

4.8 TRANSPORTATION/CIRCULATION

This section identifies the effects to transportation and circulation that would result from the development of each alternative described in **Section 2.0**. Impacts are measured against the environmental baseline presented in **Section 3.8**. Indirect and cumulative impacts are identified in **Section 4.14** and **Section 4.15**, respectively. Transportation/circulation mitigation measures are presented in **Section 5.2.7**.

SIGNIFICANCE CRITERIA

The following significance criteria pertaining to transportation/circulation resources have been adapted from Appendix G of the CEQA *Guidelines*. Impacts to the existing transportation network within the study area would be considered significant if the project would:

1. Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase on either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections) (see below);
2. Exceed, either individually or cumulatively, a level of service standard established by the jurisdictional agency for study roads or highways (see below);
3. Result in inadequate emergency access;
4. Result in inadequate parking capacity;
5. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks);
6. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that result in substantial safety risks; and
7. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The sixth significance criteria listed above is not applicable to the Proposed Project because none of the proposed development alternatives would change any air traffic patterns. Therefore, it is not considered further.

Under the Contra Costa Transportation Authority's (CCTA) Congestion Management Program (CMP) thresholds, a significant impact would occur at an intersection with an existing LOS of D or better if project traffic causes the LOS at the intersection to deteriorate to LOS E or F. Under the CCTA CMP, a significant impact would occur at an intersection with an existing LOS of E or F if project traffic increases the existing capacity by more than one percent. The one percent threshold was also applied to the intersection at Sir Francis Drake Boulevard and Andersen Drive in the City of San Rafael for this analysis because the City does not have established standards of significance for un-signalized intersections.

The CCTA has established LOS standards for all parts of the CMP roadway and freeway network and routes of Regional Significance. I-580 and I-80 are considered to be part of the CCTA CMP network. I-580 is defined by the CCTA's adopted CMP as having a traffic LOS standard of LOS E. Therefore a significant impact on I-580 would occur:

- When the LOS drops below LOS E on any freeway section; or
- When the proposed project contributes any peak hour traffic to an already defined sub-standard cumulative freeway segment LOS condition (i.e., to a freeway segment already operating at worse than LOS E).

The LOS E standard only applies to I-80 during the off-peak hours; therefore, LOS F during peak hour is considered acceptable.

Caltrans Guide for the Preparation of Traffic Impact Studies states that if an existing state highway is operating at less than the target LOS, then the existing "Measure of Effectiveness" (MOE) should be maintained. Two percent has been used to define both a "substantial" increase in the existing load and the threshold for maintaining current operations for the Richmond-San Rafael Bridge and facilities located in Marin County. A two percent increase generally falls well within daily fluctuations in the existing traffic volumes. The toll plaza at the Richmond-San Rafael Bridge (Bridge) would have a significant impact when the capacity (4,225 vehicles per hour) of the Bridge is exceeded.

ANALYSIS METHODOLOGY

Generally, intersections are the critical, capacity controlling locations for non-freeway roadway segments, rather than mid-block roadway segments. In conjunction with the City, Caltrans, and neighboring jurisdictions, 31 study intersections and 14 freeway segments were selected as having the potential to be impacted by the project alternatives, and thus warranted analysis. The selected study intersections are presented in **Figure 3.8-1**. A Traffic Impact Analysis (TIA) was completed by DMJM Harris for each development alternative using weekday AM and PM peak hour and Saturday PM peak hour traffic volumes (**Appendix S**). Analysis of the WB I-580 On-Ramp to NB U.S. 101 and the SB U.S. 101 Off-Ramp to EB I-580 facilities are provided in the Supplemental Traffic Impact Analysis (STIA) provided in **Appendix S**. The STIA also considers potential impacts to the Richmond-San Rafael Bridge, the associated Toll Plaza, as well as three additional roadway intersections.

