 Western Drive to Castro Street ¹	EB	3	2,960	18.7	C	4,938	31.3	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,637	24.2	C	4,040	38.2	E
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	3,268	20.6	C	4,888	31.0	D
I-580 Canal Blvd. to Castro Street ¹	WB	3	4,544	28.7	D	4,408	27.8	D
I-580 at Castro Street On-Ramp ²	WB	3	4,427	35.5	E	4,240	34.4	D
I-580 Castro Street to Western Drive ¹	WB	3	5,798	39.4	E	5,573	36.8	E
I-580 Western Drive Off-Ramp ²	WB	3	5,798	37.1	E	5,573	36.9	E
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,682	21.7	C	6,518	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,455	32.2	D	5,721	21.3	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,168	31.9	F	2,470	14.7	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,249	12.7	B	2,162	48.5	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	5,277	*	F	4,797	*	F
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,913	27.7	D	4,748	*	F
SR-4 at I-80 EB Off-Ramp	EB	4	2,872	20.6	C	4,742	39.1	E
SR-4 at Willow Avenue	EB	4	2,172	18.6	C	3,092	26.7	D
SR-4 at Sycamore Avenue	WB	4	2,332	20.0	C	2,995	25.8	C
SR-4 at Willow Avenue	WB	4	1,382	11.8	B	2,179	18.7	C

Notes: **Bold** text = unacceptable LOS.

¹ Freeway Section

² On/Off Ramp

³ Weave Segment

⁴ pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F. # Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009 and 2010 (**Appendix S and HH**).

4.15.13 Traffic from the operation of Alternative A in the year 2025 would not result in inadequate emergency access. This is a less-than-significant impact.

Operation of Alternative A in the year 2025, along with traffic from other development, would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area (see **Tables 4.15-9** and **4.15-10**). This is a *less-than-significant* impact.

4.15.14 Operation of ferry service under Alternative A, in combination with other planned increases in ferry service in the future, has the potential to decrease vehicular traffic on roadways in the study area. This is a beneficial impact.

Alternative A would provide ferry service, which would accommodate 3,000 round trip passengers per day, with a maximum of 30 individual ferry landings per day. The ferry would operate between the project site, San Francisco, and Vallejo. Most of the trips generated by Alternative A would come from cities which have access to water transportation, such as San Francisco, Tiburon, Sausalito, Bay Farm Island, and Vallejo. The addition of ferry service would reduce the number of commuters on local roadways in the year 2025. Therefore, operation of the ferry service would result in a *beneficial* cumulative impact.

4.15.15 Operation of Alternative A would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant impact.

In the year 2025, it is estimated that 10% of all project trips will arrive via public or private transit. This translates to approximately 60 AM peak, 140 PM peak, and 1,000 daily trips. These trips would arrive via public sector providers (AC Transit, Golden Gate Transit, Amtrak and BART) and private sector shuttles and chartered coaches. Given the available capacity on the existing public sector carriers plus augmentation of capacity by shuttle busses and coach services, there would be no impact to transit during the peak hours. This is a *less-than-significant* impact.

4.15.16 Combined with increased traffic from other regional projects, Implementation of Alternative A in the cumulative year 2025 has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-14** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative A in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Table 10 of the supplemental TIA, provided in **Appendix S**, provides the LOS for westbound I-580 through the toll plaza under Alternative A in the cumulative year 2025. In the cumulative year 2025 under Alternative A the toll plaza would operate at LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles ~~per lane~~ per hour westbound through the toll plaza is 5,258 in the AM peak hour and 4,736 in the PM peak hour. In the cumulative year 2025 under Alternative A, I-580 at the toll plaza would exceed 4,225 vehicles per hour; therefore, a *significant* impact would occur. Mitigation measures are provided for the toll plaza in **Section 5.2.7**, which, once implemented, would result in an acceptable LOS.

LAND USE

4.15.17 Alternative A would not result in cumulatively considerable adverse impacts to land use planning within the City of Richmond or the Western Sub-Area of Contra Costa County.

The General Plans, applicable Specific Plans, and Zoning Ordinances guide development in the City and County under each jurisdiction. Planned development projects within the City and County would be consistent with these policies and regulations, which prevent disorderly growth or incompatible land uses. While only portions of Alternative A would be subject to local land use policies, as discussed in **Section 4.9**, Alternative A would not disrupt neighboring land uses, prohibit access to the shoreline, or otherwise conflict with neighboring land uses.

~~As discussed in **Section 4.9**, the City has identified the project site as a Planned Area District within the Draft General Plan Update, which is an area of the City where “further analysis is needed to determine appropriate land use designations.” Therefore, the Alternative A will be consistent in the long-term either through the proposed rezoning or through the land use designations eventually put in place by the City. Since no impact would occur, Alternative A would not result in cumulatively considerable impacts to regional land use. the City has proposed three land use options in its General Plan update process. Alternative A would be consistent with land use option 3, which identifies the project site as being developed for a casino as proposed under this alternative. Therefore, development of Alternative A has been considered by the City in its General Plan update process and would therefore not result cumulatively considerable adverse impacts to land use planning.~~

PUBLIC SERVICES**Water Service**

- 4.15.18 The local utility provider, East Bay Municipal Utility District (EBMUD) has the capacity to meet the potable water demand with its service area. Therefore, regional development projects and Alternative A would not result in cumulatively considerable impacts to the regional water supply or water treatment. This would be a less-than-significant impact.**

The EBMUD water system currently provides water supply to 20 incorporated cities and 15 unincorporated cities within Contra Costa and Alameda Counties. Future water demands of EBMUD are based on a 2000 District-wide Update of Water Demand Projections, described in the 2005 Urban Water Management Plan (EBMUD, 2005). Projected water demands are based upon the average water usage of residences and equivalent commercial and industrial usage rates. These usage rates are then applied to the number of residential and commercial parcels expected to be developed in the future. In 2030, EBMUD has forecasted the total demand of 232 million gallons per day (MGD) for all current and future customers. The 2000 water demand study described conditions of increased customer demand between the years 2005-2010, due to anticipated intense community development (EBMUD, 2005).

Although water supply for Alternative A was not specifically included in the considerations of the EBMUD 2005 Urban Water Management Plan (UWMP), the UWMP determined that current and future water supplies would be sufficient to meet additional demands of development in the City of Richmond and surrounding EBMUD service areas. Infrastructure impacts would be minimized through compliance with EBMUD's new service contracts, which require new development to pay fair share contributions of the costs of water system improvements. Connections for potable water distribution system would be established through existing and developed EBMUD infrastructure.

EBMUD has provided a will-service letter, committing to provide service to the site and confirming future capacity (**Appendix C**). The cumulative development environment would not adversely impact EBMUD water supply or the Orinda Water Treatment Plant (OWTP) as sufficient water capacity is available, and Alternative A would pay appropriate connection and development fees to EBMUD. Therefore, the cumulative impact to potable water supply and water treatment would be *less-than-significant*.

Wastewater and Treatment

- 4.15.19 The demand for wastewater treatment of City-wide development projects and Alternative A would result in increased demand on the Richmond Municipal Sewer**

District wastewater treatment plant and wastewater collection system. This would be a less-than-significant impact.

Wastewater Treatment Plant

As described in **Section 4.10**, wastewater produced at the project site would be treated at the Richmond Municipal Sewer District (RMSD) Wastewater Treatment Plant (WWTP), located at 601 Canal Boulevard on the Point Richmond Peninsula. The RMSD WWTP would have sufficient capacity to treat wastewater generated by the Proposed Project as well as projected growth in the City. The Richmond Draft General Plan – Draft Public Infrastructure Facilities Update, gives projected 2020 inflows to WWTP (City of Richmond, 2006a). Predicted inflows to the WWTP in the year 2020 would be approximately 21.0 million gallons per-day (MGD) during peak hour dry weather and approximately 28.0 MGD during peak hour wet weather. As discussed in **Section 2.2.2**, Alternative A would result in the generation of approximately 537,000 gpd of wastewater, with a peak demand of 727,400 gpd. Therefore, at anticipated peak hour during wet weather, Alternative A would produce approximately 2.6 percent of the total projected 2020 wastewater inflow to the City’s WWTP. Estimated 2020 capacity at the WWTP could support Alternative A, as described in the City General Plan Update. This is a *less-than-significant* cumulative impact.

Wastewater Collection System

As described in **Section 4.10**, the City has determined that the existing distribution system is in need of upgrades. A list of acknowledged capital improvement projects that are required to meet expected growth are provided in **Section 4.10**. Alternative A mitigation measures shall commit the Tribe to good-faith negotiations with the City to develop fair share costs of required upgrades and repairs to the existing collection system. Therefore, the cumulative impact of Alternative A is *less-than-significant*.

Solid Waste

4.15.20 Regional increases in solid waste, with development of Alternative A, would result in increased demand on landfill capacity. This would be a less-than-significant impact.

Alternative A would send a portion of solid waste produced during construction and operation to the Golden Bear Transfer Station, where it would be sorted and processed for recycling. A portion of solid waste from the Proposed Project would be disposed at the Potrero Hills Landfill along with cumulative solid waste from existing and proposed development. The Potrero Hills Landfill is currently permitted for 8 to 10 more years of capacity, with recent proposals for an expansion of capacity from 21.5 million cubic yards to 83 million cubic yards of capacity. Solano County is currently recirculating a Draft EIR for the Potrero Hills Landfill, which proposes an expansion of the landfill and estimated closure

date of the 2040 (Solano County, 2007). As discussed in **Section 4.10**, solid waste produced by Alternative A would account for approximately 0.9 percent of the remaining capacity after peak inflows reported in 2006. Since this is well within the landfill's available capacity, implementation of Alternative A would have a less-than-significant cumulative impact on solid waste services. Although solid waste impacts associated with Alternative A is less-than-significant, the project design and incorporation of **Improvement Measures 9-3, 9-4, and 9-5** found in **Section 5.0** are incorporated to further reduce impacts to the landfill. The amount of waste from Alternative A would not significantly decrease the life expectancy of the landfill, and given that landfill expansion is planned for future development, cumulative impacts to solid waste services would be *less-than-significant*.

Electricity, Natural Gas, and Telecommunications

4.15.21 Implementation of Alternative A in combination with other foreseeable projects would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. A less-than-significant impact would occur.

As Alternative A and cumulative developments within the project vicinity can be served by existing PG&E electrical grid and natural gas pipelines, cumulative impacts to energy utilities would be *less-than-significant*. PG&E would continue to work with City and County planners to ensure that adequate capacity is available for future development. Alternative A would have a *less-than-significant* cumulative impact with respect to energy.

Fire Protection and Emergency Medical Services

4.15.22 Alternative A, in combination with other foreseeable projects, could increase demand for Fire Protection services or Emergency Medical services. This is a less-than-significant impact.

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the existing City of Richmond Fire Department facilities and surrounding fire protection jurisdictions. Alternative A is anticipated to generate a need for additional fire protection and emergency medical services. The Tribe would compensate Richmond Fire Department for costs relating to the provision of fire and emergency medical services on Tribal lands and facilities, as specified in the MSA (**Appendix C**). This funding would be beneficial in providing additional resources for expected growth. Thus, development of Alternative A would not create incremental significant impacts when combined with the cumulative projects. Impacts to fire protection services or emergency medical services would be *less-than-significant*.

*Law Enforcement***4.15.23 Alternative A, in combination with other foreseeable projects, could increase demands on the City of Richmond Police Department. This is a less-than-significant impact.**

Richmond Police Department would provide service for Alternatives A. The Tribe has committed to the City in the MSA (**Appendix C**) to enter into an agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services. The Tribe has also committed in the MSA to reimburse the City for court and jail services through direct payment or through an impact mitigation fund. While the cumulative projects may increase demands to law enforcement services, resources to service Alternatives A would be provided through the MSA. Thus, development of Alternative A would not create incremental significant impacts when combined with the cumulative projects. The cumulative effect is *less-than-significant*.

*Schools and Parks***4.15.24 Alternative A would not result in the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.**

Alternative A is not anticipated to significantly increase demands on school services as school age children of new employees relocating to the County would disperse among the 62 K-12 schools in the West Contra Costa Unified School District (WCCUSD). As described in **Section 3.10**, individual cumulative developments within the WCCUSD boundary are charged development fees to provide for local upgrades and expansions to local school facilities. As Alternative A would neither create on-site housing nor create a significant influx of students (**Section 4.10**), a *less-than-significant* cumulative impact regarding schools would occur.

4.15.25 Alternative A and other regional developments could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration or the facility would occur or be accelerated. However, this impact would be less-than-significant.

The development of Alternative A would not adversely affect any governmental agency's ability to provide or maintain parks and recreation facilities. Alternative A would include a 35-acre shoreline park located along the western boundary of the project site, including a segment of the San Francisco Bay Trail (Bay Trail), and 145-acres of hillside open space. As described in Section 4.10 and Section 5.7 of the MSA (**Appendix C**) the Tribe would be responsible for maintaining the hillside open space and shoreline park.

Alternative A would result in a long-term recreational benefit for the County by providing desirable recreational facilities. Although the increased tourism in the area could result in an increased cost of maintenance at regional parks, it is anticipated that most visits would be to the proposed on-site shoreline park, which would be maintained in full by the Tribe. The increase in revenue from park usage fees would provide adequate compensation to cover any accrued costs at other parks. Therefore, Alternative A would have a *less-than-significant* cumulative impact with respect to parks and recreation.

NOISE

4.15.26 Noise and vibration which would result from operational activities under Alternative A in combination with other development in the year 2025 would result in increased ambient noise level due to traffic, HVAC, and refuse handling. This is a less-than-significant cumulative impact.

All the Alternatives would have the potential to result in onsite operational noise, primarily from parking structure activity, use of fans for heating, ventilation, and air conditioning (HVAC), truck loading and unloading, tour bus idling, and offsite traffic noise. Under Alternative A, there are no sensitive receptors within or near the project site.

Traffic

Table 4.15-11 shows the predicted traffic noise levels for background, background plus project traffic volumes, and increase in traffic noise with the proposed project at the reference distances of 50 feet and 150 feet from Interstate 580 (I-580) in the year 2025. Upper-floor receivers adjacent to the roadways would be exposed to noise levels about 3 dB higher than shown, due to reduced ground absorption of sound.

With the exception of Western Drive, existing traffic noise levels predicted at the reference distances approach or exceed “Clearly Unacceptable” noise exposures for residential land uses, as described by the City of Richmond General Plan. Alternative A, in combination with other growth, would not result in an audible increase the ambient noise levels, with the exception of Western Drive, in 2025. The ambient noise levels along Western Drive would increase above the City of Richmond’s noise standards; therefore, this would be a potential significant impact. However, no off-site sensitive receptors are present along Western Drive; therefore, a *less-than-significant* impact would occur. Implementation of mitigation measures in **Section 5.2.10** would further reduce or eliminate noise impacts.

TABLE 4.15-11
ALTERNATIVES A – D PREDICTED AND CHANGES IN PREDICTED 2025 TRAFFIC NOISE

Roadway	Segment Description	Predicted, Ldn, dB at 50 feet		Difference, Ldn, dB at 50 feet
		Background	Background Plus Project	Background Plus Project
Western Drive	Project Entrance and Marina	52.6	71.1	18.5
Richmond Parkway	Redwood Way and Hensley Street	74.6	74.8	0.2
Richmond Parkway	Hensley Street and Gertrude Street	74.9	75.0	0.1
Richmond Parkway	Gertrude Street and Parr Boulevard	76.9	77.1	0.2
Richmond Parkway	Parr Boulevard and San Pablo Avenue	75.5	75.7	0.3
Richmond Parkway	San Pablo Avenue and Blume Drive	76.0	76.3	0.2
EB I-580 off ramps	Standard Avenue and Castro Street	73.3	73.5	0.2
Garrard Boulevard	WB I-580 ramps and Ohio Avenue	72.3	72.7	0.4
Canal Boulevard	WB I-580 ramps and Cutting Boulevard	70.4	70.4	0.0
Garrard Boulevard	Macdonald Avenue and Barrett Avenue	73.8	74.0	0.3
I-580	Canal and Western	77.3	77.3	0.0

Notes: Ldn= Day-Night Average Sound Level; dB= decibel
Source: Brown and Buntin Associates, 2008.

HVAC Noise

Commercial/retail uses would bring the possibility of increased noise due to operations of roof-mounted air handling units associated with building heating, ventilation and air conditioning (HVAC). The noise levels produced by HVAC systems vary with the capacities of the units, as well as with individual unit design. Under Alternative A, there are no sensitive noise receptors within one mile of project site; therefore, this is a *less-than-significant* cumulative impact. Implementation of mitigation measures in **Section 5.2.10** would further reduce or eliminate all noise impacts.

Refuse Handling Noise

Alternative A would result in the introduction of commercial and business uses with refuse handling activity. Noise levels due to typical refuse trucks may be as high as 84 dB at 50 feet. Noise conflicts may arise if garbage pickup occurs adjacent to noise receptors at nighttime or early morning. Nighttime refuse handling could produce noise levels affecting noise receptors. There are no noise receptors within one mile of the projects site; therefore, this is a *less-than-significant* cumulative impact. Implementation of mitigation measures in **Section 5.2.10** would further reduce or eliminate all noise impacts.

Vibration

Residential and commercial/retail uses such as those proposed under Alternative A do not ordinarily include sources of perceptible vibration. Therefore, Project-related vibration under Alternative A would be a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

Methodology

The geographic boundary used for the cumulative hazards and hazardous materials analysis is generally confined to the core industrial portion of the City of Richmond located to the east and southeast of the project site (within a 4-mile radius). For the purpose of analyzing cumulative impacts related to the routine transport, use, and disposal of hazardous materials, the geographic boundary is expanded to the Urban Limit Line of Contra Costa County shown in Figure 3-1 of the County's General Plan (Contra Costa County, 2005), since such impacts are not related to stationary sources located in proximity to the project site. While hazardous materials involvement for other projects would occur in other parts of the San Francisco Bay Area, the Proposed Project would result in negligible hazardous materials effects beyond Contra Costa County.

Impacts of Alternative A

4.15.27 Alternative A, in combination with other foreseeable projects, would not result in significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.

Several industrial facilities operate in Contra Costa County that engage in various forms of manufacturing and processing that require routine transport, use, and disposal of hazardous materials. As discussed in **Section 4.12**, the Proposed Project would have a *less-than-significant* impact regarding routine transport, use, and disposal of hazardous materials because of the nature of redevelopment that is proposed under Alternative A, as well as the comprehensive regulatory environment that applies.

All transportation of hazardous materials is governed by federal, state, and local laws to ensure proper transport occurs, minimizing risks to human health and the environment. Regional cumulative projects would be subject to the same laws. The transport of hazardous materials associated with Alternative A would be minimal relative to the cumulative transportation of hazardous materials within the County in general. Other regionally planned or approved projects, listed in **Table 4.15-1**, would be required to follow applicable federal and state regulations concerning hazardous materials management, including the compliance with a National Pollution Discharge Elimination System (NPDES) permit for temporary construction activities, and implementation of construction Best Management Practices (BMPs) for hazardous materials management. Thus, given the relatively small amounts of materials routinely transported, the requirements of applicable federal, state, and local laws, and standard permitting procedures, no significant cumulative impacts related to hazardous materials transportation, use, or disposal would occur.

4.15.28 Alternative A, in combination with other foreseeable projects, would not result in significant hazards to the public or the environment through reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.

Operation

A cumulatively considerable impact related to the foreseeable upset or accidental release of hazardous materials would occur if: 1) other regional development projects, in combination with Alternative A, significantly increased the potential for a hazardous materials release in proximity to sensitive receptors; or 2) if other regional development projects, in combination with Alternative A, introduced a large number of sensitive receptors in close proximity to acutely hazardous materials within Richmond's industrial core; or 3) a combination thereof occurred.

Potential for a Hazardous Materials Release

As previously discussed in **Sections 3.12** and **4.12**, Alternative A of the Proposed Project does not include storage of bulk quantities of hazardous substances. No bulk storage of hazardous materials would occur during project operation. Furthermore, with the current and future remediation of the project site, there will be a net reduction in constituents of concern that have the potential to negatively impact human health or the environment through an accidental release.

Of the cumulative development projects referenced in **Table 4.15-1**, the Chevron Energy and Hydrogen Renewal Project (Chevron Project) is the only heavy industrial development that is currently planned ~~or approved~~ within Richmond's industrial core that includes handling of hazardous materials. The fate of the Chevron Project is currently unknown, as a Contra Costa County Superior Court Judge ruled in 2009 that the Environmental Impact Report prepared for the project is inadequate. The case is currently being litigated. The Chevron Project would be restricted to the existing Chevron-Richmond Refinery, located southeast of the project site. The Chevron Project has five major components: construction of new hydrogen trains to replace the existing ones; construction of a new CoGen power plant to replace five steam boilers (constructed in the 1930s and 1940s); replacement of existing Catalytic Reformers with one new unit; installation of new equipment to improve hydrogen purity; and replacement of ten existing above-ground storage tanks and addition of eight new tanks.

The Chevron Project would introduce additional hydrogen and flammable hydrocarbons to the Chevron-Richmond Refinery (ESA, 2007). While hydrogen is not acutely toxic, it is flammable. The above referenced EIR found that the increased hydrogen that may be stored and used at the Chevron-Richmond Refinery would not pose a threat to human health and

was considered a less-than-significant impact. Furthermore, the analysis found that a worst-case scenario (WCS) release of flammable hydrocarbons, such as liquid propane gas, would have a thermal impact within a 1,000 foot radius, well within the refinery footprint and well short of the Proposed Project site (linear distance in excess of 4,000 feet) and other off-site locations.

The refinery upgrades would include additional handling of hydrogen sulfide (liquid) and anhydrous ammonia (ESA, 2007). With respect to the hydrogen sulfide, the upgrades would provide a net reduction in risks posed by an accidental release and any potential impact would be *less-than-significant* (ESA, 2007). Additional ammonia would be present at the refinery in a new process line, with a capacity of roughly 9,380 pounds. Further, “Since the RMP reported that the offsite consequences from an accidental ammonia release would be *less-than-significant*, the offsite consequences from an ammonia release from the new pipeline would also be *less-than-significant*” (ESA, 2007: 4.13-20). The analysis found that the impact to off-site receptors from an accidental release of the additional ammonia would be *less-than-significant*.

Federal, State, and local regulations take proactive measures in requiring facilities to access and document potential risks associated with hazardous materials and require operators to take appropriate precautions to reduce risks both on-site and off-site. Regional industrial developments, including the Chevron Project, would be required to comply with the California Accidental Release Program (CalARP) governed by regulations set forth in the California Health and Safety Code (Section 25531 through 25543.3) and other county requirements. Through enforcement and compliance on a regional level, potential risks related to the upset or accidental release of hazardous materials remain low.

Thus, based on the following discussion, other regional development projects, in combination with Alternative A, would not significantly increase the potential for a hazardous materials release in proximity to sensitive receptors. As such, Alternative A, in combination with other foreseeable projects, would result in a *less-than-significant* cumulative impact as it relates to the potential for an accidental release of hazardous materials.

Exposure of Sensitive Receptors to a Hazardous Materials Release

Of the twelve cumulative development projects listed in **Table 4.15-1**, only one is proposed in proximity to the industrial core of the City of Richmond. A mixed use residential and retail in-fill development is planned at 100 MacDonald Avenue, immediately south of the industrial core of Richmond. The development would include 27 residential units as well as 9,870 square feet of retail office space. The MacDonald Avenue project is located within an area that is heavily developed with residential and commercial land uses, and would be adding in-fill development to an already densely populated urban area. The MacDonald

Avenue Project is located roughly one mile southeast of the central processing area within the Chevron-Richmond Refinery, and nearly two miles southeast of the ammonia storage vessels, providing adequate dispersion buffers for the release of acutely hazardous materials at the Chevron facility.

Operation of Alternative A would introduce large numbers of visitors and employees to the project site and would increase the potential for exposure to a hazardous materials release. However, the project site is not located within a thermal impact zone or within a toxic endpoint zone (**Section 4.9-1** and **Appendix M**). Therefore, Alternative A of the Proposed Project, in combination with the MacDonald Avenue Project and other reasonably foreseeable development projects, would not introduce a significant number of sensitive receptors within a thermal impact zone or within a toxic endpoint zone. As such, a *less-than-significant* cumulative impact would occur as it relates to risks associated with the accidental release of hazardous substances.

Construction

Both the Proposed Project and other planned or approved projects (**Table 4.15-1**) would be required to comply with the state and federal NPDES Construction General Permits that ensure hazardous materials releases do not occur during temporary construction activity. Alternative A would comply with the federal NPDES Construction General Permit and construction safety requirements for proper hazardous materials storage and use. As a result, no cumulative impacts related to hazards to the public or the environment from the reasonably foreseeable upset or accidental conditions involving the release of hazardous materials would occur.

4.15.29 Alternative A, in combination with other growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would occur.

Future planned and approved projects listed in **Table 4.15-1** are located beyond 3.5 miles of the project site with the exception of the Chevron Energy and Hydrogen Renewal Project (Chevron Project) located at the Chevron-Richmond Refinery. The Chevron Project would modify or replace existing refinery equipment and would add a total of 10 employees once in full operation.

In the event that it is necessary to evacuate the Chevron-Richmond Refinery, the vast majority of employees would exit the facility from the points of entry along Castro Street, where several options are available for evacuees who wish to travel north, south, east or west. Access to east- and west-bound Interstate 580 is provided near the main Chevron entrance on Castro Street. Alternatively, employees may travel north on the Richmond Parkway, or south

and east on surface streets. Should it be necessary to evacuate the project site at the same time, direct access to east- and west-bound Interstate 580 is provided via Western Drive. Furthermore, none of the other planned or approved projects considered in the cumulative analysis would use Western Drive as an evacuation route. As such, Alternative A, in combination with other growth in the area, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

4.15.30 Alternative A, in combination with other foreseeable projects, would have a less-than-significant impact from the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.

Richmond is a highly urbanized city, with very little wooded open space. All of the planned or approved projects presented in **Table 4.15-1** would occur in areas well outside of wildland-urban interfaces and would not have a significant impact from the risk of loss, injury or death from wildland fires. As such, the cumulative impact from wildland fire would be *less-than-significant*.

AESTHETICS

4.15.31 Alternative A, in combination with other foreseeable projects, would not have a significant impact on a scenic vista. This is a less-than-significant impact.

Alternative A would contribute to the changing scenery in the project area. However, it would be landscaped in a manner compatible with existing vegetation at the project site, in order to soften the visual effect of the proposed new construction. Alternative A and cumulative development in the City and County would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-1**, Alternative A would result in a *less-than-significant* cumulative impact to scenic vistas.

4.15.32 Alternative A in combination with other foreseeable projects would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a scenic highway. No impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. The highway does not afford clear views of the project site. Thus, no cumulative impact would occur.

4.15.33 Alternative A would not a cumulatively considerable impact on visual character or quality of the site and its surroundings. This is a less-than-significant impact.

Alternative A would contribute to additional development and increased urbanization in the project area. However, new development proposed under Alternative A would be designed to complement existing structures and surroundings. According to the LDA (**Appendix C**), new construction within the project site will have to conform to design guidelines, approved by the City. Alternative A and cumulative development in the City and County would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-2**, Alternative A would result in a *less-than-significant* cumulative impact to visual character.

4.15.34 Alternative A, in combination with other foreseeable projects, would not create a cumulatively considerable source of substantial light or glare which would adversely affect day or nighttime views in the area. This is a less-than-significant impact.

Alternative A would add a new source of light to the project area; however, it would be designed to be downcast and confined on site. Timers would be utilized, so that lighting is only used when necessary. Alternative A and cumulative development in the City and County would be consistent with the various design guidelines under local land use regulations, and would be subject to CEQA. With implementation of **Mitigation Measure 12-3**, Alternative A would result in a *less-than-significant* cumulative impact with regard to light and glare.

4.15.4 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE B

GEOLOGY AND SOILS

4.15.35 Construction and operation of Alternative B would not result in any cumulatively considerable impacts such as soils or geology. No impact would occur.

As with Alternative A, the principal impacts associated with Alternative B in combination with other development projects in the City and County would be localized topographical changes and soil attrition. Similar to Alternative A, local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards, as well as the incorporation of a SWPPP (see **Section 4.2** and **Mitigation Measure 1-1**). Other development projects would also follow appropriate local, state, or federal permitting procedures; therefore, Alternative B would not have a significant cumulative impact on soils or geology.

HYDROLOGY AND WATER QUALITY**4.15.36 Concurrent construction and operation of planned development projects and Alternative B would not result in cumulatively considerable impacts to surface and groundwater quality. A less-than-significant impact would occur.**

Incremental impacts would be similar to those discussed under **Impacts 4.15-2**, which could result in cumulatively considerable impacts to downstream drainages. The cumulatively considerable impact of Alternative B is greater than Alternative A as a result of the larger area of land disturbance associated with the residential development component.

As discussed under Alternative A, all development projects over one acre in size (such as the projects listed in **Table 4.15-1**) would be required under the CWA to implement BMPs through development of a SWPPP and by the County to develop a SECP and SCP prior to construction. The implementation of BMPs through the SWPPP and SECP, and SCP at all major construction sites (greater than one acre) would reduce the incremental impacts to surface water quality to a less-than-significant level. Therefore, the incremental impacts during construction of Alternative B, with respect to surface water and groundwater quality would be greater than Alternative A, but not cumulatively considerable when taken in context with the additional development projects. Construction of Alternative B would have a *less-than-significant* cumulative impact on surface and groundwater quality.

4.15.37 Concurrent operation of planned development projects and Alternative B would not result in cumulatively considerable impacts to surface water quality or flooding. A less-than-significant impact would occur.

As indicated in **Section 4.3**, construction and operation of Alternative B would introduce additional impervious surfaces to the area, to a greater extent than Alternative A. Development of the Alternative B includes the installation of bioretention basins sized to reduce stormwater runoff rates during storm events. The watersheds on the project site would continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the bay would not be impacted by the relatively small increase in stormwater runoff, although greater in magnitude than stormwater runoff generated under Alternative A.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. With incorporation of the grading and drainage plan (**Appendix H**) for Alternative A and discharges from the project site continuing directly into the Bay, drainage- and flooding-related impacts from the development of Alternative B would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

4.15.38 Concurrent construction and operation of proposed development projects and Alternative B would not significantly impact floodplain management. No impact would occur.

Alternative B would not be located within a floodplain and therefore the grading and development of the project site would not result in a cumulatively considerable impact to floodplain management. *No cumulative impact* would occur.

AIR QUALITY

4.15.39 Operation of the proposed development under Alternative B in the year 2025 would result in emissions of ROG, NO_x, and PM₁₀ emissions above the established thresholds. This is a potentially significant cumulative impact.

Significance After Mitigation

Implementation of **Mitigation Measures 3-17** and **3-18** would reduce ROG, NO_x, and PM₁₀ emissions in the cumulative year 2025 by 29.5 percent under the BAAQMD and SMAQMD guidelines. **Mitigation Measure 3-19** would further reduce ROG, NO_x, and PM₁₀ emissions below the BAAQMD CEQA thresholds; therefore, air quality impacts due to operation of the Alternative B would be *less-than-significant*. **Mitigation Measures 3-20** through **3-25** would further reduce criteria pollutant emissions.

Impact Discussion

Trends for the SFBAAB are provided in **Table 4.15-2**.

Emissions for the year 2025 were estimated using the URBEMIS 2007 computer modeling program. URBEMIS default mitigation measures were implemented to further reduce emissions and are provided in **Appendix R. Table 4.15-12** shows 2025 mitigated and unmitigated operational emission estimates and compares each alternative with conformity and BAAQMD thresholds.

Operational emissions associated with Alternative B were compared to regional 2020 emissions forecast. Alternative B would generate 0.023 percent of the SFAAB total ROG and 0.020 percent of NO_x. Alternative B would generate 0.095 and 0.028 percent of PM₁₀ and PM_{2.5}, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative B would continue to exceed BAAQMD CEQA thresholds for ROG, NO_x, and PM₁₀ in 2025. This is a potentially significant cumulative impact. Mitigation is provided in **Section 5.2.3** to reduce this potential cumulative impact to a *less-than-significant* level.

TABLE 4.15-12
2025 MITIGATED (UNMITIGATED) OPERATION EMISSIONS – ALTERNATIVE B (REVISED)

Alternative B	ROG tpy	NO _x tpy	PM ₁₀ tpy	PM _{2.5} tpy
Area Sources	4.82 (5.00)	2.65 (3.32)	0.00 (0.01)	0.00 (0.01)
Mobile Sources	20.19 (20.67)	23.69 (24.33)	101.10 (103.76)	19.01 (19.52)
Ferry Trips	0.22	5.36	0.07	0.02 ¹
Total Emissions	25.23 (25.89)	31.70 (33.01)	101.17 (103.84)	19.02 (19.55)
<i>Conformity Threshold</i>	100	100	N/A	100
Exceeds Conformity Threshold	No (No)	No (No)	N/A	No (No)
<i>BAAQMD Threshold De minimus Threshold</i>	<u>4510</u>	<u>4510</u>	15	<u>N/A10</u>
Exceeds BAAQMD Threshold Significant Effect?	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)N/A

Notes: ROG= Reactive Organic Gas;
 NO_x= Nitrogen Oxide
 PM₁₀= Particulate Matter between 2.51 and 10 micrometers in diameter
 PM_{2.5}= Particulate Matter less than 2.5 micrometers in diameter
¹ PM_{2.5} emissions estimated as 33 percent of PM₁₀ emissions.
 tpy = tons per year;
 N/A = Not Applicable
 Source: URBEMIS, 2007

Conformity Review

Alternative B does not exceed conformity thresholds; therefore, would conform to General Conformity Rules and conform to the applicable SIP. A *less-than-significant* impact would occur.

4.15.40 Operation of the proposed development under Alternative B in the year 2025 would result in CO emissions below the established threshold. This is a less-than-significant cumulative impact.

In the year 2025 operation of the Alternative B would result in emissions of carbon monoxide (CO). Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated under Hot Spot analysis, in accordance with the *Transportation Project-Level Carbon Monoxide Protocol* (UCD, 1997). Hot Spot analysis was conducted on intersections that diminish from and acceptable LOS (A, B, C, or D) to an unacceptable LOS E or F (UC Davis, 1996).

Under Alternative B, no intersections within the study area, after mitigation, had a LOS to E or F under 2025 conditions; therefore, Hot Spot analysis is not warranted (**Appendix S**). This is a *less-than-significant* cumulative impact.

4.15.41 Construction and operation of the proposed development under Alternative B in the year 2025 would result in greenhouse gas (GHG) emissions. This is a potentially significant cumulative impact.

Significance After Mitigation

Mitigation Measures 3-16 through 3-19 and 3-26 through 3-35 3-29, 3-30 and 3-31 in **Section 5.2.3** would ensure consistency with all applicable GHG reduction strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a *less-than-significant* cumulative impact. Implementation of **Improvement Measures 3-36 through 3-43 3-32, 3-33, and 3-34** would further reduce cumulative impacts related to GHG emissions.

Impact Discussion

Please refer to the impact discussion for Alternative A (**Section 4.15.7**) regarding impacts related to sea level rise, which is also applicable to Alternative B.

Methodology

The methodology for analyses of GHG emissions for Alternative B is the same as for Alternative A.

Strategies and Emission Estimates

Alternative B construction would emit a maximum of approximately 7,120 metric tons (MT) of CO₂ per year (refer to **Appendix R**). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be potentially significant. Implementation of mitigation for GHG emission reductions are quantified in **Section 5.2.3**. As indicated in **Table 5-2** within **Section 5.2.3**, application of the specified mitigation measures would reduce construction emissions below the significance threshold and result in a *less-than significant* cumulative climate change impact.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-13** shows the estimated operational emissions and reductions taken for project design components (gray water system). Once construction is completed, the project would emit approximately 43,92749,210 MT of CO₂e per year 46,300 tpy from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry LGOP (2008) and converted to CO₂e. ~~CH₄ and N₂O emissions from mobile sources are estimated to be~~

approximately 1,900 tpy CO₂e. Indirect emissions, which include electricity use, water conveyance, and wastewater treatment, were estimated using Climate Change Action Registry LGOP emission factors and are estimated at 5,929 MT of CO₂e annually 8 tpy. After applying a reduction for the on-site gray water system, total annual operational emissions during operation of the project are estimated at approximately 55,330 49,520 MT of CO₂e 48,000 tpy.

TABLE 4.15-13
ALTERNATIVE B PROJECT-RELATED GHG EMISSIONS¹ (REVISED)

Alternative B	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	43,658.5150,043.27	0.91	39,729.2445,539.38
Mobile	CH ₄ /N ₂ O	584.00	0.91	531.44
Area	CO ₂	4,028.674,028.91	0.91	3,666.093,666.31
Indirect³				
Electricity Usage	CO ₂			5,548.54
Electricity Usage	CH ₄ /N ₂ O			48.92
Water Conveyance	CO ₂ e			147.01
Water Conveyance	CH ₄ /N ₂ O			1.30
Wastewater Treatment	CO ₂ e			181.87
Wastewater Treatment	CH ₄ /N ₂ O			1.60
Subtotal Baseline Project-Related GHG Emissions				49,856.0155,666.37
GHG Reductions due to Project Components				
Gray Water System				335.85
Baseline Project-Related GHG Emissions				49,520.1655,330.52

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors. Includes emissions from the casino/hotel/amenities and houses.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Alternative B's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

Indirect emissions were estimated using Climate Change Action Registry emission factors and are estimated at approximately 8 tpy CO₂e. Total annual emissions during operation of the project are estimated at approximately 48,000 tpy of CO₂e. Annual project GHG estimated project emissions would be approximately 0.0088 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-1**). Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000056 percent. While Alternative B's contributions to statewide and global emissions are miniscule, primarily because the Alternative B would not emit high global warming potential emissions (SF6, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.

As discussed above and in **Section 3.4**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. Of the approximately 126 strategies and measures that would ensure a statewide reduction in GHG emissions, only three would apply to the Proposed Project (see **Table 4.15-14**). The other policies do not apply because they either apply to state entities, such as CARB or are planning level measures or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.15-14**, Alternative B would not be in compliance with all three applicable state climate change strategies; therefore, this is a significant cumulative impact and mitigation is recommended in **Section 5.2.3**, which would result in a *less than significant* impact.

TABLE 4.15-14
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES (DELETED)

Biological Resources

4.15.42 Construction and operation of Alternative B would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).

Impacts to biological resources under Alternative B would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B, in conjunction with other development projects in the City and County, would not result in significant cumulative impacts to biological resources.

CULTURAL RESOURCES**4.15.43 Construction of planned development projects and Alternative B would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.**

Cumulative impacts to cultural resources resulting from development of Alternative B would be the same as Alternative A. Adherence to relevant regulatory frameworks would insure that potential impacts to cultural resources are considered and mitigated prior to final approval of projects considered in the cumulative analysis. Development of Alternative B would require compliance as well. Accordingly, no cumulatively significant impacts to cultural resources are expected. Therefore, this would be a *less-than-significant* impact.

SOCIOECONOMIC CONDITIONS**4.15.44 Operation of Alternative B along with other proposed developments would increase demand for businesses in the City of Richmond and Contra Costa County that provide goods and services and would increase the local area's reliance on economic activity from the travel, tourism, and leisure industry. This is a beneficial impact.**

Cumulative socioeconomic impacts that affect the lifestyle and economic well being of residents could occur in the project area as the result of various developments, similar to Alternative A.

The development of Alternative B would result in approximately 17,682 (**Section 4.7**) annual employment opportunities throughout Contra Costa County, leading to employees who would relocate or commute into the project area. Alternative B would also include the development of 340 new homes. Other development projects occurring within the geographic scope of this cumulative assessment would result in the construction of several new homes and residential communities. New housing would increase the population of the City and surrounding areas. Alternative B would increase the area's demand for business where goods and services can be purchased.

The magnitude of economic output and employment opportunities generated under Alternative B (**Section 4.7**) in combination with surrounding population growth, would increase the economic reliance on the travel, tourism, and leisure industries. Additionally, the amount of overall gaming market revenue would increase with Alternative B. However, as discussed in **Impact 4.7-17**, Alternative B would result in the diversion of revenue from existing nearby casinos.

Cumulative impacts from Alternative B would be similar to Alternative A, but to a greater magnitude, because Alternative B would generate a larger amount of economic activity and includes a housing element. This is a *beneficial impact*.

TRANSPORTATION

4.15.45 Combined with increased traffic from other regional projects, increased traffic volumes from the operation of Alternative B in the year 2025 have the potential to substantially increase traffic volumes of intersections within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-8** through **7-12**, **7-16**, **7-17** and **7-24** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B in the cumulative year 2025 would have a *less-than-significant* impact. However, the full suite of required mitigation measures are considered infeasible at this time ~~due to lack of funding and/or~~ because some of the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. **Mitigation Measures 7-6** and **7-7** and **Improvement Measures 7-18** and **7-19** when implemented would improve operation of intersections within the project area, however, not to a *less-than-significant* level.

Impact Discussion

Table 4.15-15 shows the weekday intersection delays and LOS for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative B in the year 2025. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS with the exception of the following intersections:

- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM and Saturday peak hour)
- Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off (weekday PM peak hour)
- Marine Street/EB I-580 On/Off Ramp (weekday PM peak hour)
- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)
- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)

TABLE 4.15-15
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE ALTERNATIVE B

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.51	F	1.03	C	0.77
2	Marine Street/EB I-580 On/Off Ramps	A	0.38	F	1.19	C	0.78
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	B	0.65	A	0.53	A	0.29
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.65	A	0.58	A	0.36
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.67	A	0.23	A	0.10
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.31	A	0.26	A	0.13
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ¹	B	14.5 ¹	B	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	D	0.81	B	0.69	A	0.49
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Blvd/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.43
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.57	A	0.50	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.39	A	0.30
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.52	A	0.57	A	0.39
17	MacDonald Avenue/S. Harbor Way	B	0.65	B	0.65	A	0.47
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.57	A	0.56	A	0.34
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	C	0.70	A	0.60	A	0.36
20	Richmond Parkway/Castro St./Hensley St.	A	0.51	D	0.89	A	0.27
21	Richmond Parkway/Gertrude Avenue	F	1.06	F	1.25	C	0.75
22	Richmond Parkway/Parr Boulevard	F	1.02	F	1.16	B	0.65
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	C	0.74	C	0.76
26	San Pablo Ave./Appian Way/Pinole Ave.	F	1.04	E	0.94	A	0.60
27	Western Drive and Chevron Access	A	1.9 ²	A	2.4 ²	A	3.1 ²
28	Sir Francis Drake Blvd. and Anderson Drive	B	13.0	B	18.4	B	11.8
29	Richmond Parkway/Pittsburg Avenue	D	0.85	F	1.19	C	0.75
30	Richmond Parkway/Goodrick Avenue	D	0.83	F	1.15	C	0.73
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.28	B	0.68	A	0.41

Notes: **Bold** indicates unacceptable LOS.