Trip Generation and Distribution

All of the four development alternatives would add traffic to the study area intersections and freeway segments. The amount of traffic a project generates is typically estimated using empirical data on trip generation, which is published by the Institute of Transportation Engineers publication *Trip Generation, 7th Edition* (ITE). The ITE method was used to estimate the traffic volumes generated by the various

components of each alternative. However, the ITE method does not have a standard trip generation rate that would apply to the gaming portion of the Proposed Project. The Phased Transportation Study for Proposed Urban Casinos in West Contra Costa County (Dowling, 2007) was considered during the development of a trip generation rate for the Project. However, it was determined that the Dowling study did not characterize the Proposed Project in a correct manner and is predicated on a number of inaccurate assumptions (refer to Section 3.12.2 of Final EIR Volume I). Therefore, data was collected from several existing and proposed Indian gaming facilities, which are listed in the TIA, included as **Appendix S**. All trips calculated by the abovementioned ITE method are not necessarily new trips; some are pre-existing trips that are diverted to the casino. As documented in the STIA (**Appendix S**), it was determined that 15 percent ~~pass-by~~ diverted link, 15 percent traffic demand management (TDM), and 15 percent ferry trip reduction should be used as reductions to account for trips not originally destined for the project site or patrons/employee using public transit. A 70 percent internal trip reduction was used for the project hotels, and a 50 percent internal trip reduction was used for retail uses. Internal trip reduction is for patrons who come to the casino and visit other amenities provided on the property, such as the hotel or retail outlets. A retail ~~pass-by~~ diverted link trip reduction of 28.3 was used for Alternative A, 28 percent for Alternative B, 62 percent for Alternative C, and 39 percent for Alternative D. Trip generation is discussed further in the TIA provided in **Appendix S**.

The project trip distribution patterns were estimated based upon the findings of the Gaming Market Assessment report (**Appendix T**). The Gaming Market Assessment considered a broad swath of northern California, including the entire San Francisco Bay Area (Bay Area). The trip distribution for the Proposed Project and alternatives is provided in the TIA (**Appendix S**).

Traffic Signal Warrant Analysis

Traffic signals may be justified when traffic operations fall below acceptable thresholds and when one or more signal warrants are satisfied. Traffic volumes at un-signalized study intersections were assessed using the peak hour warrant, as specified in the *Manual of Uniform Traffic Control Devices 2003 California Supplement* (California MUTCD). Traffic Signal Warrant #3 – Peak Hour Volume Warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. Warrant #3 is generally the first warrant to be satisfied.

Western Drive

The existing Chevron Quarry access driveway at Western Drive is not acceptable by both operational and geometrical standards. The alignment of the Chevron access into Western Drive would make it difficult for a traditional intersection design without realigning the Chevron access driveway. As noted in **Section 2.0**, Western Drive would be subject to significant improvements such as widening and redesign of the intersection with the Chevron Quarry access driveway. The TIA, included as **Appendix S**, recommends that this intersection be redesigned as a roundabout. This configuration would solve both the geometrical and operational problems of the existing intersection and would also act as a traffic calming device for

vehicles coming off of I-580 into the project site. Alternatively, the intersection of the driveway and Western Drive could be signalized to achieve the same result.

BACKGROUND CONDITIONS

Traffic volumes for the background conditions were developed by adding traffic volumes generated by upcoming projects that are expected to be either approved or proposed for construction by 2010. The City's Planning and Building Services Department provided a list of currently entitled projects, projects that are currently under review, and speculative projects. DMJM Harris reviewed this list and, in conjunction with the City's staff, selected projects expected to be approved or proposed for construction by 2010. The list of selected projects, their associated trip generation estimates, and their projected traffic volumes are presented in **Appendix S**.

Background Intersection Level of Service

Table 4.8-1 summarizes LOS results for the background intersection conditions. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**. All study intersections would operate at a LOS D or better, except the following intersections:

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM peak hour); and
- Sir Francis Drake Blvd. and Andersen Drive (Weekday AM, PM, and Saturday peak hour);
- Sir Francis Drake Blvd. and Larkspur Landing Circle (Ferry Terminal);
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Blvd..