¹ 2000 HCM Unsignalized Intersection methodology, worst case delay per vehicle reported.

² Federal Highway Administration (FHWA) publication "Roundabouts An Informational Guide" methodology, average delay per vehicle reported.

Refer to **Appendix HH** for the existing conditions for intersections 32-35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 On- and Off-Ramps and Sir Francis Drake Boulevard

The intersections that are operating at a sub-standard LOS during the AM or PM peak hours for Alternative B in the year 2025 were previously operating at a sub-standard LOS during the cumulative background conditions. Therefore, as defined by the significance criteria, a significant impact would occur if Alternative B contributes more than a one percent increase to the peak hour traffic volume. For intersections in the City of Larkspur, a significant impact would occur with the addition of ten or more peak hour vehicle trips at intersections projected to operate at unacceptable level of service in the background cumulative condition.

Although the San Pablo Avenue/Appian Way/Pinole Avenue intersection operated at a sub-standard LOS previously and will operate at a sub-standard LOS during the cumulative background conditions, it would experience less than one percent increase in peak hour traffic with the implementation of Alternative B (**Appendix S**); therefore, a *less-than-significant* impact would occur at the intersection.

A *significant* impact would occur at the remaining intersections noted above due to an increase in peak hour traffic in excess of the volume specified in the significance thresholds above greater than one percent, or because the LOS drops below LOS D. Mitigation measures are provided in **Section 5.2.7** for the above referenced intersections. Upon implementation, the mitigation would result in an acceptable LOS.

4.15.46 Traffic from the operation of Alternative B in the year 2025 would substantially increase traffic volumes of roadways segments within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-13** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time due to lack of funding and/or because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Volume to capacity ratios and LOS for the year 2025 under Alternative B have been calculated for study area freeway segments and are shown in **Table 4.15-16**. With

implementation of Alternative B, all of the study freeway segments are projected to operate at an acceptable LOS, except for the following:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hours)
- EB I-580 Richmond/San Rafael Bridge (PM peak hours)

TABLE 4.15-16
BACKGROUND PLUS PROJECT ROADWAY SEGMENT LOS – CUMULATIVE ALTERNATIVE B (REVISED)

Segment	Dir.	No of Lns	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln) ⁴	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,284	34.5	D	5,848	*	F
I-580 Western Drive to Castro Street ¹	EB	3	3,062	19.3	C	4,988	31.7	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,713	25.1	C	4,077	38.7	E
I-580 Canal Blvd. To Cutting Blvd. ¹	EB	3	3,344	21.1	C	4,925	31.2	D
I-580 Canal Blvd. To Castro Street ¹	WB	3	4,559	28.8	D	4,483	28.3	D
I-580 at Castro Street On-Ramp ²	WB	3	4,442	35.7	E	4,315	35.2	E
I-580 Castro Street to Western Drive ¹	WB	3	5,824	39.7	E	5,695	38.2	E
I-580 Western Drive Off-Ramp ²	WB	3	5,824	37.3	E	5,695	37.6	E
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,681	21.8	C	6,519	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,460	32.2	D	5,745	21.5	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,172	31.9	F	2,490	14.9	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,269	12.9	B	2,171	48.5	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	5,300	*	F	4,808	*	F
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	3,015	28.6	D	4,798	*	F
SR-4 at I-80 EB Off-Ramp	EB	4	2,886	20.7	C	4,749	39.1	E
SR-4 at Willow Avenue	EB	4	2,186	18.7	C	3,099	26.8	D
SR-4 at Sycamore Avenue	WB	4	2,335	20.0	C	3,008	25.9	C
SR-4 at Willow Avenue	WB	4	1,385	11.9	B	2,192	18.8	C

Notes: **Bold text** = poor LOS.

¹ Freeway Section

² On/Off Ramp

³ Weave Segment

⁴ pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F.

[#] Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

Under the applicable significance criteria I-80 would not experience a significant impact, despite the unacceptable LOS (**Section 3.8**). Since the US 101/I-580 ramps would not have an increase in traffic greater than two percent, a *less-than-significant* impact would occur. The freeway segment between I-580 at Marine Street Off-Ramp (EB) and I-580 on Richmond-San Rafael Bridge (EB and WB) would operate at an unacceptable LOS in the cumulative year, which is a *significant* cumulative impact. Mitigation measures are provided for the impacted roadway segments in **Section 5.2.7**, which, upon implementation, would result in an acceptable LOS.

4.15.47 Traffic from the operation of Alternative B in the year 2025 would not result in inadequate emergency access. This is a less-than-significant cumulative impact.

Operation of Alternative B in the year 2025, along with traffic from other developments, would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area (see **Tables 4.15-15** and **4.15-16**). This is a *less-than-significant* cumulative impact.

4.15.48 Operation of ferry service under Alternative B in the year 2025 has the potential to decrease vehicular traffic on roadways in the study area. This is a beneficial cumulative impact.

Operation of ferry service under Alternative B would have a similar impact on local vehicular traffic, and ferry service as Alternative A. This is a *beneficial* cumulative impact.

4.15.49 Operation of Alternative B in the year 2025 would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant cumulative impact.

Alternative B would have the same impact on local rail and bus services as Alternative A; therefore, a *less-than-significant* impact would occur.

4.15.50 Combined with increased traffic from other regional projects, implementation of Alternative B in the cumulative year 2025 has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-14** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B in the cumulative year 2025 would have a *less-than-significant* impact.

However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Table 10 of the supplemental TIA, provided in **Appendix S**, provides the LOS for westbound I-580 through the toll plaza under Alternative B in the cumulative year 2025. In the cumulative year 2025 under Alternative B the LOS at the toll plaza is LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles ~~per lane~~ per hour westbound through the toll plaza is 5,281 in the AM peak hour and 4,747 in the PM peak hour. In the cumulative year 2025 under Alternative B, I-580 at the toll plaza would exceed 4,225 vehicles per hour; therefore, a *significant* impact would occur. Mitigation measures are provided for the toll plaza in **Section 5.2.7**, which, once implemented, would result in an acceptable LOS.

LAND USE

4.15.51 Alternative B would not result in cumulatively considerable adverse impacts to land use planning with the City of Richmond and the Western Sub-Area of Contra Costa County. No cumulative impact would occur.

As stated under Alternative A, future development in the City and County would be guided by the City and County General Plan, applicable Specific Plans, and Zoning Ordinance. Similarly, it is assumed that planned development projects within the City and County would be consistent with these policies and regulations, which prevent disorderly growth or incompatible land uses. While only portions of Alternative B would be subject to local land use policies, as discussed in **Section 4.9**, Alternative B would not disrupt neighboring land uses, prohibit access to the shoreline, or otherwise conflict with neighboring land uses. Therefore, *no impacts* would occur to land use planning.

PUBLIC SERVICES

Water Service

4.15.52 The local service provider, EBMUD, has the capacity to meet the potable water demand within its service area including foreseeable development projects and Alternative B. Therefore, Alternative B in combination with regional development projects would not result in cumulatively considerable impacts to the regional water supply or water treatment. This would be a less-than-significant impact.

Impacts to regional EBMUD water supply, treatment, and distribution systems under Alternative B would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to EBMUD water supply, treatment, and distribution systems.

Wastewater and Treatment

4.15.53 The demand for wastewater treatment of City-wide development projects and Alternative B would result in increased demand for the Richmond Municipal Sewer District wastewater treatment plant. This would be a less-than-significant impact.

Wastewater treatment and predicted 2020 inflows to the RMSD WWTP are similar to those discussed under Alternative A. As discussed in **Section 2.2.2**, Alternative B would result in the generation of approximately 702,900 gpd of wastewater, with a peak demand of 914,800 gpd. Therefore, at anticipated peak hour during wet weather, Alternative B would produce approximately 3.3 percent of the total projected 2020 wastewater inflow to the City's WWTP. This is a *less-than-significant* cumulative impact.

Solid Waste

4.15.54 Regional increases in solid waste, with implementation of Alternative B plus regional development projects could result in increased demand for landfill capacity. This would be a less-than-significant impact.

Impacts to regional landfill capacity under Alternative B would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the landfill capacity.

Electricity, Natural Gas, and Telephone Services

4.15.55 Development of Alternative B, in combination with other foreseeable projects, would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. A less-than-significant impact would occur.

Impacts to electricity, natural gas, and telephone services under Alternative B would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to electricity, natural gas, and telephone services.

Fire Protection and Emergency Medical Services

- 4.15.56 Alternative B, in combination with other foreseeable projects could create an increased demand for fire protection or emergency medical services. This is a less-than-significant impact.**

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative B, the Tribe would compensate Richmond Fire Department for costs relating to the provision of fire and emergency medical services to Tribal lands and facilities, as specified in the MSA (**Appendix C**). Thus development of Alternative B would not create incremental significant impacts when combined with the cumulative projects. Cumulative impacts would be *less-than-significant*.

Law Enforcement

- 4.15.57 Alternative B, in combination with other foreseeable projects, could increase service demands on the City of Richmond Police Department. This is a less-than-significant impact.**

Richmond Police Department would provide service for Alternative B. The Tribe has committed to the City in the MSA (**Appendix C**) to enter into an agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services, similar to the Alternative A. While the cumulative projects within the City may increase demands to law enforcement services, resources to service Alternatives B would be provided through the MSA. Thus development of Alternative B would not create incremental significant impacts when combined with the cumulative projects. The cumulative effect is *less-than-significant*.

Schools and Parks

- 4.15.58 Alternative B could result in the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.**

As discussed in **Section 3.10** and **4.10**, the proposed project under Alternative B would include the relocation of approximately 776 new employees to Contra Costa County, and include a residential component consisting of 340 homes. New students generated by the new County employees are expected to disperse throughout the County school districts, including the 62 K-12 West Contra Costa Unified School District schools. As described in **Section 3.10**, the Tribe would be required to pay its fair share of development fees that would

be used to improve or construct schools within the West Contra Costa Unified School District (WCCUSD), and therefore a *less-than-significant* cumulative impact would occur.

- 4.15.59 Alternative B and other regional developments could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration or the facility would occur or be accelerated. This impact would be less-than-significant.**

Impacts to regional and neighborhood parks, and other recreational facilities under Alternative B would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the parks and recreational facilities.

NOISE

- 4.15.60 Noise and vibration resulting from operational activities under Alternative B in combination with other development projects would not result in increased the ambient noise level due to traffic, HVAC, and refuse handling. This is a less-than-significant cumulative impact.**

Noise impacts under Alternative B in the year 2025 would be the similar to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

- 4.15.61 Alternative B, in combination with other foreseeable projects in the area, would not result in cumulatively significant hazards to the public or the environment related to the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.**

Impacts related to Alternative B would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

- 4.15.62 Alternative B, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.**

Cumulative impacts associated with Alternative B are similar to those described under Alternative A. Alternative B, in combination with other regional projects, would not significantly increase the potential for an accidental release of a hazardous substance, nor

would they introduce a significant number of sensitive receptors within a thermal impact zone or within a toxic endpoint zone. As such, a *less-than-significant* cumulative impact would occur as it relates to risks associated with the accidental release of hazardous substances.

4.15.63 Alternative B, in combination with other foreseeable growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.

Cumulative impacts associated with Alternative B are similar to those described under Alternative A, except that 340 residential units would be included as part of Alternative B. As previously noted, none of the other planned or approved projects considered in the cumulative analysis would use Western Drive, which is the main route of egress from the project site, as an evacuation route. As such, Alternative B, in combination with other growth in the area, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

4.15.64 Alternative B, in combination with other foreseeable projects, would have a less-than-significant impact from the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.

Impacts related to Alternative B would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

AESTHETICS

4.15.65 Alternative B, in combination with other foreseeable projects, would not have a significant impact on a scenic vista. This is a less-than-significant cumulative impact.

Alternative B would contribute to the changing scenery in the project area. However, it would be landscaped in a manner compatible with existing vegetation at the project site, in order to soften the visual effect of the proposed new construction. Alternative B and cumulative development would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-1**, Alternative B would result in a *less-than-significant* cumulative impact to scenic vistas.

4.15.66 Alternative B, in combination with other foreseeable projects, would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. The highway does not afford clear views of the project site. Thus, *no cumulative impacts* would occur.

4.15.67 Alternative B, in combination with other foreseeable projects, would not have a significant impact on visual character or quality of the site and its surroundings. This is a less-than-significant cumulative impact.

Alternative B would contribute to additional development and increased urbanization in the project area. However, new development proposed under Alternative B would be designed to complement existing structures and surroundings. According to the LDS (**Appendix C**), new construction within the project site will have to conform to design guidelines, approved by the City. Alternative B and cumulative developments would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-2**, Alternative B would result in a *less-than-significant* cumulative impact to visual character.

4.15.68 Alternative B, in combination with other foreseeable projects, would not create a significant source of substantial light or glare, which would adversely affect day or nighttime views in the area. This is a less-than-significant cumulative impact.

Alternative B would add a new source of light to the project area; however, it would be designed to be downcast and confined on site. Timers would be utilized, so that lighting is only used when necessary. Alternative B and cumulative developments that takes place would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-3**, Alternative B would result in a *less-than-significant* cumulative impact with regard to light and glare.

4.15.5 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE C

GEOLOGY AND SOILS

4.15.69 Construction and Operation of Alternative C would not result in any cumulative impacts such as geology and soils. No impact would occur.

Cumulative impacts of Alternative C would be similar, but reduced, when compared to Alternative A. Therefore, it is assumed that construction and operation of Alternative C would have *no impacts* to geology and soils.

HYDROLOGY AND WATER QUALITY**4.15.70 Concurrent construction and operation of planned development projects and Alternative C would not result in cumulatively considerable impacts to surface and groundwater quality. A less-than-significant impact would occur.**

Incremental impacts would be similar to those discussed under **Impacts 4.15-2**, which cumulatively could result in significant impacts to downstream drainages. The cumulatively considerable impact of Alternative C is reduced when compared to Alternative A as a result of the reduced area of land disturbance associated with the Reduced-Intensity Alternative.

As discussed under Alternative A, the projects listed in **Table 4.15-1** are required to reduce potential construction-related stormwater impacts through implementation of BMPs associated with the NPDES General Construction Permit process and the SECP and SCP required by the City. The implementation of BMPs through the SWPPP and SECP, and SCP at all major construction sites (greater than one acre) would reduce the incremental impacts to surface water quality to a *less-than-significant* level. Therefore, the incremental impacts during construction of Alternative C, with respect to surface water and groundwater quality would be reduced compared to Alternative A, and therefore would not be cumulatively considerable. Construction of Alternative C would have a *less-than-significant* cumulative impact on surface and groundwater quality.

4.15.71 Concurrent operation of planned development projects and Alternative C would not result in cumulatively considerable impacts to surface water quality or flooding. A less-than-significant impact would occur.

As indicated in **Section 4.3**, operation of Alternative C would introduce reduced impervious surface coverage compared to Alternative A, but would still result in additional off-site stormwater flows compared to existing conditions. Development of the Alternative C includes the installation of bioretention basins, sized to reduce stormwater runoff rates during storm events. The watersheds on the project site would continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the Bay would not be impacted by the relatively small increase in stormwater runoff, although smaller in magnitude that stormwater runoff generated under Alternative A.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. With incorporation of the grading and drainage plan (**Appendix H**) for Alternative A and discharges from the project site continuing directly into the Bay, drainage- and flooding-related impacts from the development of Alternative C would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

4.15.72 Concurrent construction and operation of proposed development projects and Alternative C would not significantly impact floodplain management. No impact would occur.

Alternative C would not be located within a floodplain and therefore the grading and development of the project site would not result in a cumulatively considerable impact to floodplain management. *No cumulative impact* would occur.

AIR QUALITY

4.15.73 Operation of the proposed development under Alternative C in the year 2025 would result in emissions below BAAQMD thresholds for ROG and NO_x and above the BAAQMD threshold for PM₁₀. This is a potentially significant cumulative impact.

Significance After Mitigation

Implementation of **Mitigation Measures 3-17** and **3-18** would reduce ROG, NO_x, and PM₁₀ emissions in the cumulative year 2025 by 23.5 percent under the BAAQMD and SMAQMD guidelines. **Mitigation Measure 3-19** would further reduce ROG, NO_x, and PM₁₀ emissions below the BAAQMD CEQA thresholds; therefore, air quality impacts due to operation of the Alternative C would be *less-than-significant*. **Mitigation Measures 3-20** through **3-24** would further reduce criteria pollutant emissions.

Impact Discussion

Trends for the SFBAAB are provided in **Table 4.15-2**.

Emissions for the year 2025 were estimated using the URBEMIS 2007 computer modeling program. URBEMIS default mitigation measures were implemented to further reduce emissions and are provided in **Appendix R. Table 4.15-17** shows 2025 mitigated and unmitigated operational emission estimates and compares each alternative with conformity and BAAQMD thresholds.

Operational emissions associated with Alternative C were compared to Countywide 2020 emissions forecast. Alternative C would generate 0.0072 percent of the SFAAB total ROG and 0.0061 percent of NO_x. Alternative C would generate 0.033 and 0.042 percent of PM₁₀ and PM_{2.5}, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative C would continue to exceed BAAQMD CEQA thresholds for PM₁₀ in 2025. This is a potentially significant cumulative impact. Mitigation measures are provided in **Section 5.2.3**. Mitigation is provided in **Section 5.2.3** to reduce this potential cumulative impact to a *less-than-significant* level.

Conformity Review

Alternative C does not exceed conformity thresholds; therefore, would conform to General Conformity Rules and conform to the applicable SIP.

TABLE 4.15-17
2025 MITIGATED (UNMITIGATED) OPERATION EMISSIONS – ALTERNATIVE C (REVISED)

Alternative C	ROG	NO _x	PM ₁₀	PM _{2.5}
	tpy	tpy	tpy	tpy
Area Sources	0.62 (0.69)	0.82 (1.02)	0.00 (0.00)	0.00 (0.00)
Mobile Sources	10.71 (10.97)	12.99 (13.33)	55.48 (56.85)	10.43 (10.70)
Ferry Trips	0.22	5.36	0.07	0.02 ¹
Total Emissions	11.55 (11.88)	19.17 (19.71)	55.55 (56.92)	10.45 (10.72)
<i>Conformity Threshold</i>	100	100	N/A	100
Exceeds Conformity Threshold	No (No)	No (No)	N/A	No (No)
<i>BAAQMD Threshold</i>	45 10	45 10	15	N/A 10
Exceeds BAAQMD Threshold	No (No)	No (No)	Yes (Yes)	Yes (Yes)N/A

Notes: ROG= Reactive Organic Gas;
NO_x= Nitrogen Oxide
PM₁₀= Particulate Matter between 2.51 and 10 micrometers in diameter
PM_{2.5}= Particulate Matter less than 2.5 micrometers in diameter
1 PM_{2.5} emissions estimated as 33 percent of PM₁₀ emissions.
tpy = tons per year
N/A = Not Applicable

Source: URBEMIS, 2007.

4.15.74 Operation of the proposed development under Alternative C in the year 2025 would result in CO emissions below the established threshold. This is a less-than-significant cumulative impact.

In the year 2025 operation of the Alternative C would result in emissions of carbon monoxide (CO). Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated under Hot Spot analysis, in accordance with the *Transportation Project-Level Carbon Monoxide Protocol* (UCD, 1997). Hot Spot analysis was conducted on intersections that diminish from and acceptable LOS (A, B, C, or D) to an unacceptable LOS E or F (UC Davis, 1996).

Under Alternative C, no intersections within the study area, after mitigation, had a LOS to E or F under 2025 conditions; therefore, Hot Spot analysis is not warranted (**Appendix S**). This is a *less-than-significant* cumulative impact.

4.15.75 Construction and operation of the proposed development under Alternative C in the year 2025 would result in greenhouse gas (GHG) emissions. This is a potentially significant cumulative impact.

Significance After Mitigation

Mitigation Measures 3-16 through 3-19 and 3-26 through 3-35 3-29, 3-30 and 3-31 in Section 5.2.3 would ensure consistency with all applicable GHG reduction strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a less-than-significant cumulative impact. Implementation of Improvement Measures 3-36 through 3-43 3-32, 3-33, and 3-34 would further reduce cumulative impacts related to GHG emissions.

Impact Discussion

Please refer to the impact discussion for Alternative A (Section 4.15.7) regarding impacts related to sea level rise, which is also applicable to Alternative C.

Methodology

The methodology for analyses of GHG emissions for Alternative C is the same as for Alternative A.

~~*Strategies and Emission Estimates*~~

Alternative C construction would emit a maximum of approximately 6,677 metric tons (MT) of CO₂ per year (refer to Appendix R). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be potentially significant. Implementation of mitigation for GHG emission reductions are quantified in Section 5.2.3. As indicated in Table 5-2 within Section 5.2.3, application of the specified mitigation measures would reduce construction emissions below the significance threshold and result in a less-than significant cumulative climate change impact.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-18** shows the estimated operational emissions and reductions taken for project design components (gray water system). Once construction is completed, the project would emit approximately ~~26,073~~ 26,045 MT of CO₂e per year 25,900 tpy from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the ~~Climate Change Action Registry LGOP (2008)~~ and converted to CO₂e. ~~CH₄ and N₂O emissions from mobile sources are estimated to be approximately 1,100 tpy CO₂e.~~ Indirect emissions, which include electricity use, water conveyance, and wastewater treatment, were estimated using ~~Climate Change Action Registry LGOP~~ emission factors and are estimated at 5,421 MT of CO₂e annually ~~6 tpy~~.

After applying a reduction for the on-site gray water system, total annual operational emissions during operation of the project are estimated at approximately 31,180 MT of CO₂e 27,000 tpy.

TABLE 4.15-18
ALTERNATIVE C PROJECT-RELATED GHG EMISSIONS¹ (REVISED)

Alternative C	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	<u>27,074.66</u> <u>27,407.60</u>	0.91	<u>24,637.94</u> <u>24,940.92</u>
Mobile	CH ₄ /N ₂ O	364.00	0.91	331.24
Area	CO ₂	<u>1,213.26</u> <u>1,213.26</u>	0.91	<u>1,104.07</u> <u>1,104.07</u>
Indirect³				
Electricity Usage	CO ₂			5,174.22
Electricity Usage	CH ₄ /N ₂ O			45.62
Water Conveyance	CO ₂ e			93.60
Water Conveyance	CH ₄ /N ₂ O			0.83
Wastewater Treatment	CO ₂ e			105.46
Wastewater Treatment	CH ₄ /N ₂ O			0.93
Subtotal Baseline Project-Related GHG Emissions				<u>31,493.91</u><u>31,796.87</u>
GHG Reductions due to Project Components				
Gray Water System				313.19
Baseline Project-Related GHG Emissions				<u>31,180.72</u><u>31,483.68</u>

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent.

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors. Includes emissions from the casino/hotel/amenities.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Alternative C's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

Strategies and Emission Estimates

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-18** shows the estimated operational emissions. Once construction is completed, the project would emit approximately 25,900 tpy of CO₂ from mobile and area sources. Based on emission factors from the Climate Change Action Registry, the project would emit approximately 1,100 tpy of CH₄ and N₂O of CO₂ equivalent.

Indirect emissions of CO₂, CH₄, and N₂O would be the equivalent 6 tpy of CO₂. Total annual emissions during subsequent operation of the project would be equivalent to 27,000 tpy of CO₂e. Annual project GHG emissions would be approximately 0.0048 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-1**). Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000031 percent. While the Alternative C's contributions to statewide and global emissions are miniscule, primarily because the Alternative C would not emit high global warming potential emissions (SF₆, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.

As discussed above and in **Section 3.4**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. Of the approximately 126 strategies and measures that would ensure a statewide reduction in GHG emissions, only three would apply to the Proposed Project (see **Table 4.15-19**). The other policies do not apply because they either apply to state entities, such as CARB or are planning level measures or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.15-19**, the Alternative C would not be in compliance with all three applicable state climate change strategies; therefore, this is a significant cumulative impact and mitigation is recommended in **Section 5.2.3**, which would result in a *less than significant* impact.

TABLE 4.15-19
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGES (DELETED)

BIOLOGICAL RESOURCES

- 4.15.76** Operation and construction of Alternative C would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).

Impacts to biological resources under Alternative C would be similar, but reduced, to those discussed under Alternative A. As such, it is anticipated that the development of Alternative C, in conjunction with other development projects in the City or County, would not result in significant cumulative impacts to biological resources.

CULTURAL RESOURCES

4.15.77 Construction of planned development projects and Alternative C would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.

Cumulative impacts to cultural resources resulting from development of Alternative C would be the same as Alternative A. Adherence to relevant regulatory frameworks would insure that potential impacts to cultural resources are considered and mitigated prior to final approval of projects considered in the cumulative analysis. Development of Alternative C would require compliance as well. Therefore, a *less-than-significant* impact would occur.

SOCIOECONOMIC CONDITIONS

4.15.78 Operation of Alternative C along with other proposed developments would increase demand for businesses in the City of Richmond and Contra Costa County that provide goods and services and would increase the local area's reliance on economic activity from the travel, tourism, and leisure industry. This is a beneficial impact.

Cumulative socioeconomic impacts that affect the lifestyle and economic well being of residents could occur in the project area as the result of various developments, similar to Alternative A.

The development of Alternative C would result in approximately 13,045 (**Section 4.7**) annual employment opportunities throughout Contra Costa County, leading to employees who would relocate or commute into the project area. Other development projects occurring within the geographic scope of this cumulative assessment would result in the construction of several new homes and residential communities, which would increase the population of the City of Richmond and surrounding areas. Alternative C would increase the area's demand for business where goods and services can be purchased.

The magnitude of economic output and employment opportunities generated under Alternative C (**Section 4.7**) in combination with surrounding population growth, would increase the economic reliance on the travel, tourism, and leisure industries. Additionally, the amount of overall gaming market revenue would increase with Alternative C. However, as discussed in **Impact 4.7-26**, Alternative C would result in the diversion of revenue from existing nearby casinos.

Cumulative impacts from Alternative C would be similar to Alternative A, but to a lesser magnitude, because Alternative C would generate less economic activity. This is a *beneficial* impact.

TRANSPORTATION

4.15.79 Combined with increased traffic from other regional projects, increased traffic volumes from the operation of Alternative C in the year 2025 have the potential to substantially increase the existing traffic volumes of intersections within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-8** through **7-12**, **7-16**, **7-17**, and **7-24** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative C in the cumulative year 2025 would have a *less-than-significant* impact. However, the full suite of required mitigation measures are considered infeasible at this time ~~due to lack of funding and/or because~~ some of the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. **Mitigation Measures 7-6** and **7-7** and **Improvement Measure 7-19** when implemented would improve operation of intersections within the project area; however, not to a *less-than-significant* level.

Impact Discussion

Table 4.15-20 shows the weekday intersection delays and LOSs for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative C in the year 2025. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS with the exception of the following intersections:

- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM and Saturday peak hour)
- Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off (weekday PM peak hour)
- Marine Street/EB I-580 On/Off Ramp (weekday PM peak hour)
- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)

TABLE 4.15-20
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE ALTERNATIVE C

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.52	E	1.00	C	0.72
2	Marine Street/EB I-580 On/Off Ramps	A	0.37	F	1.15	C	0.74
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	B	0.65	A	0.51	A	0.29
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.64	A	0.56	A	0.33
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.67	A	0.21	A	0.10
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.31	A	0.25	A	0.12
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ¹	B	14.5 ¹	A	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	D	0.80	B	0.68	B	0.47
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.42
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.57	A	0.49	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.39	A	0.29
16	Cutting Boulevard/WB I-80 Off-Ramp	B	0.52	A	0.57	A	0.39
17	MacDonald Avenue/S. Harbor Way	A	0.65	B	0.65	A	0.46
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.57	A	0.54	A	0.32
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	B	0.70	A	0.58	A	0.34
20	Richmond Parkway/Castro St./Hensley St.	A	0.50	D	0.89	A	0.25
21	Richmond Parkway/Gertrude Avenue	F	1.06	F	1.23	C	0.73
22	Richmond Parkway/Parr Boulevard	F	1.02	F	1.14	B	0.63
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	C	0.74	C	0.76
26	San Pablo Ave./Appian Way/Pinole Ave.	F	1.04	E	0.94	A	0.60
27	Western Drive and Chevron Access	A	1.7 ²	A	1.9 ²	A	2.2 ²
28	Sir Francis Drake Blvd. and Anderson Drive	B	13.0	B	18.3	B	11.8
29	Richmond Parkway/ Pittsburg Avenue	D	0.84	F	1.18	C	0.73
30	Richmond Parkway/ Goodrick Avenue	D	0.82	F	1.13	C	0.71
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.27	B	0.67	A	0.39

Notes: **Bold** indicates unacceptable LOS.

¹ 2000 HCM Unsignalized Intersection methodology, worst case delay per vehicle reported.

² Federal Highway Administration (FHWA) publication “Roundabouts An Informational Guide” methodology, average delay per vehicle reported.

Refer to **Appendix HH** for the existing conditions for intersections 32-35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 On- and Off-Ramps and Sir Francis Drake Boulevard

The intersections that are operating at a sub-standard LOS during the AM or PM peak hours for Alternative A in the year 2025 were previously operating at a sub-standard LOS during the cumulative background conditions. Therefore, as defined by the significance criteria, a significant impact would occur if Alternative C contributes more than a one percent increase to the peak hour traffic volume. For intersections in the City of Larkspur, a significant impact would occur with the addition of ten or more peak hour vehicle trips at intersections projected to operate at unacceptable level of service in the background cumulative condition.

Although the San Pablo Avenue/Appian Way/Pinole Avenue intersection operated at a sub-standard LOS previously, and will operate at a sub-standard LOS during the cumulative background conditions, it would experience less than one percent increase in peak hour traffic with the implementation of Alternative C (**Appendix S**); therefore, under the applicable significance criteria, a *less-than-significant* impact would occur at that intersection.

A *significant* impact would occur at the remaining intersections noted above due to an increase in peak hour traffic in excess of the volume specified in the significance thresholds above greater than one percent, or because the LOS drops below LOS D. Mitigation measures are provided in **Section 5.2.7** for the above referenced intersections. Upon implementation, the mitigation would result in an acceptable LOS.

4.15.80 Combined with increased traffic from other regional projects, Ttraffic from the operation of Alternative C in the year 2025 would substantially increase traffic volumes of roadways segments within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-13** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative C in the cumulative year 2025 would have a *less-than-significant* impact.

However, the required mitigation measures are considered infeasible at this time due to lack of funding and/or because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Volume to capacity ratios and LOS for the cumulative year 2025 under Alternative C have been calculated for study area freeway segments and is shown in **Table 4.15-21**. With implementation of Alternative C, all of the study freeway segments are projected to operate at an acceptable LOS, except for the following:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hours)
- EB I-580 Richmond/San Rafael Bridge (PM peak hours)

Under the applicable significance criteria I-80 would not experience a significant impact, despite the unacceptable LOS (**Section 3.8**). Since the 101/I-580 ramps would not have an increase in traffic greater than two percent, a *less-than-significant* impact would occur. The freeway segment between I-580 at Marine Street Off-Ramp (EB) and I-580 on Richmond-San Rafael Bridge (EB and WB) would operate at an unacceptable LOS in the cumulative year. This is a *significant* cumulative impact. Mitigation measures are provided for the roadway segments in **Section 5.2.7**, which upon implementation would result in an acceptable LOS.

4.15.81 Traffic from the operation of Alternative C in the year 2025 would not result in inadequate emergency access. There is a less-than-significant cumulative impact.

Operation of Alternative C in the year 2025, along with traffic from other developments, would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area (see **Tables 4.15-20** and **4.15-21**). This is a *less-than-significant* cumulative impact.

4.15.82 Operation of ferry service under Alternative C in the year 2025 has the potential to decrease vehicular traffic on roadways in the study area. This is a beneficial cumulative impact.

Operation of ferry service under Alternative C would have a similar impact on local vehicular traffic as Alternative A. This is a *beneficial* cumulative impact.

TABLE 4.15-21
BACKGROUND PLUS PROJECT ROADWAY SEGMENT LOS - CUMULATIVE ALTERNATIVE C (REVISED)

Segment	Dir.	No of Lns	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln) ⁴	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,257	34.3	D	5,782	*	F
I-580 Western Drive to Castro Street ¹	EB	3	2,891	18.3	C	4,683	29.6	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,584	23.6	C	3,839	35.7	E
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	3,215	20.3	C	4,687	29.6	D
I-580 Canal Blvd. to Castro Street ¹	WB	3	4,452	28.1	D	4,221	26.6	D
I-580 at Castro Street On-Ramp ²	WB	3	4,335	34.6	D	4,053	32.6	D
I-580 Castro Street to Western Drive ¹	WB	3	5,653	37.7	E	5,279	34.0	D
I-580 Western Drive Off-Ramp ²	WB	3	5,653	36.3	E	5,279	35.1	E
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,677	21.7	C	6,513	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,431	32.0	D	5,674	20.8	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,149	31.7	F	2,433	14.4	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,238	12.6	B	2,121	48.1	F
WB I-580 Richmond/San Rafael Bridge	WB	2	5,263	*	F	4,749	*	F
EB I-580 Richmond/San Rafael Bridge	EB	2	2,844	27.0	D	4,493	*	F
SR-4 at I-80 EB Off-Ramp	EB	4	2,864	20.5	C	4,714	38.9	E
SR-4 at Willow Avenue	EB	4	2,164	18.5	C	3,064	26.5	D
SR-4 at Sycamore Avenue	WB	4	2,318	19.9	C	2,969	25.6	C
SR-4 at Willow Avenue	WB	4	1,368	11.7	B	2,153	18.4	C

Notes: **Bold text** = poor LOS.

¹ Freeway Section

² On/Off Ramp

³ Weave Segment

⁴ pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F.

Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009 (Appendix S and HH).

4.15.83 Operation of Alternative C in the year 2025 would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant cumulative impact.

Alternative C would have a similar impact on local rail and bus services as Alternative A. This is a *less-than-significant* cumulative impact.

4.15.84 In combination with other foreseeable projects, implementation of Alternative C in the cumulative year 2025 has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-14** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative C in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Table 10 of the supplemental TIA, provided in **Appendix S**, provides the LOS for westbound I-580 through the toll plaza under Alternative C in the cumulative year 2025. In the cumulative year 2025 under Alternative C the LOS at the toll plaza is LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles ~~per lane~~ per hour westbound through the toll plaza is 5,244 in the AM peak hour and 4,688 in the PM peak hour. In the cumulative year 2025 under Alternative C, I-580 at the toll plaza would exceed 4,225 vehicles per hour; therefore, a *significant* impact would occur. Mitigation measures are provided for the toll plaza in **Section 5.2.7**, which, once implemented, would result in an acceptable LOS.

LAND USE

4.15.85 Alternative C would not result in cumulatively considerable adverse impacts to land use planning within the City or the Western Sub-Area of Contra Costa County. No cumulative impact would occur.

Development proposed under Alternative C would be similar to but reduced compared to Alternative A. Therefore, the development of Alternative C would not result in cumulative impacts to land use planning.

PUBLIC SERVICES***Water Service***

4.15.86 The local service provider EBMUB has the capacity to meet the potable water demand of foreseeable development projects and Alternative C, within its service areas. This would not result in cumulatively considerable impacts to the regional water supply or potable water distribution system. This would be a less-than-significant impact.

Impacts to regional EBMUD water supply, treatment, and distribution systems under Alternative C would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative C in conjunction with other development

projects in the City and County would result in *less-than-significant* cumulative impacts to EBMUD water supply, treatment, and distribution.

Wastewater and Treatment

- 4.15.87 Development of Alternative C in combination with foreseeable development projects would result in an increased demand for the RMSD wastewater treatment plant. However, this would be a less-than-significant impact.**

Wastewater treatment and predicted 2020 inflows to the RMSD WWTP are similar to those discussed under Alternative A. As discussed in **Section 2.2.2**, Alternative C would result in the generation of approximately 350,900 gpd of wastewater, with a peak demand of 486,400 gpd. Therefore, at anticipated peak hour during wet weather, Alternative C would produce approximately 1.7 percent of the total projected 2020 wastewater inflow to the City's WWTP. This is a *less-than-significant* cumulative impact.

Solid Waste

- 4.15.88 Development of Alternative C in combination with regional increases in solid waste and foreseeable development projects would result in an increased demand for landfill capacity. However, this would be a less-than-significant impact.**

Impacts to regional landfill capacity under Alternative C would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative C in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the landfill capacity.

Electricity, Natural Gas, and Telephone Service

- 4.15.89 Development of Alternative C, in combination with other foreseeable development projects, would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. No impact would occur.**

Impacts to electricity, natural gas, and telephone services under Alternative C would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative C in conjunction with other development projects in the City and County would not result in any cumulative impacts to electricity, natural gas, and telephone services. *No impact* would occur.

Fire Protection and Emergency Medical Services

- 4.15.90 Development of Alternative C, in combination with other foreseeable development projects could create increased demand for fire protection services or emergency medical services. This is a less-than-significant impact.**

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative C, the Tribe would compensate Richmond Fire Department for costs relating to the provision of fire and emergency medical services to Tribal lands and facilities, as specified in the MSA (**Appendix C**). Thus development of Alternative C would not create incremental significant impacts when combined with the cumulative projects. Cumulative impacts would be *less-than-significant*.

Law Enforcement

- 4.15.91 Alternative C, in combination with other foreseeable projects, could increase service demands for the City of Richmond Police Department. This is a less-than-significant impact.**

Richmond Police Department would provide service for Alternative C. The Tribe has committed to the City in the MSA (**Appendix C**) to enter into an agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services, similar to the Alternative A. While the cumulative projects within the City may increase demands to law enforcement services, resources to service Alternatives C would be provided through the MSA. Thus development of Alternative C would not create incremental significant impacts when combined with the cumulative projects. The cumulative effect is *less-than-significant*.

Schools and Parks

- 4.15.92 Alternative C would not result in the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.**

Alternative C is not anticipated to significantly increase demands on school services as students generated from the approximately 443 new Contra Costa County employees are anticipated to disperse throughout the County school districts. Development fees for school upgrades and expansions are similar to those discussed under Alternative A. Therefore, a *less-than-significant* cumulative impact would occur.

- 4.15.93 Alternative C and other regional developments could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration or the facility would occur or be accelerated. This impact would be less-than-significant.**

Impacts to regional and neighborhood parks, and other recreational facilities under Alternative C would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative C in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the parks and recreational facilities.

NOISE

- 4.15.94 Noise and vibrations resulting from operational activities under Alternative C in combination with other development projects would not result in increased ambient noise level due to traffic, HVAC, and refuse handling, in the year 2025. This is a less-than-significant cumulative impact.**

Noise impacts under Alternative C in the year 2025 would be the less than Alternative A. This is a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

- 4.15.95 Alternative C, in combination with other foreseeable projects, would not result in significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.**

Impacts related to Alternative C would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

- 4.15.96 Alternative C, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.**

Cumulative impacts associated with Alternative C are similar to those described under Alternative A. The primary difference is that Alternative C would place fewer sensitive receptors at the project site given the reduced intensity of the alternative. Alternative C, in combination with other regional projects, would not significantly increase the potential for an accidental release of a hazardous substance, nor would they introduce a significant number of sensitive receptors within a thermal impact zone or within a toxic endpoint zone. As such, a

less-than-significant cumulative impact would occur as it relates to risks associated with the release of hazardous substances.

4.15.97 Alternative C, in combination with other foreseeable growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.

Cumulative impacts associated with Alternative C are similar to those described under Alternative A. Alternative C differs in that the proposed development would be reduced in scale, with fewer and smaller amenities. As previously noted, none of the other planned or approved projects considered in the cumulative analysis would use Western Drive, which is the main route of egress from the project site, as an evacuation route. As such, Alternative C, in combination with other growth in the area, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

4.15.98 Alternative C, in combination with other foreseeable projects, would have a less-than-significant impact from the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.

Impacts related to Alternative C would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

AESTHETICS

4.15.99 Alternative C, in combination with other foreseeable projects, would not have a significant impact on a scenic vista. This is a less-than-significant cumulative impact.

Alternative C would contribute to the changing scenery in the project area. However, it would be landscaped in a manner compatible with existing vegetation at the project site, in order to soften the visual effect of the proposed new construction. Alternative C and cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-1**, Alternative C would result in a *less-than-significant* cumulative impact to scenic vistas.

4.15.100 Alternative C, in combination with other foreseeable projects, would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historical buildings within a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. Thus, *no cumulative* impact would occur.

4.15.101 Alternative C, in combination with other foreseeable projects, would not have a significant impact on visual character or quality of the site and its surroundings. This is a less-than-significant cumulative impact.

Alternative C would contribute to additional development and increased urbanization in the project area. However, new development proposed under Alternative C would be designed to complement existing structures and surroundings. According to the LDA (**Appendix C**), new construction within the project site will have to conform to design guidelines and City approval. Alternative C and cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-2**, Alternative C would result in a *less-than-significant* cumulative impact to visual character.

4.15.102 Alternative C, in combination with other foreseeable projects, would not create a significant source of substantial light or glare, which would adversely affect day or nighttime views in the area. This is a less-than-significant cumulative impact.

Alternative C would add a new source of light to the project area; however, it would be designed to be downcast and confined on site. Timers would be utilized, so that lighting is only used when necessary. Alternative C and cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-3**, Alternative C would result in a *less-than-significant* cumulative impact with regard to light and glare.

4.15.6 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE D

GEOLOGY AND SOILS

4.15.103 Alternative D would not result in cumulatively considerable geological or soil impacts. No impact would occur.

Alternative D plus other foreseeable development projects would have similar impacts to geology and soils as Alternative B; therefore, it is assumed that construction and operation of Alternative D would not result in cumulative impacts to geology and soils. *No impacts* would occur.

HYDROLOGY AND WATER QUALITY**4.15.104 Concurrent construction and operation of planned development projects and Alternative D would not result in cumulatively considerable impacts to surface and groundwater quality. A less-than-significant impact would occur.**

Incremental impacts would be similar to those discussed under **Impact 4.15-2**, which cumulatively could result in significant impacts to downstream drainages. The cumulatively considerable impacts of Alternative D are greater than Alternative A as a result of the larger area of land disturbance associated with the residential development component.

As discussed under Alternative A, all development projects over one acre in size (such as the projects listed in **Table 4.15-1**) are required to implement BMPs through development of a SWPPP, a SECP, and a SCP prior to construction, which would reduce the incremental impacts to surface water quality to a less-than-significant level. The incremental impacts during construction of Alternative D, with respect to surface water and groundwater quality would be greater than Alternative A, but not cumulatively considerable when taken in context with the additional development projects. Construction of Alternative D would have a *less-than-significant* cumulative impact on surface and groundwater quality.