The intersection at Sir Francis Drake Blvd and Andersen Drive is identified in the City of San Rafael's General Plan 2020 to be widened and signalized by 2011. Once the improvements are complete, the intersection will operate at an acceptable LOS. Based on consultation with the City of San Rafael's Assistant Director of Engineering, Nader Mansourian, the improvement will likely not be completed until 2014. Thus, for the purpose of this analysis, it is assumed that the planned improvements would not be in place prior to operation of the Proposed Project. The intersections at Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and Sir Francis Drake Boulevard and U.S. 101 Northbound On- and Off-Ramps would operate at LOS E and F, respectively. Analysis of intersections in the City of Larkspur along Sir Francis Drake Boulevard is provided in **Appendix HH**.

Background Freeway Segment Level of Service

Table 4.8-2 summarizes the freeway analysis for the background conditions. As shown, with the addition of the background traffic, all of the study freeway segments would continue to operate at a LOS E or better, except for the following:

- WB I-580 On-Ramp to NB U.S. 101
- SB U.S. 101 Off-Ramp to EB I-580

TABLE 4.8-1
PEAK HOUR INTERSECTION OPERATIONS - BACKGROUND CONDITIONS

NO	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C	LOS	Critical V/C	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off Ramps	A	0.46	C	0.74	A	0.50
2	Marine Street/EB I-580 On/Off Ramps	A	0.25	C	0.73	A	0.43
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off Ramps	A	0.50	A	0.40	A	0.22
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off Ramps	A	0.49	A	0.39	A	0.21
5	Cutting Boulevard/WB I-580 On/Off Ramps	A	0.46	A	0.17	A	0.06
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.23	A	0.21	A	0.09
7	Harbour Way South/WB I-580 Off-Ramp	B	10.8 ¹	B	12.3 ¹	A	9.8 ¹
8	Cutting Boulevard/S. Harbor Way	A	0.50	A	0.55	A	0.38
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.35	A	0.38	A	0.20
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.25	A	0.36	A	0.20
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	A	0.53	A	0.52	A	0.35
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	10.0 ¹	B	10.7 ¹	A	9.1 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.22	A	0.15	A	0.07
14	Carlson Boulevard /Cutting Boulevard	A	0.39	A	0.36	A	0.27
15	Cutting Boulevard/S. 49 th Street	A	0.30	A	0.31	A	0.23
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.45	A	0.46	A	0.30
17	Macdonald Avenue/S. Harbor Way	A	0.43	A	0.54	A	0.39
18	Richmond Parkway/Garrard Boulevard/W. Macdonald Avenue	A	0.41	A	0.39	A	0.21
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	A	0.49	A	0.42	A	0.23
20	Richmond Parkway/Castro Street/Hensley Street	A	0.38	B	0.70	A	0.21
21	Richmond Parkway/Gertrude Avenue	A	0.53	D	0.86		0.52
22	Richmond Parkway/Parr Boulevard	C	0.75	D	0.84	A	0.46
23	Richmond Parkway/San Pablo Avenue	D	0.87	C	0.77	A	0.54
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	B	0.69	E	0.92	D	0.87
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.19	A	0.59	A	0.60
26	San Pablo Ave./Appian Way/Pinole Ave.	B	0.66	C	0.72	A	0.44
27	Western Drive and Chevron Access	-	N/A*	-	N/A*	-	N/A*
28	Sir Francis Drake Blvd. and Andersen Drive	F	85.2¹	F	1,115.9¹	F	66.0¹
29	Richmond Parkway/Pittsburg Avenue	A	0.59	D	0.85	A	0.54
30	Richmond Parkway/Goodrick Avenue	B	0.61	D	0.83	A	0.53
31	Richmond Parkway/ I-80 Carpool On/Off Ramps	A	0.27	B	0.66	A	0.37

Note: Bold text = poor LOS.