4.15.105 Concurrent operation of planned development projects and Alternative D would not result in cumulatively considerable impacts to surface water quality or flooding. A less-than-significant impact would occur.

As indicated in **Section 4.3**, construction and operation of Alternative D would introduce additional impervious surfaces to the area, to a greater extent than Alternative A. Development of the Alternative D includes the installation of bioretention basins sized to reduce stormwater runoff rates during storm events. The watersheds on the project site would continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the bay would not be impacted by the relatively small increase in stormwater runoff, although greater in magnitude than stormwater runoff generated under Alternative A.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. With incorporation of the grading and drainage plan (**Appendix H**) for Alternative A and discharges from the project site continuing directly into the Bay, drainage- and flooding-related impacts from the development of Alternative D would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

4.15.106 Concurrent construction and operation of proposed development projects and Alternative D would not significantly impact floodplain management.

Alternative D would not be located within a floodplain and therefore the grading and development of the project site would not result in a cumulatively considerable impact to floodplain management. *No cumulative impact* would occur.

AIR QUALITY

4.15.107 Operation of the proposed development under Alternative D in the year 2025 would result in ROG and PM₁₀ emissions above the BAAQMD CEQA thresholds. This is a potentially significant cumulative impact.

Significance after Mitigation

Implementation of **Mitigation Measures 3-17** and **3-18** would reduce ROG, NO_x, and PM₁₀ emissions in the cumulative year 2025 by 29.5 percent under the BAAQMD and SMAQMD guidelines. **Mitigation Measure 3-19** would further reduce ROG, NO_x, and PM₁₀ emissions below the BAAQMD CEQA thresholds; therefore, air quality impacts due to operation of the Alternative D would be *less-than-significant*. **Mitigation Measures 3-20** through **3-24** would further reduce criteria pollutant emissions.

Impact Discussion

Trends for the SFBAAB are provided in **Table 4.15-22**.

TABLE 4.15-22
2025 MITIGATED (UNMITIGATED) OPERATION EMISSIONS - ALTERNATIVE D

Alternative D	ROG	NO _x	PM ₁₀	PM _{2.5}
	tpy	tpy	tpy	tpy
Area Sources	11.62 (11.69)	2.40 (3.00)	0.00 (0.01)	0.00 (0.01)
Mobile Sources	7.64 (7.67)	9.20 (9.22)	39.19 (39.31)	7.37 (7.40)
Ferry Trips	0.11	2.68	0.03	0.01
Total Emissions	19.37 (19.47)	14.28 (14.90)	38.95 (39.35)	7.38 (7.42)
BAAQMD CEQA Threshold	45 10	45 10	15	N/A 10
Exceed Threshold	Yes (Yes)	Yes (Yes) No (No)	Yes (Yes)	No (No) N/A/N/A

Notes: ROG = Reactive Organic Gas
 NO_x = Nitrous Oxide
 PM₁₀ = Particulate Matter between 2.51 and 10 micrometers in diameter
 PM_{2.5} = Particulate Matter less than 2.5 micrometers in diameter
 tpy = tons per year
 N/A = Not Applicable

Source: URBEMIS, 2007.

Emissions for the year 2025 were estimated using the URBEMIS 2007 computer modeling program. URBEMIS default mitigation measures were implemented to further reduces

emissions and are provided in **Appendix R. Table 4.15-22** shows 2025 mitigated and unmitigated operational emission estimates and compares each alternative BAAQMD thresholds.

Operational emissions associated with Alternative D were compared to Countywide 2020 emissions forecast. Alternative D would generate 0.0079 percent of the SFAAB total NO_x. Alternative D, ROG emissions would generate 0.017 percent. PM₁₀ and PM_{2.5} would generate 0.037 and 0.017 percent, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative D would continue to exceed BAAQMD CEQA thresholds for PM₁₀ in 2025. This is a potentially significant cumulative impact. Mitigation measures are provided in **Section 5.2.3** to reduce this potential cumulative impact to a *less-than-significant* level.

4.15.108 Operation of the proposed development under Alternative D in the year 2025 would result in CO emissions below the established threshold. This is a less-than-significant cumulative impact.

In the year 2025 operation of the Alternative D would result in emissions of carbon monoxide (CO). Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated under Hot Spot analysis, in accordance with the *Transportation Project-Level Carbon Monoxide Protocol* (UCD, 1997). Hot Spot analysis was conducted on intersections that diminish from and acceptable LOS (A, B, C, or D) to an unacceptable LOS E or F (UC Davis, 1996).

Under Alternative D, no intersections within the study area, after mitigation, had a LOS to E or F under 2025 conditions; therefore, Hot Spot analysis is not warranted (**Appendix S**). This is a *less-than-significant* cumulative impact.

4.15.109 Construction and operation of the proposed development under Alternative D in the year 2025 would result in greenhouse gas emissions. This is a potentially significant cumulative impact.

Significance After Mitigations

Mitigation Measures 3-16 through 3-19 and 3-26 through 3-35 ~~3-29, 3-30 and 3-31~~ in **Section 5.2.3** would ensure consistency with all applicable GHG reduction strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a *less-than-significant* cumulative impact. Implementation of **Improvement Measures 3-36 through 3-43** ~~3-32, 3-33, and 3-34~~ would further reduce cumulative impacts related to GHG emissions.

Impact Discussion

Please refer to the impact discussion for Alternative A (Section 4.15.7) regarding impacts related to sea level rise, which is also applicable to Alternative D.

Methodology

The methodology for analyses of GHG emissions for Alternative D is the same as for Alternative A.

Strategies and Emission Estimates

Alternative D construction would emit a maximum of approximately 7,900 metric tons (MT) of CO₂ per year (refer to Appendix R). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be potentially significant. Implementation of mitigation for GHG emission reductions are quantified in Section 5.2.3. As indicated in Table 5-2 within Section 5.2.3, application of the specified mitigation measures would reduce construction emissions below the significance threshold and result in a less-than significant cumulative climate change impact.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-23** shows the estimated operational emissions and reductions taken for project design components (gray water system). Once construction is completed, the project would emit approximately ~~24,210~~20,760 MT of CO₂e per year ~~25,700 tpy~~ from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry LGOP (2008) and converted to CO₂e. ~~CH₄ and N₂O emissions from mobile sources are estimated to be approximately 980 tpy CO₂e.~~ Indirect emissions, which include electricity use, water conveyance, and wastewater treatment, were estimated using Climate Change Action Registry LGOP emission factors and are estimated at 3,265 MT of CO₂e annually ~~6 tpy~~. After applying a reduction for the on-site gray water system, total annual operational emissions during operation of the project are estimated at approximately ~~27,291~~24,110 MT of CO₂e ~~26,700 tpy~~.

Alternative D's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

TABLE 4.15-23
ALTERNATIVE D PROJECT-RELATED GHG EMISSIONS¹ (REVISED)

Alternative D	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	22,518.44 <u>19,023.66</u>	0.91	20,491.48 <u>17,311.53</u>
Mobile	CH ₄ /N ₂ O	301.00	0.91	273.91
Area	CO ₂	3,785.78 <u>3,785.78</u>	0.91	3,445.06 <u>3,445.06</u>
Indirect³				
Electricity Usage	CO ₂			3,041.30
Electricity Usage	CH ₄ /N ₂ O			26.82
Water Conveyance	CO ₂ e			45.40
Water Conveyance	CH ₄ /N ₂ O			0.40
Wastewater Treatment	CO ₂ e			150.17
Wastewater Treatment	CH ₄ /N ₂ O			1.32
Subtotal Baseline Project-Related GHG Emissions				27,475.87 <u>24,295.91</u>
GHG Reductions due to Project Components				
Gray Water System				184.09
Baseline Project-Related GHG Emissions				27,291.78 <u>24,111.82</u>

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors. Includes emissions from the casino/hotel/amenities and houses.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Annual project GHG emissions would be approximately 0.0036 percent of California's predicted contribution to global GHG emissions in 2020 (see Table 3.4-1). Project contributions to the annual global GHG emissions in 2020 would be approximately 0.0000023 percent. While the Alternative D contributions to statewide and global emissions is miniscule, primarily because Alternative D would not emit high global warming potential emissions (SF₆, HFCs/PFCs, etc.), a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.

~~As discussed above and in Section 3.4, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. Of the approximately 126 strategies and measures that would ensure a statewide reduction in GHG emissions, only three would apply to the Proposed Project (see Table 4.15-24). The other policies do not apply because they either apply to state entities, such as CARB, or are planning level measures or they apply to particular industries, such as the auto-repair industry. As shown in Table 4.15-24, the Alternative D would not be in compliance with all three applicable state climate change strategies; therefore, this is a significant cumulative impact and mitigation is recommended in Section 5.2.3, which would result in a less-than-significant impact.~~

TABLE 4.15-24
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES (DELETED)

BIOLOGICAL RESOURCES

- 4.15.110 Construction and operation of Alternative D would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).**

Impacts to biological resources under Alternative D would be similar to those discussed under Alternative A. As such, Alternative D in combination with other development projects in the City or County would not result in significant cumulative impacts to biological resources.

CULTURAL RESOURCES

- 4.15.111 Construction of planned development projects and Alternative D would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.**

Cumulative impacts to cultural resources resulting from development of Alternative D would be the same as Alternative A. Adherence to relevant regulatory frameworks would insure that potential impacts to cultural resources are considered and mitigated prior to final approval of projects considered in the cumulative analysis. Development of Alternative D would require compliance as well. Accordingly, no cumulatively significant impacts to cultural resources are expected.

SOCIOECONOMIC CONDITIONS

- 4.15.112 Operation of Alternative D along with other proposed developments would increase demand for businesses in the City of Richmond and Contra Costa County that provide**

goods and services and would increase the local area's reliance on economic activity from the travel, tourism, and leisure industry. This is a beneficial impact.

Cumulative socioeconomic impacts that affect the lifestyle and economic well being of residents could occur in the project area as the result of various developments, similar to Alternative A.

The development of Alternative D would result in approximately 445 (**Section 4.7**) annual employment opportunities throughout Contra Costa County, leading to employees who would relocate or commute into the project area. Alternative D would also include the development of 1,100 new homes. Other development projects occurring within the geographic scope of this cumulative assessment would result in the construction of several new homes and residential communities. New housing would increase the population of the City of Richmond and surrounding areas. Alternative D would increase the area's demand for business where goods and services can be purchased. This effect would be similar to Alternative A, but to a lesser magnitude, because Alternative D would generate less economic activity. Opposed to Alternative A, Alternative D would not increase the areas reliance on the travel, tourism, and leisure industry, because no casino element is included. This is a *beneficial* impact.

TRANSPORTATION

4.15.113 Increased traffic volumes from the operation of Alternative D in the year 2025, in combination with other foreseeable projects, has the potential to substantially increase traffic volumes of intersections within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-8** through **7-12, 7-16, 7-17, and 7-24** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative D in the cumulative year 2025 would have a *less-than-significant* impact. However, the full suite of required mitigation measures are considered infeasible at this time ~~due to lack of funding and/or because~~ some of the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. **Mitigation Measures 7-6 and 7-7** and **Improvement Measures 7-18 and 7-19** when implemented would improve operation of intersections within the project area, however, not to a *less-than-significant* level.

Impact Discussion

Table 4.15-25 shows the weekday intersection delays and LOSs for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative D in the cumulative year 2025. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS with the exception of the following intersections:

- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM and Saturday peak hour)
- Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off (weekday PM peak hour)
- Marine Street/EB I-580 On/Off Ramp (weekday PM peak hour)
- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)
- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 On- and Off-Ramps and Sir Francis Drake Boulevard

The intersections that are operating at a sub-standard LOS during the AM or PM peak hours for Alternative A in the year 2025 were previously operating at a sub-standard LOS during the cumulative background conditions. Therefore, as defined by the significance criteria, a significant impact would occur if Alternative D contributes more than a one percent increase to the peak hour traffic volume. For intersections in the City of Larkspur, a significant impact would occur with the addition of ten or more peak hour vehicle trips at intersections projected to operate at unacceptable level of service in the background cumulative condition.

Although the San Pablo Avenue/Appian Way/Pinole Avenue intersection operated at a sub-standard LOS previously and will operate at a sub-standard LOS during the cumulative background conditions, it would experience less than one percent increase in peak hour traffic with the implementation of Alternative D (**Appendix S**); therefore, a less-than-significant impact would occur at that intersection.

A *significant* impact would occur at the remaining intersections noted above due to an increase in peak hour traffic in excess of the volume specified in the significance thresholds above greater than one percent, or because the LOS drops below LOS D. Mitigation measures are provided in **Section 5.2.7** for the above referenced intersections. Upon implementation, the mitigation would result in an acceptable LOS.

TABLE 4.15-25
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE ALTERNATIVE D

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.52	E	1.00	C	0.73
2	Marine Street/EB I-580 On/Off Ramps	A	0.37	F	1.16	C	0.74
3	Garrard Boulevard/Canal Boulevard/ WB I- 580 On/Off	B	0.65	A	0.51	A	0.29
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.66	A	0.56	A	0.32
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.67	A	0.22	A	0.09
6	Cutting Boulevard/EB I-580 Off- Ramp/Hoffman Boulevard	A	0.31	A	0.25	A	0.12
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ¹	B	14.5 ¹	B	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	D	0.81	B	0.68	A	0.47
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.42
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.57	A	0.49	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.39	A	0.29
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.52	A	0.57	A	0.39
17	MacDonald Avenue/S. Harbor Way	B	0.65	B	0.64	A	0.46
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.57	A	0.53	A	0.30
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	C	0.72	A	0.57	A	0.32
20	Richmond Parkway/Castro St./Hensley St.	A	0.50	D	0.89	A	0.25
21	Richmond Parkway/Gertrude Avenue	F	1.05	F	1.23	C	0.72
22	Richmond Parkway/Parr Boulevard	F	1.02	F	1.13	B	0.62
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	C	0.74	C	0.76
26	San Pablo Ave./Appian Way/Pinole Ave.	F	1.04	E	0.94	A	0.60
27	Western Drive and Chevron Access	A	1.9 ²	A	2.0 ²	A	2.2 ²
28	Sir Francis Drake Blvd. and Anderson Drive	B	13.0	B	18.4	B	11.8
29	Richmond Parkway/ Pittsburg Avenue	D	0.84	F	1.17	C	0.72
30	Richmond Parkway/ Goodrick Avenue	D	0.82	F	1.13	B	0.70
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.28	B	0.67	A	0.39

Notes: **Bold** indicates unacceptable levels of service (LOS).

¹ 2000 HCM Unsignalized Intersection methodology, worst case delay per vehicle report.

² Federal Highway Administration (FHWA) publication "Roundabouts An Informational Guide" methodology, average delay per vehicle reported.

Refer to **Appendix HH** for the existing conditions for intersections 32-35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

4.15.114 Traffic from the operation of Alternative D in the year 2025, in combination with other foreseeable projects, would substantially increase the existing traffic volumes of roadway segments within the project area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-13** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative D in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time due to lack of funding and/or because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Volume to capacity ratios and LOS for the year 2025 under Alternative D, has been calculated for study area freeway segments and are shown in **Table 4.15-26**.

With implementation of Alternative D, all of the study freeway segments are projected to operate at an acceptable LOS, except for the following:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hours)
- EB I-580 Richmond/San Rafael Bridge (PM peak hours)

Under the applicable significance criteria I-80 would not experience a significant impact, despite the unacceptable LOS (**Section 3.8**). Since the US 101/I-580 ramps would not have an increase in traffic greater than two percent, a *less-than-significant* impact would occur. The freeway segment between I-580 at Marine Street Off-Ramp (EB) and I-580 on Richmond-San Rafael Bridge (EB and WB) would operate at an unacceptable LOS in the cumulative year. This is a *significant* cumulative impact. Mitigation measures are provided for the roadway segments in **Section 5.2.7**, which upon implementation would result in an acceptable LOS.

TABLE 4.15-26
BACKGROUND PLUS PROJECT ROADWAY SEGMENT LOS - CUMULATIVE ALTERNATIVE D (REVISED)

Segment	Dir.	No of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln) ⁴	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,253	34.2	D	5,792	*	F
I-580 Western Drive to Castro Street ¹	EB	3	3,188	20.1	C	4,614	29.1	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,815	26.2	C	3,789	35.0	E
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	3,446	21.7	C	4,637	29.3	D
I-580 Canal Blvd. to Castro Street ¹	WB	3	4,479	28.3	D	4,288	27.1	D
I-580 at Castro Street On-Ramp ²	WB	3	4,362	34.8	D	4,120	33.2	D
I-580 Castro Street to Western Drive ¹	WB	3	5,684	38.0	E	5,377	34.9	D
I-580 Western Drive Off-Ramp ²	WB	3	5,684	36.5	E	5,377	35.7	E
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,684	21.9	C	6,511	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,427	32.0	D	5,685	21.0	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,146	31.5	F	2,441	14.3	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,287	13.0	B	2107	48.0	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	5,321	*	F	4,732	*	F
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	3,141	29.8	D	4,424	*	F
SR-4 at I-80 EB Off-Ramp	EB	4	2,898	20.7	C	4,704	38.8	E
SR-4 at Willow Avenue	EB	4	2,198	18.8	C	3,054	26.4	D
SR-4 at Sycamore Avenue	WB	4	2,316	19.8	C	2,975	25.6	C
SR-4 at Willow Avenue	WB	4	1,366	11.7	B	2,159	18.5	C

Notes: **Bold text** = poor LOS.

¹ Freeway Section

² On/Off Ramp

³ Weave Segment

⁴ pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F.

[#] Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

4.15.115 Traffic from the operation of Alternative D in the year 2025 would not result in inadequate emergency access. This is a less-than-significant cumulative impact.

Operation of Alternative D in the year 2025, along with traffic from other developments, would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area (see **Tables 4.15-25** and **4.15-26**). This is a *less-than-significant* cumulative impact.

4.15.116 Operation of ferry service, under Alternative D in the year 2025 has the potential to decrease vehicular traffic in the study area. This is a beneficial cumulative impact.

Operation of ferry service under Alternative D would have a similar impact on local vehicular traffic as Alternative A. this is a *beneficial* cumulative impact.

4.15.117 Operation of Alternative D in the year 2025 would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant cumulative impact.

Alternative D would have the same impact on local rail and bus services as Alternative A. this is a *less-than-significant* cumulative impact.

4.8.118 Implementation of Alternative D in the cumulative year 2025, in combination with other foreseeable projects, has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-14** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative D in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Table 10 of the supplemental TIA, provided in **Appendix S**, provides the LOS for westbound I-580 through the toll plaza under Alternative D in the cumulative year 2025. In the cumulative year 2025 under Alternative D the LOS at the toll plaza is LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles ~~per lane~~ per hour westbound through the toll plaza is 5,302 in the AM peak hour and 4,671 in the PM peak hour. In the cumulative year 2025 under Alternative D, I-580 at the toll plaza would exceed 4,225 vehicles per hour; therefore, a *significant* impact would occur. Mitigation measures are provided for the toll plaza in **Section 5.2.7**, which, once implemented, would result in an acceptable LOS.

LAND USE

4.15.119 Alternative D would not result in cumulatively considerable adverse impacts to land use planning. No cumulative impact would occur.

Development proposed under Alternative D would be similar to development proposed under Alternative B. Cumulative impacts would be similar to Alternative B; therefore, *no cumulative* impacts to land use planning would occur.

PUBLIC SERVICES

Water Service

4.15.120 The local service provider EBMUD has the capacity to meet the potable water demands within its service area and would not result in cumulatively considerable impacts to the regional water supply or potable water distribution system. This would be a less-than-significant impact.

Impacts to regional EBMUD water supply, treatment, and distribution systems under Alternative D would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative D in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to EBMUD water supply, treatment, and distribution.

Wastewater and Treatment

4.15.121 The demand for wastewater treatment of County-wide development projects and Alternative D would result in increased demand for the Richmond Municipal Sewer District wastewater treatment plant. This would be a less-than-significant impact.

Wastewater treatment and predicted 2020 inflows to the RMSD WWTP are similar to those discussed under Alternative A. As discussed in **Section 2.5**, Alternative D would result in the generation of approximately 662,200 gpd of wastewater, with a peak demand of 790,000 gpd. Therefore, at anticipated peak hour during wet weather, Alternative D would produce approximately 2.8 percent of the total projected 2020 wastewater inflow to the City's WWTP. This is a *less-than-significant* cumulative impact.

Solid Waste

4.15.122 Regional increases in solid waste, with implementation of Alternative D plus foreseeable development projects would result in increased demand for landfill capacity. This would be a less-than-significant impact.

Impacts to regional landfill capacity under Alternative D would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative D in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the landfill capacity.

Electricity, Natural Gas, and Telephone Services

- 4.15.123 Implementation of Alternative D, in combination with other foreseeable projects, would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. A less-than-significant impact would occur.**

Impacts to electricity, natural gas, and telephone services under Alternative D would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative D in conjunction with other development projects in the City and County would not result in any cumulative impacts to electricity, natural gas, and telephone services.

Fire Protection and Emergency Medical Services

- 4.15.124 Alternative D, in combination with other foreseeable projects could increase demand for Fire Protection services or Emergency Medical Services. This is a less-than-significant impact.**

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative D, the Tribe would compensate Richmond Fire Department for costs relating to the provision of fire and emergency medical services to Tribal lands and facilities, as specified in the MSA (**Appendix C**). Thus development of Alternative D would not create incremental significant impacts when combined with the cumulative projects. Cumulative impacts would be *less-than-significant*.