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

* LOS analysis methodology for Western Drive and Chevron Access not applicable

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

TABLE 4.8-2
PEAK HOUR FREEWAY OPERATIONS - BACKGROUND CONDITIONS (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	2,657	28.5	D	3,789	39.3	E
I-580 Western Drive to Castro Street ¹	EB	3	2,339	14.8	B	2,913	18.4	C
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,084	18.0	B	2,336	26.0	C
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	2,550	16.1	B	3,076	19.4	C
I-580 Canal Blvd. to Castro Street ¹	WB	3	3,034	19.2	C	3,400	21.5	C
I-580 at Castro Street On-Ramp ²	WB	3	2,944	25.3	C	3,255	24.6	C
I-580 Castro Street to Western Drive ¹	WB	3	3,903	24.6	C	3,976	25.1	C
I-580 Western Drive Off-Ramp ²	WB	3	3,903	27.7	C	3,976	28.1	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,132	18.2	B	5,599	32.0	D
I-80 at Richmond Parkway Off-Ramp ²	WB	4	6,906	27.5	C	5,119	16.9	B
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	1,774	18.4	F	1,975	8.3	A
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	1,883	7.3	A	1,718	30.9	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	3,884	38.9	E	3,915	39.4	E
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,297	21.8	C	2,778	26.4	D
SR-4 at I-80 EB Off-Ramp	EB	4	2,673	18.9	B	3,304	24.7	C
SR-4 at Willow Avenue	EB	4	1,888	16.2	B	2,202	18.9	C
SR-4 at Sycamore Avenue	WB	4	1,780	15.3	B	2,590	22.2	C
SR-4 at Willow Avenue	WB	4	1,296	11.1	B	1,534	13.2	B

Note: **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 STIA.

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

Background Toll Plaza Level of Service

Project-related traffic was added to background conditions to determine traffic impacts at the toll plaza. Table 10 of the STIA provided in **Appendix S** provides the LOS for the westbound I-580 through the toll plaza. Under background condition the LOS at the toll plaza is LOS E for both the AM and PM peak hours. Table 9 of the STIA shows the vehicles per hour westbound through the toll plaza is 3,884 in the AM peak hour and 3,915 in the PM peak hour. In the background condition the toll plaza operates at an acceptable LOS.

4.8.1 ALTERNATIVE A – MIXED-USE TRIBAL DESTINATION RESORT AND CASINO

IMPACTS OF ALTERNATIVE A

- 4.8.1 Construction traffic under Alternative A has the potential to increase the existing traffic load of intersections within the study area. ~~This would be~~ is a less than potentially significant impact.

Significance After Mitigation

With implementation of Mitigation Measures 7-1 through 7-3 provided in Section 5.2.7, construction-related traffic would be less-than-significant.

Impact Discussion

The construction period of Alternative A would generate temporary and intermittent traffic from construction workers, ~~soil~~ hauling of clean and impacted soil, and material deliveries, most of which would occur outside of the peak hour. The TIA estimated construction trips for Alternative B; therefore, construction trips generated during construction of Alternative A would be reduced to match project specific design of Alternative A (i.e. reduced soil hauling and no housing component). It is estimated that up to 2,527 trips per day would be generated by construction workers, 61 trips per day from ~~soil~~ excavated soil (clean and impacted) hauling, and 7 trips from building material deliveries. A passenger car equivalent (PCE) factor of 2.0 was applied to the truck trips for the Project, based on the size of the vehicles, the relative weight of the load, and the surrounding terrain. The PCE factor is based on information provided in the Highway Capacity Manual (2003). The range of PCE's varies from 1.0 to 2.5. The 2.0 value was used since the haul trucks are heavy with material for only the outbound portion of their route (half of the trips). Thus, excavated soil hauling and building material delivery trips would be equal to 136 passenger cars. The construction phase would result in a total of ~~2,663~~⁵⁹⁵ PCE trips per day, which is ~~15.3 percent~~ less than one fifth of total operational trips for Alternative A. Considering that the number of construction generated trips is significantly less than the estimated trips generated during operation of Alternative A, this would be a *less-than-significant* impact. ~~However with implementation of Mitigation Measures 7-1 through 7-3, would further reduce construction related impacts.~~