Law Enforcement

- 4.15.125 Alternative D, in combination with other foreseeable projects could increase service demands for the City of Richmond Police Department. This is a less-than-significant impact.**

Richmond Police Department would provide service for Alternative D. The Tribe has committed to the City in the MSA (**Appendix C**) to enter into an agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services, similar to the Alternative A. While the cumulative projects within the City may increase demands to law enforcement services, resources to service Alternatives D would be provided through the MSA. Thus development of Alternative D would not create incremental significant impacts when combined with the cumulative projects. The cumulative effect is *less-than-significant*.

Schools and Parks

- 4.15.126** Alternative D could result in the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.

As discussed in **Section 3.7** and **4.10**, the existing local and regional labor pool would fill a majority of the jobs created by Alternative D. Alternative D would introduce approximately 21 new employees to the County, as well as include a residential component consisting of 1,100 residential units. The Tribe would be required to pay its fair share of development fees that would be used to improve or construct schools within the West Contra Costa Unified School District (WCCUSD), a *less-than-significant* cumulative impact would occur.

- 4.15.127** Alternative D and other regional cumulative developments could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration or the facility would occur or be accelerated. This impact would be less-than-significant.

Impacts to regional and neighborhood parks, and other recreational facilities under Alternative D would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative D in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the parks and recreational facilities.

NOISE

- 4.15.128** Noise and vibration resulting from operational activities under Alternative D, in combination with other foreseeable development projects, would not result in increased ambient noise level due to traffic, HVAC, and refuse handling. This is a less-than-significant cumulative impact.

Noise impacts under Alternative D in the year 2025 would be the same as Alternative A. This is a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

- 4.15.129** Impacts of Alternative D, in combination with other foreseeable projects, would not result in significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.

Impacts related to Alternative D would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

- 4.15.130 Alternative D, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.**

Cumulative impacts associated with Alternative D are similar to those described under Alternative A. Alternative D, in combination with other regional projects, would not significantly increase the potential for an accidental release of a hazardous substance, nor would they introduce a significant number of sensitive receptors within a thermal impact zone or within a toxic endpoint zone. As such, a *less-than-significant* cumulative impact would occur as it relates to risks associated with the accidental release of hazardous substances.

- 4.15.131 Alternative D, in combination with other foreseeable growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.**

Cumulative impacts associated with Alternative D are similar to those described under Alternative B, except that 760 additional residential units would be included as part of Alternative D. As previously noted, none of the other planned or approved projects considered in the cumulative analysis would use Western Drive, which is the main route of egress from the project site, as an evacuation route. As such, Alternative D, in combination with other growth in the area, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

- 4.15.132 Alternative D, in combination with other foreseeable projects, would have a less-than-significant impact from the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.**

Impacts related to Alternative D would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

AESTHETICS

- 4.15.133 Alternative D, in combination with other foreseeable development projects, would not have a significant impact on a scenic vista. This is a less-than-significant cumulative impact.**

Alternative D would contribute to the changing scenery in the project area. However, it would be landscaped in a manner compatible with existing vegetation at the project site, in order to soften the visual effect of the proposed new construction. Alternative D and cumulative development would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-1**, Alternative D would result in a *less-than-significant* cumulative impact to scenic vistas.

4.15.134 Alternative D, in combination with other foreseeable development projects, would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historical buildings with a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. Thus, *no cumulative impact* would occur.

4.15.135 Alternative D, in combination with other foreseeable development projects, would not have a significant impact on visual character or quality of the site and its surroundings. This is a less-than-significant cumulative impact.

Alternative D would contribute to additional development and increased urbanization in the project area. However, new development proposed under Alternative D would be designed to complement existing structures and surroundings. According to the LDA (**Appendix C**), new construction within the project site will have to conform to design guidelines and City approval. Alternative D and cumulative development would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-2**, Alternative D would result in a *less-than-significant* cumulative impact to visual character.

4.15.136 Alternative D, in combination with other foreseeable development projects, would not create a significant source of substantial light or glare, which would adversely affect day or nighttime views in the area. This is a less-than-significant cumulative impact.

Alternative D would add a new source of light to the project area; however, it would be designed to be downcast and confined on site. Timers would be utilized, so that lighting is only used when necessary. Alternative D and cumulative development would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-3**, Alternative D would result in a *less-than-significant* cumulative impact with regard to light and glare.

4.15.7 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE E

GEOLOGY AND SOILS

4.15.137 Alternative E, in combination with other foreseeable development projects, would not result in cumulatively considerable impacts to soils and geology. No impact would occur.

Relative to the four development alternatives analyzed above, the Total Parkland alternative would result in limited localized topographical changes and soil attrition, both of which are evaluated in terms of runoff characteristics, sedimentation and flow under permitting authorities and criteria. New construction and alteration of the existing surface characteristics related to Alternative E would be limited to construction of a segment of the Bay Trail along the western margin of the project site. Local permitting requirements for construction would address regional stormwater, geotechnical issues, as well as the incorporation of a Stormwater Pollution Prevention Plan (SWPPP) described in **Section 4.2** and **Mitigation Measure 1-1**. It is assumed that other development projects would follow appropriate local, state, or federal permitting procedures; therefore, no cumulative impacts related to geology or soils would occur as a result of Alternative E.

HYDROLOGY AND WATER QUALITY

4.15.138 Alternative E, in combination with other foreseeable development projects, would not result in significant impacts to hydrology and water quality. A less-than-significant impact would occur.

As discussed in **Section 2.0**, Alternative E would result in minor development related to the extension of the Bay Trail through the project site. Therefore, drainage patterns would remain relatively consistent with the discussion of existing conditions in **Section 3.3**. Although new impervious surfaces would be introduced with the extension of the Bay Trail, the watersheds on the project site would continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the bay would not be impacted by the relatively small increase in stormwater runoff, which would be greatly reduced compared to Alternative A.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. With the minor increases in impervious surfaces and discharges from the project site continuing directly into the Bay, drainage- and flooding-related impacts from the development of Alternative E would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

AIR QUALITY

4.15.139 Operation of the proposed development under Alternative E in the year 2025 would not result in ROG, NO_x, PM₁₀, and PM_{2.5} emissions above BAAQMD CEQA threshold. This is a less-than-significant cumulative impact.

Trends for the SFBAAB are provided in **Table 4.15-2**. Emissions for the year 2025 were estimated using the URBEMIS 2007 computer modeling program. **Table 4.15-27** shows 2025 emission estimates and compares each alternative with the conformity and BAAQMD CEQA threshold. Alternative E does not exceed the conformity and BAAQMD CEQA Guideline thresholds for ROG, NO_x, and PM₁₀.

TABLE 4.15-27
2025 UNMITIGATED OPERATION EMISSIONS – ALTERNATIVE E

Alternative DC	ROG	NO _x	PM ₁₀	PM _{2.5}
	Tons per year (tpy)	tpy	tpy	tpy
Mobile Sources	0.64	0.67	2.84	0.53
Conformity Threshold	100	100	N/A	N/A
Exceed Threshold	No	No	N/A	N/A
CEQA Threshold	1510	1510	1515	1510
Exceed Threshold	No	No	No	No

Notes: ROG = Reactive Organic Gas

NO_x = Nitrous Oxide

PM₁₀ = Particulate Matter between 2.51 and 10 micrometers in diameter

PM_{2.5} = Particulate Matter less than 2.5 micrometers in diameter

tpy = tons per year

N/A = Not Applicable

Source: URBEMIS, 2007.

Operational emissions associated with Alternative E were compared to Countywide 2020 emissions forecast. Alternative E would generate 0.00061 percent of the SFAAB total NO_x. Alternative E, ROG emissions would generate 0.00060 percent. PM₁₀ and PM_{2.5} would generate 0.0031 and 0.0014 percent, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative E would not exceed conformity and BAAQMD CEQA thresholds for ROG, NO_x, and PM₁₀ in 2025. This is a *less-than-significant* cumulative impact.

4.15.140 Operation of the proposed development under Alternative E in the year 2025 would result in CO emissions; however, under the CO Protocol, no CO modeling would be needed below the established threshold. This is a less-than-significant cumulative impact.

Cumulative year 2025 operation of the Alternative E would result in emissions of CO. Because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than regional pollutants, and can be evaluated under Hot Spot analysis, in accordance with the *Transportation Project-Level Carbon Monoxide Protocol*.

Hot Spot Analysis is conducted on intersections that have a level of service (LOS) of E or F and where the LOS has diminished to LOS E or F (UC Davis, 1996). Alternative E would add an estimated 146 peak hour trips to the region. The addition of these trips would not reduce the LOS of any intersection beyond its current LOS; therefore, this is a *less-than-significant* impact.

4.15.141 Operation of the proposed development under Alternative E in the year 2025 would result in greenhouse gas emissions. This is a potentially significant cumulative impact.

Significance After Mitigation

~~Mitigation Measures 3-19h, 3-29, 3-30, and 3-31~~ in **Section 5.2.3** would ensure compliance with all applicable strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a *less-than-significant* cumulative impact.

~~Improvement Measures 3-33 and 3-34~~ are provided in **Section 5.2.3** that would further ~~reduce GHG emissions~~.

Impact Discussion

Please refer to the impact discussion for Alternative A (Section 4.15.7) regarding impacts related to sea level rise, which is also applicable to Alternative E.

Methodology

The methodology for analyses of GHG emissions for Alternative E is the same as for Alternative A.

~~Strategies and Emission Estimates~~

Alternative E construction would emit a maximum of approximately 17.81 metric tons (MT) of CO₂ per year (refer to Appendix R). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be less than significant.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. **Table 4.15-28** shows the estimated operational emissions. Once construction is completed, the project would emit approximately 1,2781,247 MT of

CO₂e per year 1,400 tpy from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the Climate Change Action Registry LGOP (2008) and converted to CO₂e. ~~CH₄ and N₂O emissions from mobile sources are estimated to be approximately 1,700 tpy CO₂e.~~ Indirect emissions, which include electricity use (park lighting), water conveyance, and wastewater treatment (trucked off-site), were estimated using Climate Change Action Registry LGOP emission factors and are estimated at 646 MT of CO₂e annually 0.1 tpy. Total annual operational emissions during operation of the project are estimated at approximately 1,924,910 MT of CO₂e 1,450 tpy.

TABLE 4.15-28
ALTERNATIVE E PROJECT-RELATED GHG EMISSIONS¹ (REVISED)

Alternative E	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	1,385.00 <u>1,370.44</u>	0.91	1,260.35 <u>1,247.10</u>
Mobile	CH ₄ /N ₂ O	19.00	0.91	17.29
Area	CO ₂	0.00	0.91	0.00
Indirect³				
Electricity Usage	CO ₂			605.68
Electricity Usage	CH ₄ /N ₂ O			5.34
Water Conveyance	CO ₂ e			9.26
Water Conveyance	CH ₄ /N ₂ O			0.08
Wastewater Treatment	CO ₂ e			25.84
Wastewater Treatment	CH ₄ /N ₂ O			0.23
Baseline Project-Related GHG Emissions				1,924.07<u>1,910.82</u>

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors Includes emissions from the casino/hotel/amenities and houses.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Alternative E's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

~~As discussed above and in Section 3.4, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from the Proposed Project, to levels below current background levels. Of the approximately 126 strategies and measures that would ensure a statewide reduction in GHG emissions, would apply to the Proposed Project (see Table 4.15-28). The other policies do not apply because they either apply to state entities, such as CARB, or are planning level measures or they apply to particular industries, such as the auto repair industry. As shown in Table 4.15-29, Alternative E would not be in compliance with all three applicable state climate change strategies; therefore, this is a *potentially significant cumulative* impact and mitigation is recommended in Section 5.2.3, which would result in a *less than significant* impact.~~

TABLE 4.15-29
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES (DELETED)

BIOLOGICAL RESOURCES

- 4.15.142 Construction and operation of Alternative E would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).**

Impacts to biological resources under Alternative E would be significantly reduced to those discussed under Alternative A. As such, Alternative E in combination with other development projects in the City or County would not result in significant cumulative impacts to biological resources.

CULTURAL RESOURCES

- 4.15.143 Construction of planned development projects and Alternative E would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.**

Cumulative impacts to cultural resources resulting from development of Alternative E would be far reduced relative to Alternative A. Adherence to relevant regulatory frameworks would insure that potential impacts to cultural resources are considered and mitigated prior to final approval of projects considered in the cumulative analysis. Development of Alternative E would require compliance as well. Therefore, a *less-than-significant* impact would occur.

SOCIOECONOMIC CONDITIONS

- 4.15.144 Alternative E would generate minimal new economic activity, but no new population growth to the project area. This impact would be less-than-significant.**

Under Alternative E, no new construction activities would occur. Operation of Alternative E as a Shoreline Park would attract new visitors to the City. New visitors to the City would result in some new spending at businesses in the County; however, due to the recreational nature of Alternative E, new economic activity is expected to be minimal. Further, potential revenues generated would be minimal and are anticipated to be absorbed by park maintenance and staffing fees. Operation of Alternative E as a Shoreline Park would generate new employment opportunities for staffing and maintenance of the park. Any new employment opportunities under Alternative E could be filled by persons already living in the County, and no population growth would result from Alternative E. This impact would be substantially less than Alternatives A through D, and is considered a *less-than-significant* impact.

TRANSPORTATION

ITE manual data for county parks was used to estimate the trips per day and AM peak hour trips for Alternative E. Although this would be a City owned park, the size of county parks in the ITE manual is similar to the size of Alternative E. Daily trips were estimated to a maximum of 638 and AM peak hour trips were estimated to be a maximum of 146.

4.15.145 Operational traffic under Alternative E in the year 2025 would introduce new traffic to the study area. This is a less-than-significant cumulative impact.

Alternative E would generate an estimated 146 cars during the AM peak hour. The peak hour is between 7:00 AM and 9:00 AM weekdays. An estimated 638 cars per day would visit the park. Given that the estimated AM peak hour traffic is significantly less than Alternative A, Alternative E would have a *less-than-significant* cumulative impact on regional intersections and roadway segments.

4.15.146 Operational traffic under Alternative E in the year 2025 would not result in inadequate emergency access. This is a less-than-significant cumulative impact.

Operation of Alternative E would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area. Traffic generated under Alternative E is significantly less than Alternative A. This is a *less-than-significant* cumulative impact.

4.15.147 Implementation of Alternative E in the cumulative year 2025 would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant impact.

Alternative E would have much less of an impact on local rail and bus services as Alternative A. This is a *less-than-significant* cumulative impact.

- 4.15.148 Implementation of Alternative E has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.**

Significance after Mitigation

This would be considered a *significant and unavoidable* impact pending completion of **Mitigation Measures 7-14** and **7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative E in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. Upon completion, this impact would be *less-than-significant* impact.

Impact Discussion

Alternative E would contribute vehicular traffic to the toll plaza that is expected to operate beyond capacity in the cumulative year; therefore, a *significant and unavoidable* impact would occur.

LAND USE

- 4.15.149 Alternative E, in combination with other foreseeable development projects, would not result in significant adverse impacts to land use planning. No cumulative impact would occur.**

Development proposed under Alternative E would not result in cumulative impacts to land use development as the proposed development of a regional park would increase open space, scenic views of the Bay, and public access to the shoreline. This development would reflect the City of Richmond's General Plan policies related to recreation, as well as the BCDC Bay Plan policies, related to preserving open space and public access to the Bay's shoreline resources. *No impact* would occur.

PUBLIC SERVICES

Water Service

- 4.15.150 Alternative E, in combination with other foreseeable development projects, would not result in significant impacts to the regional water supply or potable water distribution systems. No impact would occur.**

The proposed development of Alternative E would only create a regional open space park, and not create any significant demand for regional water supply, through new or existing onsite infrastructure. Therefore, Alternative E would not result in cumulative impacts to regional water supply. *No impact* would occur.

Wastewater and Treatment

4.15.151 Alternative E, in combination with other foreseeable development projects, would not result in significant impacts to the Richmond Municipal Sewer District Wastewater Treatment Plant or wastewater conveyance systems. No impact would occur.

Alternative E would not develop any new or additional connections to the municipal wastewater conveyance system, and therefore would not create any cumulative impacts to the Richmond Municipal Sewer District WWTP. *No impact* would occur.

Solid Waste

4.15.152 Alternative E, in combination with other foreseeable development projects, would not result in significant impacts to solid waste and landfill capacity. A less-than-significant impact would occur.

Impacts to regional landfill capacity under Alternative E would be significantly reduced compared to those discussed under Alternative A, B, C, and D as the proposed development under Alternative E only include a regional shoreline and open space park. As such, it is anticipated that the development of Alternative E in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impact to landfill capacity.

Electricity, Natural Gas, and Telephone Services

4.15.153 Development, in combination with other foreseeable development projects, of Alternative E would not result in significant impacts to electricity, natural gas, and telephone services. A less-than-significant impact would occur.

Impacts to electricity, natural gas, and telephone services under Alternative E would be significantly reduced when compared to those discussed under the other project alternatives. As only minimal infrastructure upgrades would be needed with the Total Parkland Alternative, it is anticipated that the development of Alternative E in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to electricity, natural gas, and telephone services.

Fire Protection and Emergency Medical Services

- 4.15.154 Alternative E, in combination with other foreseeable development projects, would not create a significant impact to fire protection services or emergency medical services. No impact would occur.**

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative E, the MSA between the City and the Tribe would not apply. Thus development of Alternative E would not create any significant impacts when combined with the cumulative projects. *No impact* would occur.

Law Enforcement

- 4.15.155 Alternative E, in combination with other foreseeable development projects, would not create significant impacts to the City of Richmond Police Department. A less-than-significant cumulative impact would occur.**

The Tribal commitment to the City in the MSA (**Appendix C**) would not apply to Alternative E; therefore, dissolving the agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services to the project site. While the cumulative projects may increase demands to law enforcement services, the Alternative E would create a minimal need to law enforcement service on the project site and it is assumed that this minimal need for police protection would be absorbed by the existing City of Richmond police staff. Thus implementation of Alternative E would create minor incremental impacts when combined with the cumulative projects. This is a *less-than-significant* impact.

Schools and Parks

- 4.15.156 Alternative E includes the creation of new Shoreline and Open Space parks and recreation facilities. This impact would be less-than-significant.**

Alternative E would create a new and attractive regional shoreline park that is anticipated to attract visitors from throughout the City and County. It is anticipated that the potential revenue generated from park visitors patronizing businesses and services in the City would result in increased revenue that would be used to maintain existing parks in the region. Therefore, a *less-than-significant* impact would occur.

- 4.15.157 Alternative E would not result in cumulative adverse impacts associated with the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.**

Alternative E is not anticipated to significantly increase demands on school services as employees are expected to come from the existing local and regional labor pool. As the Total Parkland Alternative would neither create on-site housing nor create a significant influx of residents from outside the regional area, a *less-than-significant* cumulative impact regarding schools would occur.

NOISE

4.15.158 Noise and vibrations resulting from operational activities under Alternative E in the year 2025 would not result in increased ambient noise level due to traffic, HVAC, and refuse handling. This is a less-than-significant cumulative impact.

Noise impacts under Alternative E in the year 2025 would be significantly less than Alternative A. This is a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

4.15.159 Alternative E, in combination with other foreseeable projects in the area, would not result in cumulatively significant hazards to the public or the environment related to the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.

As discussed in **Section 4.12**, Alternative E would result in little to no use or storage of on-site hazardous materials. If present, such materials would occur in relatively small amounts, used to maintain the park proposed under Alternative E. Otherwise, impacts related to Alternative E would be similar to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

4.15.160 Alternative E, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.

Alternative E and other regional growth would not result in the increased potential for a hazardous materials release, nor would such projects result in the addition of sensitive receptors in within a thermal impact zone or within a toxic endpoint zone. As such, a *less-than-significant* cumulative impact would occur as it relates to risks associated with the release of hazardous substances.

4.15.161 Alternative E, in combination with other foreseeable growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.

Development of Alternative E, the Total Parkland Alternative, would result in far fewer visitors to the project site than Alternative A. Thus, Alternative E, when considered in combination with other cumulative projects, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

4.15.162 Alternative E, in combination with other foreseeable projects, would have a less-than-significant impact related to the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.

Alternative E would be very limited in scope, with the primary development related to construction of a segment of the Bay Trail in proximity to the San Francisco Bay. Site usage by the public would be far reduced relative to the four development alternatives. When considered in combination with other cumulative projects, Alternative E would have a *less-than-significant* impact.

AESTHETICS

4.15.163 Alternative E, in combination with other foreseeable development projects, would not have a significant impact on a scenic vista. No impact would occur.

Under Alternative E, limited development would occur on-site, all of which would be related to the construction of a segment of the Bay Trail. Therefore, *no impacts* to scenic vistas would occur.

4.15.164 Alternative E, in combination with other foreseeable development projects, would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. The highway does not afford clear views of the project site. Thus, *no cumulative impact* would occur.

- 4.15.165 Alternative E, in combination with other foreseeable development projects, could have a significant impact on visual character or quality of the site and its surroundings. This is a potentially significant cumulative impact.**

If no development occurs on the project site, and if the historic buildings continue to deteriorate, the visual character of the site would be degraded. *A potentially significant cumulative impact would occur.*

- 4.15.166 Alternative E, in combination with other foreseeable development projects, would not create a cumulatively considerable source of substantial light or glare, which would adversely affect day or nighttime views in the area. No cumulative impact would occur.**

No new construction of buildings is proposed under Alternative E; therefore, no new sources of light or glare would be created. *No cumulative impact would occur.*

4.15.8 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE F

GEOLOGY AND SOILS

- 4.15.167 Alternative F, in combination with other foreseeable development projects, would not result in cumulatively considerable impacts to soils and geology. No impact would occur.**

There is no development proposed under Alternative F; therefore, no cumulative impacts to geology and soils would occur. *No impact would occur.*

HYDROLOGY AND WATER QUALITY

- 4.15.168 Alternative F, in combination with other foreseeable development projects, would not result in cumulatively considerable impacts to hydrology and water quality.**

As discussed in **Section 4.3**, Alternative F would not result in development by the Tribe. Therefore, drainage patterns would remain consistent with the discussion of existing conditions in **Section 3.3**. Therefore, implementation of Alternative F would not result in cumulatively considerable impacts to hydrology and water quality. *No cumulative impacts to hydrology and water quality would occur.*

AIR QUALITY

- 4.15.169 Under Alternative F in the year 2025 no ROG, NO_x, PM₁₀, and PM_{2.5} emission would occur. No cumulative impact to the existing setting would occur.**

As stated in **Section 2.0** the project site would not be developed; therefore, no ROG, NO_x, PM₁₀, and PM_{2.5} emission would occur from the operation of the Proposed Project. *No impact* would occur.

4.15.170 Under Alternative F in the year 2025 there would be no CO emissions. No cumulative impact to the existing setting would occur.

As stated in **Section 2.0** the project site would not be developed. There would be no increase in traffic at area intersections; therefore, no increase in CO emissions would occur. *No impact* would occur.

4.15.171 Under Alternative F in the year 2025 no GHG emissions would occur. No cumulative impact to the existing setting would occur.

As stated in **Section 2.0** the project site would not be developed; therefore, no GHG emissions would occur from the operation of the Proposed Project. *No impacts* would occur.

BIOLOGICAL RESOURCES

4.15.172 Alternative F would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species). No impacts would occur.

Under Alternative F, no development would occur on the project site. Therefore, Alternative F would not contribute to cumulative impacts to biological resource. *No impacts* would occur.

CULTURAL RESOURCES

4.15.173 Alternative F may result in neglect of structures located within the Winehaven Historic District (CA-CCO-422H), a listed historic district. This is a potentially significant cumulative impact.

The Winehaven Historic District (CA-CCO-422H), which is currently in a state of disrepair as a result of deferred maintenance, would continue to deteriorate as a result of neglect under the No-Action Alternative. As discussed in **Section 4.6**, a structural analysis was performed on six of the District's contributing structures in late 2007 (**Appendix E**). The analysis revealed that many of the character-defining features of the structures examined are in jeopardy. The six structures analyzed would require more than \$20 million to stabilize their condition (Lionakis Beaumont, 2008). Without a viable project with adequate funds to address the deteriorating features, the District would continue to suffer neglect and further deterioration. The resulting loss of integrity would have a negative impact on the historical

significance of a listed historic property located within Contra Costa County. This is a *potentially significant* cumulative impact, for which there is no feasible mitigation due to the lack of a funding source under the No-Action Alternative.

SOCIOECONOMIC CONDITIONS

4.15.174 Alternative F would not contribute economic activity or population growth to the project area. No impact to the existing setting would occur.

As stated in **Section 2.0** the project site would not be developed; therefore, no new economic activity or population growth would result. *No impact* would occur.

TRANSPORTATION

4.15.175 Alternative F in the year 2025 would not increase the existing traffic load of intersections and roadways within the study area. No cumulative impact would occur.

As stated in **Section 2.0**, the project site would not be developed; therefore, no additional traffic would be generated. As such, traffic load at the study area intersections and roadways would not increase. *No impact* would occur.

4.15.176 Alternative F in the year 2025 would not result in inadequate emergency access. No cumulative impact to the existing setting would occur.

As stated in **Section 2.0**, the project site would not be developed; therefore, emergency access would not be reduced with the implementation of Alternative F. *No cumulative impact* would occur.

4.15.177 Under Alternative F in the year 2025 no ferry service would be available and there would be no increase in public transportation ridership. No cumulative impact to the existing setting would occur.

As stated in **Section 2.0**, the project site would not be developed; therefore, no ferry service would be developed and no additional public transportation ridership would occur. *No cumulative impacts* would occur.

LAND USE

4.15.178 Alternative F would not result in cumulatively considerable adverse impacts to land use planning. No impact would occur.

No development is proposed under Alternative F; therefore, there would be *no cumulative impacts* to land use.

PUBLIC SERVICES

Water Service

4.15.179 Alternative F would not result in cumulative impacts to the regional water supply or potable water distribution systems. No impact would occur.

Alternative F would not create any demand for regional water supply, through new or existing infrastructure. Therefore, no cumulative water supply impacts from Alternative F would be created.

Wastewater and Treatment

4.15.180 Alternative F would not result in cumulative impacts to the Richmond Municipal Sewer District wastewater treatment plant or wastewater conveyance systems. No impact would occur.

Alternative F would not develop any connections to the municipal wastewater conveyance system, and therefore would not create any cumulative impacts to the Richmond Municipal Sewer District WWTP.

Solid Waste

4.15.181 Alternative F would not result in cumulatively considerable impacts to solid waste and landfill capacity. A less-than-significant impact would occur.

Impacts to regional landfill capacity under Alternative E would be significantly reduced when compared to Alternative A. As such, it is anticipated that the development of Alternative E in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the landfill capacity.

Electricity, Natural Gas, and Telecommunications

4.15.182 Implementation of Alternative F would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. No impact would occur.

As Alternative E would not include connection to electrical, natural gas, or telephone service, no cumulative impacts to energy utilities would occur. Therefore, Alternative F would have *no cumulative impacts* with respect to electricity, natural gas, or telephone services.

*Fire Protection and Emergency Medical Services***4.15.183 Alternative F would not create a cumulative impact to fire protection or emergency medical services. No impact would occur.**

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative F the MSA between the City and the Tribe would not apply. Thus development of Alternative F would not create any significant impacts when combined with the cumulative projects. Therefore, *no impact* would occur.

*Law Enforcement***4.15.184 Alternative F would not create cumulative impacts to the City of Richmond Police Department. No impact would occur.**

The Tribal commitment to the City in the MSA (**Appendix C**) would not apply to Alternative F; therefore dissolving the agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services to the project site. While the cumulative projects may increase demands to law enforcement services, the no-action alternative would not create direct impacts on-site. Thus implementation of Alternative F would not create incremental significant impacts when combined with the cumulative projects. *No impact* would occur.

*Schools and Parks***4.15.185 Alternative F would not result in cumulative adverse impacts associated with the need for new or expanded schools or parks, in order to maintain acceptable service ratios, response times or other performance objectives. Therefore, no impact would occur.**

No development is proposed under Alternative D; therefore *no cumulative impacts* would occur to schools or parks.

*NOISE***4.15.186 Under Alternative F in the year 2025 would not produce noise or vibration from operational activities. No cumulative impact would occur.**

As stated in **Section 2.0** the project site would not be developed; therefore, no additional noise or vibrations would be produce at the development site. *No cumulative impact* would occur.

HAZARDS AND HAZARDOUS MATERIALS

- 4.15.187 Alternative F, in combination with other foreseeable projects in the area, would not result in cumulatively significant hazards to the public or the environment related to the routine transport, use, or disposal of hazardous materials. No impact would occur.**

No development would occur under Alternative F; as such *no impact cumulative* would occur.

- 4.15.188 Alternative F, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. No impact would occur.**

Due to the fact that no foreseeable development would occur under this alternative, Alternative F would not contribute to a cumulative impact related to the release of hazardous materials. *No cumulative impact* would occur.

- 4.15.189 Alternative F, in combination with other cumulative projects in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.**

Considering no foreseeable development would occur under this alternative, Alternative F would not contribute to a cumulative impact related to interference with an adopted emergency response plan or emergency evacuation plan. *No cumulative impact* would occur.

- 4.15.190 Alternative F, in combination with other foreseeable projects, would have no impact related to the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.**

Considering no foreseeable development would occur under this alternative, Alternative F would not contribute to a cumulative impact related to the risk of loss, injury or death involving wildland fires. Therefore, *no cumulative impacts* would occur.

AESTHETICS

- 4.15.191 Alternative F could have a cumulatively considerable impact on a scenic vista. This is a potentially significant cumulative impact.**

Because no foreseeable development would occur under this alternative, the historic buildings that compose the Winehaven National Register Historic District, and which contribute substantially to the project site's character, would continue to deteriorate. This

would adversely affect views of the project site. A *potentially significant* cumulative impact would occur, for which there is no feasible mitigation due to the lack of a funding source under the No-Action Alternative.

4.15.192 Alternative F would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. The highway does not afford clear views of the project site. Thus, *no cumulative impact* would occur.

4.15.193 Alternative F could have a cumulatively considerable impact on visual character or quality of the site and its surroundings. This is a potentially significant cumulative impact.

If no development occurs on the project site, and if the historic buildings continue to deteriorate, the visual character of the site would be degraded. A *potentially significant* cumulative impact would occur and no mitigation is proposed.

4.15.194 Alternative F would not create a cumulatively considerable source of substantial light or glare which would adversely affect day or nighttime views in the area. No cumulative impact would occur.

No development is proposed under Alternative F; therefore, no new sources of light or glare would be created. *No cumulative impact* would occur.

4.15.9 CUMULATIVE ENVIRONMENTAL IMPACTS OF ALTERNATIVE B1

GEOLOGY AND SOILS

4.15.195 Construction and operation of Alternative B1 would not result in any cumulatively considerable impacts such as soils or geology. No impact would occur.

As with Alternative A, the principal impacts associated with Alternative B1 in combination with other development projects in the City and County would be localized topographical changes and soil attrition. Similar to Alternative B, local and federal (where applicable) permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards, as well as the incorporation of a SWPPP (see **Section 4.2 and Mitigation Measure 1-1**). Other development projects would also follow appropriate local,

state, or federal permitting procedures; therefore, Alternative B1 would not have a significant cumulative impact on soils or geology.

HYDROLOGY AND WATER QUALITY

4.15.36 Concurrent construction and operation of planned development projects and Alternative B1 would not result in cumulatively considerable impacts to surface and groundwater quality. A less-than-significant impact would occur.

Incremental impacts would be similar to those discussed under **Impacts 4.15-2**, which could result in cumulatively considerable impacts to downstream drainages. The cumulatively considerable impact of Alternative B1 is greater than Alternative A as a result of the larger area of land disturbance associated with the residential development component.

As discussed under Alternative A, all development projects over one acre in size (such as the projects listed in **Table 4.15-1**) would be required under the CWA to implement BMPs through development of a SWPPP and by the County to develop a SECP and SCP prior to construction. The implementation of BMPs through the SWPPP, SECP, and SCP at all major construction sites (greater than one acre) would reduce the incremental impacts to surface water quality to a less-than-significant level. Therefore, the incremental impacts during construction of Alternative B1, with respect to surface water and groundwater quality would be greater than Alternative A, but not cumulatively considerable when taken in context with the additional development projects. Construction of Alternative B1 would have a *less-than-significant* cumulative impact on surface and groundwater quality.

4.15.37 Concurrent operation of planned development projects and Alternative B1 would not result in cumulatively considerable impacts to surface water quality or flooding. A less-than-significant impact would occur.

As indicated in **Section 4.3**, construction and operation of Alternative B1 would introduce additional impervious surfaces to the area, to a greater extent than Alternative A. Development of the Alternative B1 includes the installation of onsite bioretention basins sized to reduce stormwater runoff rates during storm events. The watersheds on the project site would continue to discharge directly into the San Francisco Bay (Bay), which based on the size of the bay would not be impacted by the relatively small increase in stormwater runoff, although greater in magnitude than stormwater runoff generated under Alternative A.

Based on the topography of the project site resulting in isolated watersheds, development in the region would not impact the stormwater runoff rates that discharge from the project site into the Bay. With incorporation of the grading and drainage plan (**Appendix EE**) for Alternative B1 and discharges from the project site continuing directly into the Bay,

drainage- and flooding-related impacts from the development of Alternative B1 would not be cumulatively considerable and would have a *less-than-significant* cumulative impact.

4.15.38 Concurrent construction and operation of proposed development projects and Alternative B1 would not significantly impact floodplain management. No impact would occur.

Alternative B1 would not be located within a floodplain and therefore the grading and development of the project site would not result in a cumulatively considerable impact to floodplain management. *No cumulative impact* would occur.

AIR QUALITY

4.15.39 Operation of the proposed development under Alternative B1 in the year 2025 would result in emissions of ROG, NO_x, and PM₁₀ emissions above the established thresholds. This is a potentially significant cumulative impact.

Significance After Mitigation

Implementation of **Mitigation Measures 3-17** and **3-18** would reduce ROG, NO_x, and PM₁₀ emissions in the cumulative year 2025 by 29.5 percent under the BAAQMD and SMAQMD guidelines. **Mitigation Measure 3-19** would further reduce ROG, NO_x, and PM₁₀ emissions below the BAAQMD CEQA thresholds; therefore, air quality impacts due to operation of Alternative B1 would be *less-than-significant*. **Mitigation Measures 3-20** through **3-25** would further reduce criteria pollutant emissions.

Impact Discussion

Trends for the SFBAAB are provided in **Table 4.15-2**.

Emissions for the year 2025 were estimated using the URBEMIS 2007 computer modeling program. URBEMIS default mitigation measures were implemented to further reduce emissions and are provided in **Appendix R. Table 4.15-30** shows 2025 mitigated and unmitigated operational emission estimates and compares each alternative with conformity and BAAQMD thresholds.

Operational emissions associated with Alternative B1 were compared to regional 2020 emissions forecast. Alternative B1 would generate 0.023 percent of the SFAAB total ROG and 0.020 percent of NO_x. Alternative B1 would generate 0.095 and 0.028 percent of PM₁₀ and PM_{2.5}, respectively. Although such emissions are small contributions when compared to regional emissions, Alternative B1 would continue to exceed BAAQMD CEQA thresholds for ROG, NO_x, and PM₁₀ in 2025. This is a *potentially significant* cumulative impact.

Mitigation is provided in **Section 5.2.3** to reduce this potential cumulative impact to a *less-than-significant* level.

TABLE 4.15-30
2025 MITIGATED (UNMITIGATED) OPERATION EMISSIONS – ALTERNATIVE B1

Alternative B	ROG tpy	NO _x tpy	PM ₁₀ tpy	PM _{2.5} tpy
Area Sources	4.82 (5.00)	2.65 (3.32)	0.00 (0.01)	0.00 (0.01)
Mobile Sources	20.19 (20.67)	23.69 (24.33)	101.10 (103.76)	19.01 (19.52)
Ferry Trips	0.22	5.36	0.07	0.02 ¹
Total Emissions	25.23 (25.89)	31.70 (33.81)	101.17 (103.83)	19.03 (19.54)
<i>Conformity Threshold</i>	100	100	N/A	100
Exceeds Conformity Threshold	No (No)	No (No)	N/A	No (No)
<i>BAAQMD Threshold De minimus Threshold</i>	10	10	15	10
Exceeds BAAQMD Threshold Significant Effect?	Yes (Yes)	Yes (Yes)	Yes (Yes)	Yes (Yes)

Notes: ROG= Reactive Organic Gas;

NO_x= Nitrogen Oxide

PM₁₀= Particulate Matter between 2.51 and 10 micrometers in diameter

PM_{2.5}= Particulate Matter less than 2.5 micrometers in diameter

¹ PM_{2.5} emissions estimated as 33 percent of PM₁₀ emissions.

tpy = tons per year;

N/A = Not Applicable

Source: URBEMIS, 2007

Conformity Review

Alternative B1 does not exceed conformity thresholds; therefore, would conform to General Conformity Rules and conform to the applicable SIP. A less-than-significant impact would occur.

4.15.40 Operation of the proposed development under Alternative B1 in the year 2025 would result in CO emissions below the established threshold. This is a less-than-significant cumulative impact.

Traffic operation for Alternative B1 would be the same as Alternative B. In the cumulative year 2025 operation of the Alternative B1 would result in emissions of carbon monoxide (CO). Under Alternative B1, no intersections within the study area, after mitigation, are anticipated to have an LOS E or F under 2025 conditions; therefore, Hot Spot analysis is not warranted (Appendix S) for Alternatives B1. This is a less-than-significant cumulative impact.

4.15.41 Operation of the proposed development under Alternative B1 in the year 2025 would result in greenhouse gas (GHG) emissions. This is a potentially significant cumulative impact.

Significance After Mitigation

Mitigation Measures 3-16 through 3-19 and 3-26 through 3-35 in Section 5.2.3 would ensure consistency with all applicable GHG reduction strategies and reduce construction and operational GHG emissions below the BAAQMD thresholds, resulting in a less-than-significant cumulative impact. Implementation of Improvement Measures 3-36 through 3-42 would further reduce cumulative impacts related to GHG emissions.

Impact Discussion

Please refer to the impact discussion for Alternative A (Section 4.15.7) regarding impacts related to sea level rise, which is also applicable to Alternative B1.

Methodology

The methodology for analyses of GHG emissions for Alternative B1 is the same as for Alternative A.

Emission Estimates

Alternative B1 construction would emit a maximum of approximately 13,908 metric tons (MT) of CO₂e per year (refer to Appendix R). Using the draft 2009 BAAQMD CEQA Guidelines threshold of 1,100 MT per year, GHG emissions from construction activities would be potentially significant. Implementation of mitigation for GHG emission reductions are quantified in Section 5.2.3. As indicated in Table 5-2 within Section 5.2.3, application of the specified mitigation measures would reduce construction emissions below the significance threshold and result in a less-than-significant cumulative climate change impact.

USEPA and CARB approved URBEMIS 2007 emissions modeling software was used to estimate operational emissions. Table 4.15-31 shows the estimated operational emissions and reductions taken for project design components (gray water system). Once construction is completed, the project would emit approximately 49,737 MT of CO₂e per year from mobile and area sources. CH₄ and N₂O emissions from mobile sources were estimated using emission factors from the LGOP (2008) and converted to CO₂e. Indirect emissions, which include electricity use, water conveyance, and wastewater treatment, were estimated using LGOP emission factors and are estimated at 5,929 MT of CO₂e annually. After applying a reduction for the on-site gray water system, total annual operational emissions are estimated at approximately 55,331 MT of CO₂e.

TABLE 4.15-31
ALTERNATIVE B1 PROJECT-RELATED GHG EMISSIONS¹

Alternative B1	GHGs	CO ₂ e Emissions (ST)	Conversion Factor (ST/MT)	GHG Emissions in CO ₂ e (MT)
Direct²				
Mobile	CO ₂	50,043.27	0.91	45,539.38
Mobile	CH ₄ /N ₂ O	584.00	0.91	531.44
Area	CO ₂	4,028.91	0.91	3,666.31
Indirect³				
Electricity Usage	CO ₂			5,548.54
Electricity Usage	CH ₄ /N ₂ O			48.92
Water Conveyance	CO ₂ e			147.01
Water Conveyance	CH ₄ /N ₂ O			1.30
Wastewater Treatment	CO ₂ e			181.87
Wastewater Treatment	CH ₄ /N ₂ O			1.60
Subtotal Baseline Project-Related GHG Emissions				55,666.37
GHG Reductions due to Project Components				
Gray Water System				335.85
Baseline Project-Related GHG Emissions				55,331

ST = short tons; MT = metric tons; CO₂e = carbon dioxide equivalent

¹ Project-related GHG emissions were estimated using protocols from the BAAQMD Draft CEQA Guidelines, December, 2009.

² GHG emissions estimated using URBEMIS air modeling program.

³ GHG emissions estimated using Local Government Operations Protocol, September, 2008 emission factors. Includes emissions from the casino/hotel/amenities and houses.

Source: BAAQMD Draft CEQA Guidelines, December, 2009

Alternative B1's operational contribution to cumulative global climate change is greater than the BAAQMD CEQA threshold of 1,100 MT per year of GHG emissions, resulting in a potentially significant impact. Mitigation measures to reduce GHG emissions below 1,100 MT per year, resulting in a less-than-significant impact to climate change, are provided in Section 5.2.3. The reduction in GHG emissions after application of the mitigation measures is quantified in Table 5-2.

Biological Resources

4.15.42 Construction and operation of Alternative B1 would not result in any cumulatively considerable impacts to biological resources (i.e., native habitats, waters of the U.S., and special-status species).

Impacts to biological resources under Alternative B1 would be similar to those discussed under Alternative B. As such, it is anticipated that the development of Alternative B1, in conjunction with other development projects in the City and County, would not result in significant cumulative impacts to biological resources.

CULTURAL RESOURCES

4.15.43 Construction of planned development projects and Alternative B1 would not result in cumulatively considerable impacts to cultural resources. A less-than-significant impact would occur.

Cumulative impacts to cultural resources resulting from development of Alternative B1 would be the same as Alternative A. Adherence to relevant regulatory frameworks would insure that potential impacts to cultural resources are considered and mitigated prior to final approval of projects considered in the cumulative analysis. Development of Alternative B1 would require compliance as well. Accordingly, no cumulatively significant impacts to cultural resources are expected. Therefore, this would be a *less-than-significant* impact.

SOCIOECONOMIC CONDITIONS

4.15.44 Operation of Alternative B1 along with other proposed developments would increase demand for businesses in the City of Richmond and Contra Costa County that provide goods and services and would increase the local area's reliance on economic activity from the travel, tourism, and leisure industry. This is a beneficial impact.

Cumulative socioeconomic impacts that affect the lifestyle and economic well being of residents could occur in the project area as the result of various developments, similar to Alternative A.

The development of Alternative B1 would result in approximately 17,682 (Section 4.7) annual employment opportunities throughout Contra Costa County, leading to employees who would relocate or commute into the project area. Alternative B1 would also include the development of 340 new homes. Other development projects occurring within the geographic scope of this cumulative assessment would result in the construction of several new homes and residential communities. New housing would increase the population of the City and surrounding areas. Alternative B1 would increase the area's demand for business where goods and services can be purchased.

The magnitude of economic output and employment opportunities generated under Alternative B1 (Section 4.7) in combination with surrounding population growth, would increase the economic reliance on the travel, tourism, and leisure industries. Additionally, the amount of overall gaming market revenue would increase with Alternative B1. However, as

discussed in **Impact 4.7-17**, Alternative B1 would result in the diversion of revenue from existing nearby casinos.

Cumulative impacts from Alternative B1 would be similar to Alternative A, but to a greater magnitude, because Alternative B1 would generate a larger amount of economic activity and includes a housing element. This is a *beneficial impact*.

TRANSPORTATION

4.15.50 Combined with increased traffic from other regional projects, increased traffic volumes from the operation of Alternative B1 in the year 2025 have the potential to substantially increase traffic volumes of intersections within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-8** through **7-12, 7-16, 7-17** and **7-24** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B1 in the cumulative year 2025 would have a *less-than-significant* impact. However, the full suite of required mitigation measures are considered infeasible at this time because some of the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund. **Mitigation Measures 7-6** and **7-7** and **Improvement Measures 7-18** and **7-19** when implemented would improve operation of intersections within the project area, however, not to a *less-than-significant* level.

Impact Discussion

Table 4.15-32 shows the weekday intersection delays and LOS for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative B1 in the year 2025. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS with the exception of the following intersections:

- Richmond Parkway/Gertrude Avenue (weekday AM and PM peak hour)
- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM and Saturday peak hour)
- Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off (weekday PM peak hour)
- Marine Street/EB I-580 On/Off Ramp (weekday PM peak hour)

TABLE 4.15-32
PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE ALTERNATIVE B1

No.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C ¹	LOS	Critical V/C ¹	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.51	F	1.03	C	0.77
2	Marine Street/EB I-580 On/Off Ramps	A	0.38	F	1.19	C	0.78
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	B	0.65	A	0.53	A	0.29
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	B	0.65	A	0.58	A	0.36
5	Cutting Boulevard/WB I-580 On/Off Ramp	B	0.67	A	0.23	A	0.10
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.31	A	0.26	A	0.13
7	Harbour Way/WB I-580 Off-Ramp	B	11.9 ¹	B	14.5 ¹	B	10.1 ¹
8	Cutting Boulevard/S. Harbor Way	D	0.81	B	0.69	A	0.49
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.41	A	0.49	A	0.27
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.28	A	0.40	A	0.24
11	Cutting Blvd/Marina Bay Parkway/23 rd Street	B	0.69	B	0.61	A	0.43
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	11.7 ¹	B	13.4 ¹	A	9.5 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.38	A	0.21	A	0.09
14	Carlson Boulevard /Cutting Boulevard	A	0.57	A	0.50	A	0.34
15	Cutting Boulevard/S. 49 th Street	A	0.44	A	0.39	A	0.30
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.52	A	0.57	A	0.39
17	MacDonald Avenue/S. Harbor Way	B	0.65	B	0.65	A	0.47
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.57	A	0.56	A	0.34
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	C	0.70	A	0.60	A	0.36
20	Richmond Parkway/Castro St./Hensley St.	A	0.51	D	0.89	A	0.27
21	Richmond Parkway/Gertrude Avenue	F	1.06	F	1.25	C	0.75
22	Richmond Parkway/Parr Boulevard	F	1.02	F	1.16	B	0.65
23	Richmond Parkway/San Pablo Avenue	-	N/A	-	N/A	-	N/A
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	D	0.88	F	1.19	F	1.12
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.27	C	0.74	C	0.76
26	San Pablo Ave./Appian Way/Pinole Ave.	F	1.04	E	0.94	A	0.60
27	Western Drive and Chevron Access	A	1.9 ²	A	2.4 ²	A	3.1 ²
28	Sir Francis Drake Blvd. and Anderson Drive	B	13.0	B	18.4	B	11.8
29	Richmond Parkway/Pittsburg Avenue	D	0.85	F	1.19	C	0.75
30	Richmond Parkway/Goodrick Avenue	D	0.83	F	1.15	C	0.73
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.28	B	0.68	A	0.41

Notes: **Bold** indicates unacceptable LOS.

¹ 2000 HCM Unsignalized Intersection methodology, worst case delay per vehicle reported.

² Federal Highway Administration (FHWA) publication "Roundabouts An Informational Guide" methodology, average delay per vehicle reported.

Refer to **Appendix HH** for the existing conditions for intersections 32-35.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

- Richmond Parkway/Parr Boulevard (weekday AM and PM peak hour)
- San Pablo Avenue/Appian Way/Pinole Avenue (weekday AM and PM peak hour)
- Pittsburg Avenue/Richmond Parkway (weekday PM peak hour)
- Goodrick Avenue/Richmond Parkway (weekday PM peak hour)
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal)
- U.S. 101 On- and Off-Ramps and Sir Francis Drake Boulevard

The intersections that are operating at a sub-standard LOS during the AM or PM peak hours for Alternative B1 in the year 2025 were previously operating at a sub-standard LOS during the cumulative background conditions. Therefore, as defined by the significance criteria, a significant impact would occur if Alternative B1 contributes more than a one percent increase to the peak hour traffic volume. For intersections in the City of Larkspur, a significant impact would occur with the addition of ten or more peak hour vehicle trips at intersections projected to operate at unacceptable level of service in the background cumulative condition.

Although the San Pablo Avenue/Appian Way/Pinole Avenue intersection operated at a sub-standard LOS previously and will operate at a sub-standard LOS during the cumulative background conditions, it would experience less than one percent increase in peak hour traffic with the implementation of Alternative B1 (Identical to Alternative B in **Appendix S**); therefore, a *less-than-significant* impact would occur at the intersection.

A *significant* impact would occur at the remaining intersections noted above due to an increase in peak hour traffic in excess of the volume specified in the significance thresholds above. Mitigation measures are provided in **Section 5.2.7** for the above referenced intersections. Upon implementation, the mitigation would result in an acceptable LOS.

4.15.51 Traffic from the operation of Alternative B1 in the year 2025 would substantially increase traffic volumes of roadways segments within the study area. This is a potentially significant and unavoidable cumulative impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-13 and 7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B1 in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time due to lack of funding and/or because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Volume to capacity ratios and LOS for the year 2025 under Alternative B1 have been calculated for study area freeway segments and are shown in **Table 4.15-33**. With implementation of Alternative B1, all of the study freeway segments are projected to operate at an acceptable LOS, except for the following:

- I-80 at Richmond Parkway On-Ramp EB (PM peak hour)
- I-580 at Marine Street Off-Ramp EB (PM peak hour)
- SB U.S. 101 Off-Ramp to EB I-580 (AM peak hour)
- WB I-580 On-Ramp to NB U.S. 101 (PM peak hour)
- WB I-580 Richmond/San Rafael Bridge (AM and PM peak hours)
- EB I-580 Richmond/San Rafael Bridge (PM peak hours)

Under the applicable significance criteria I-80 would not experience a significant impact, despite the unacceptable LOS (**Section 3.8**). Since the US 101/I-580 ramps would not have an increase in traffic greater than two percent, a *less-than-significant* impact would occur. The freeway segment between I-580 at Marine Street Off-Ramp (EB) and I-580 on Richmond-San Rafael Bridge (EB and WB) would operate at an unacceptable LOS in the cumulative year, which is a *significant* cumulative impact. Mitigation measures are provided for the impacted roadway segments in **Section 5.2.7**, which, upon implementation, would result in an acceptable LOS.

4.15.52 Traffic from the operation of Alternative B1 in the year 2025 would not result in inadequate emergency access. This is a less-than-significant cumulative impact.

Operation of Alternative B1 in the year 2025, along with traffic from other developments, would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area (see **Tables 4.15-15** and **4.15-16**). This is a *less-than-significant* cumulative impact.

4.15.53 Operation of ferry service under Alternative B1 in the year 2025 has the potential to decrease vehicular traffic on roadways in the study area. This is a beneficial cumulative impact.

Operation of ferry service under Alternative B1 would have a similar impact on local vehicular traffic, and ferry service as Alternative A. This is a *beneficial* cumulative impact.

TABLE 4.15-33
BACKGROUND PLUS PROJECT ROADWAY SEGMENT LOS – CUMULATIVE ALTERNATIVE B1

Segment	Dir.	No of Lns	AM Peak Hour			PM Peak Hour		
			Volume	Density (pc/mi/ln) ⁴	LOS	Volume	Density (pc/mi/ln)	LOS
I-580 at Marine Street Off-Ramp ²	EB	2	3,284	34.5	D	5,848	*	F
I-580 Western Drive to Castro Street ¹	EB	3	3,062	19.3	C	4,988	31.7	D
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,713	25.1	C	4,077	38.7	E
I-580 Canal Blvd. To Cutting Blvd. ¹	EB	3	3,344	21.1	C	4,925	31.2	D
I-580 Canal Blvd. To Castro Street ¹	WB	3	4,559	28.8	D	4,483	28.3	D
I-580 at Castro Street On-Ramp ²	WB	3	4,442	35.7	E	4,315	35.2	E
I-580 Castro Street to Western Drive ¹	WB	3	5,824	39.7	E	5,695	38.2	E
I-580 Western Drive Off-Ramp ²	WB	3	5,824	37.3	E	5,695	37.6	E
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,681	21.8	C	6,519	*	F
I-80 at Richmond Parkway Off-Ramp ²	WB	4	7,460	32.2	D	5,745	21.5	C
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	2,172	31.9	F	2,490	14.9	B
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,269	12.9	B	2,171	48.5	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	5,300	*	F	4,808	*	F
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	3,015	28.6	D	4,798	*	F
SR-4 at I-80 EB Off-Ramp	EB	4	2,886	20.7	C	4,749	39.1	E
SR-4 at Willow Avenue	EB	4	2,186	18.7	C	3,099	26.8	D
SR-4 at Sycamore Avenue	WB	4	2,335	20.0	C	3,008	25.9	C
SR-4 at Willow Avenue	WB	4	1,385	11.9	B	2,192	18.8	C

Notes: **Bold text** = poor LOS.

¹ Freeway Section

² On/Off Ramp

³ Weave Segment

⁴ pc/mi/ln = passenger cars per miles per lanes.

* Density not reported for level of service F.

[#] Provided in the Supplemental TIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 2009.

4.15.54 Operation of Alternative B1 in the year 2025 would not increase riders on local rail and bus services beyond capacity. This is a less-than-significant cumulative impact.

Alternative B1 would have the same impact on local rail and bus services as Alternative A; therefore, a less-than-significant impact would occur.

4.15.50 Combined with increased traffic from other regional projects, implementation of Alternative B1 in the cumulative year 2025 has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a potentially significant and unavoidable impact.

Significance after Mitigation

This is considered a *significant* impact pending the completion of **Mitigation Measures 7-14 and 7-15** provided in **Section 5.2.7**. Upon completion of the referenced mitigation measures, Alternative B1 in the cumulative year 2025 would have a *less-than-significant* impact. However, the required mitigation measures are considered infeasible at this time because the improvements fall within the responsibility and jurisdiction of a public agency other than the City of Richmond or Contra Costa County for which there is no existing plan to implement or fund.

Impact Discussion

Table 10 of the supplemental TIA, provided in **Appendix S**, provides the LOS for westbound I-580 through the toll plaza under Alternative B in the cumulative year 2025 (Alternative B and B1 assume identical traffic scenarios). In the cumulative year 2025 under Alternative B the LOS at the toll plaza is LOS F for both the AM and PM peak hours. Table 9 of the supplemental TIA shows the vehicles per hour westbound through the toll plaza is 5,281 in the AM peak hour and 4,747 in the PM peak hour. In the cumulative year 2025 under Alternative B1, I-580 at the toll plaza would exceed 4,225 vehicles per hour; therefore, a *significant* impact would occur. Mitigation measures are provided for the toll plaza in **Section 5.2.7**, which, once implemented, would result in an acceptable LOS.

LAND USE**4.15.84 Alternative B1 would not result in cumulatively considerable adverse impacts to land use planning with the City of Richmond and the Western Sub-Area of Contra Costa County. No cumulative impact would occur.**

As stated under Alternative A, future development in the City and County would be guided by the City and County General Plan, applicable Specific Plans, and Zoning Ordinance. Similarly, it is assumed that planned development projects within the City and County would be consistent with these policies and regulations, which prevent disorderly growth or incompatible land uses. While only portions of Alternative B1 would be subject to local land use policies, as discussed in **Section 4.9**, Alternative B1 would not disrupt neighboring land uses, prohibit access to the shoreline, or otherwise conflict with neighboring land uses. Therefore, *no impacts* would occur to land use planning.

PUBLIC SERVICES**Water Service****4.15.85 The local service provider, EBMUD, has the capacity to meet the potable water demand within its service area including foreseeable development projects and Alternative B1.**

Therefore, Alternative B1 in combination with regional development projects would not result in cumulatively considerable impacts to the regional water supply or water treatment. This would be a less-than-significant impact.

Impacts to regional EBMUD water supply, treatment, and distribution systems under Alternative B1 would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B1 in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to EBMUD water supply, treatment, and distribution systems.

Wastewater and Treatment

4.15.86 The demand for wastewater treatment of City-wide development projects and Alternative B1 would result in increased demand for the Richmond Municipal Sewer District wastewater treatment plant. This would be a less-than-significant impact.

Wastewater treatment and predicted 2020 inflows to the RMSD WWTP are similar to those discussed under Alternative A. As discussed in **Section 2.2.2**, Alternative B1 would result in the generation of approximately 702,900 gpd of wastewater, with a peak demand of 914,800 gpd. Therefore, at anticipated peak hour during wet weather, Alternative B1 would produce approximately 3.3 percent of the total projected 2020 wastewater inflow to the City's WWTP. This is a *less-than-significant* cumulative impact.

Solid Waste

4.15.87 Regional increases in solid waste, with implementation of Alternative B1 plus regional development projects could result in increased demand for landfill capacity. This would be a less-than-significant impact.

Impacts to regional landfill capacity under Alternative B1 would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B1 in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the landfill capacity.

Electricity, Natural Gas, and Telephone Services

4.15.88 Development of Alternative B1, in combination with other foreseeable projects, would not result in cumulatively considerable impacts to electricity, natural gas, and telephone services. A less-than-significant impact would occur.

Impacts to electricity, natural gas, and telephone services under Alternative B1 would be similar to those discussed under Alternative A. As such, it is anticipated that the

development of Alternative B1 in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to electricity, natural gas, and telephone services.

Fire Protection and Emergency Medical Services

4.15.89 Alternative B1, in combination with other foreseeable projects could create an increased demand for fire protection or emergency medical services. This is a less-than-significant impact.

Fire protection and emergency medical services, for the previously identified cumulative projects, would be provided primarily by the City of Richmond Fire Department. For Alternative B1, the Tribe would compensate Richmond Fire Department for costs relating to the provision of fire and emergency medical services to Tribal lands and facilities, as specified in the MSA (**Appendix C**). Thus development of Alternative B1 would not create incremental significant impacts when combined with the cumulative projects. Cumulative impacts would be *less-than-significant*.

Law Enforcement

4.15.90 Alternative B1, in combination with other foreseeable projects, could increase service demands on the City of Richmond Police Department. This is a less-than-significant impact.

Richmond Police Department would provide service for Alternative B1. The Tribe has committed to the City in the MSA (**Appendix C**) to enter into an agreement to reimburse the Richmond Police Department for reasonable direct and indirect costs incurred in conjunction with providing law enforcement services, similar to the Alternative A. While the cumulative projects within the City may increase demands to law enforcement services, resources to service Alternatives B1 would be provided through the MSA. Thus development of Alternative B1 would not create incremental significant impacts when combined with the cumulative projects. The cumulative effect is *less-than-significant*.

Schools and Parks

4.15.91 Alternative B1 could result in the need for new or expanded schools, in order to maintain acceptable service ratios, response times or other performance objectives. This impact would be less-than-significant.

As discussed in **Section 3.10** and **4.10**, the proposed project under Alternative B1 would include the relocation of approximately 776 new employees to Contra Costa County, and include a residential component consisting of 340 homes. New students generated by the

new County employees are expected to disperse throughout the County school districts, including the 62 K-12 West Contra Costa Unified School District schools. As described in Section 3.10, the Tribe would be required to pay its fair share of development fees that would be used to improve or construct schools within the West Contra Costa Unified School District (WCCUSD), and therefore a *less-than-significant* cumulative impact would occur.

4.15.92 Alternative B1 and other regional developments could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration or the facility would occur or be accelerated. This impact would be less-than-significant.

Impacts to regional and neighborhood parks, and other recreational facilities under Alternative B1 would be similar to those discussed under Alternative A. As such, it is anticipated that the development of Alternative B1 in conjunction with other development projects in the City and County would result in *less-than-significant* cumulative impacts to the parks and recreational facilities.

NOISE

4.15.93 Noise and vibration resulting from operational activities under Alternative B1 in combination with other development projects would not result in increased the ambient noise level due to traffic, HVAC, and refuse handling. This is a less-than-significant cumulative impact.

Noise impacts under Alternative B1 in the year 2025 would be the similar to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

HAZARDS AND HAZARDOUS MATERIALS

4.15.94 Alternative B1, in combination with other foreseeable projects in the area, would not result in cumulatively significant hazards to the public or the environment related to the routine transport, use, or disposal of hazardous materials. This would be a less-than-significant impact.

Impacts related to Alternative B1 would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

4.15.95 Alternative B1, in combination with other foreseeable growth in the area, would not result in a cumulatively significant hazards resulting from reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. This would be a less-than-significant impact.

Cumulative impacts associated with Alternative B1 are similar to those described under Alternative A. Alternative B1, in combination with other regional projects, would not significantly increase the potential for an accidental release of a hazardous substance, nor would they introduce a significant number of sensitive receptors within a thermal impact zone or within a toxic endpoint zone. As such, a *less-than-significant* cumulative impact would occur as it relates to risks associated with the accidental release of hazardous substances.

4.15.96 Alternative B1, in combination with other foreseeable growth in the area, would not physically interfere with an adopted emergency response plan or emergency evacuation plan. No cumulative impact would occur.

Cumulative impacts associated with Alternative B1 are similar to those described under Alternative A, except that 340 residential units would be included as part of Alternative B1. As previously noted, none of the other planned or approved projects considered in the cumulative analysis would use Western Drive, which is the main route of egress from the project site, as an evacuation route. As such, Alternative B1, in combination with other growth in the area, would not interfere with an adopted emergency response plan or emergency evacuation plan. A *less-than-significant* cumulative impact would occur.

4.15.97 Alternative B1, in combination with other foreseeable projects, would have a less-than-significant impact from the risk of loss, injury or death involving wildland fires, including wildlands adjacent to urbanized areas or where residences are intermixed with wildlands.

Impacts related to Alternative B1 would be identical to Alternative A; therefore, this would be a *less-than-significant* cumulative impact.

AESTHETICS

4.15.98 Alternative B1, in combination with other foreseeable projects, would not have a significant impact on a scenic vista. This is a less-than-significant cumulative impact.

Alternative B1 would contribute to the changing scenery in the project area. However, it would be landscaped in a manner compatible with existing vegetation at the project site, in order to soften the visual effect of the proposed new construction. Alternative B1 and cumulative development would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of **Mitigation Measure 12-1**, Alternative B1 would result in a *less-than-significant* cumulative impact to scenic vistas.

4.15.99 Alternative B1, in combination with other foreseeable projects, would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. No cumulative impact would occur.

The nearest highway eligible for designation as a State Scenic Highway is located five miles directly west of the project site, across the Bay. The highway does not afford clear views of the project site. Thus, no cumulative impacts would occur.

4.15.100 Alternative B1, in combination with other foreseeable projects, would not have a significant impact on visual character or quality of the site and its surroundings. This is a less-than-significant cumulative impact.

Alternative B1 would contribute to additional development and increased urbanization in the project area. However, new development proposed under Alternative B1 would be designed to complement existing structures and surroundings. According to the LDS (Appendix C), new construction within the project site will have to conform to design guidelines, approved by the City. Alternative B1 and cumulative developments would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of Mitigation Measure 12-2, Alternative B1 would result in a less-than-significant cumulative impact to visual character.

4.15.101 Alternative B1, in combination with other foreseeable projects, would not create a significant source of substantial light or glare, which would adversely affect day or nighttime views in the area. This is a less-than-significant cumulative impact.

Alternative B1 would add a new source of light to the project area; however, it would be designed to be downcast and confined on site. Timers would be utilized, so that lighting is only used when necessary. Alternative B1 and cumulative developments that takes place would be consistent with local land use regulations, including associated design guidelines, and would be subject to CEQA. With implementation of Mitigation Measure 12-3, Alternative B1 would result in a less-than-significant cumulative impact with regard to light and glare.