- 4.8.2 Operational traffic under Alternative A has the potential to substantially increase the existing traffic load of intersections within the study area. **This is a potentially significant impact.**

Significance after Mitigation

With the implementation of **Mitigation Measures 7-4 and 7-5** provided in **Section 5.2.7**, impacts to the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive

intersections would be *less-than-significant*. **Mitigation Measures 7-6** and **7-7**, **7-24** and **7-25**, as well as **Improvement Measure 7-19** through **7-23**, would be implemented to further reduce traffic load and capacity impacts at intersections within the study area.

Impact Discussion: Trip Generation

The projected vehicle trip generation that would result from the operation of Alternative A is shown in **Table 4.8-3**.

TABLE 4.8-3
TRIP GENERATION - ALTERNATIVE A

Facility	ITE Code	Size (Units)	Weekday						Saturday		
			AM Peak Hour			PM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Casino	-	277.52 (KSF)	203	95	300	400	354	756	485	569	1,052
Hotel	310	800 (rooms)	82	52	134	75	67	142	97	76	173
Point Hotel	330/310	329 (rooms)	22	9	31	18	24	41	40	31	71
Retail New	820	300 (KSF)	67	43	110	194	209	403	278	257	534
Office	710	7.10 (KSF)	10	1	11	2	9	11	2	1	3
Total Trips			384	200	586	689	663	1,354	902	934	1,833

Note: KSF = thousand square feet

Hotel trip generation is based from ITE Trip Generation 7th Edition, and reduced by 70% and 50% to allow for internal interaction between casino and retail, respectively.

Source: DMJM Harris/AECOM, Transportation Impact Analysis, 2008.

Impact Discussion: Operational Analysis

Table 4.8-4 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. 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 or the project contributes less than one percent of traffic volume at previously impacted intersections (in the background condition) with the exception of the following:

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM peak hour);
- Sir Francis Drake Blvd. and Andersen Drive (Weekday AM, PM, and Saturday 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 4.8-4
PEAK HOUR INTERSECTION OPERATIONS – ALTERNATIVE A

NO.	Intersections	Weekday AM		Weekday PM		Saturday PM	
		LOS	Critical V/C	LOS	Critical V/C	LOS	Critical V/C
1	Richmond Parkway (Castro Street)/ Redwood Way/WB I-580 On/Off	A	0.44	C	0.80	A	0.59
2	Marine Street/EB I-580 On/Off Ramps	A	0.29	D	0.80	A	0.53
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	A	0.51	A	0.42	A	0.24
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	A	0.50	A	0.44	A	0.28
5	Cutting Boulevard/WB I-580 On/Off Ramp	A	0.47	A	0.19	A	0.08
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.23	A	0.22	A	0.11
7	Harbour Way/WB I-580 Off-Ramp	B	10.8 ¹	B	12.3 ¹	A	9.8 ¹
8	Cutting Boulevard/S. Harbor Way	A	0.51	A	0.58	A	0.42
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.35	A	0.38	A	0.20
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.25	A	0.36	A	0.20
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	A	0.53	A	0.52	A	0.36
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	10.0 ¹	B	10.7 ¹	A	9.1 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.22	A	0.15	A	0.07
14	Carlson Boulevard /Cutting Boulevard	A	0.39	A	0.36	A	0.28
15	Cutting Boulevard/S. 49 th Street	A	0.30	A	0.31	A	0.24
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.45	A	0.47	A	0.32
17	MacDonald Avenue/S. Harbor Way	A	0.44	A	0.55	A	0.40
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.42	A	0.44	A	0.28
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	A	0.51	A	0.46	A	0.29
20	Richmond Parkway/Castro St./Hensley St.	A	0.39	B	0.70	A	0.23
21	Richmond Parkway/Gertrude Avenue	A	0.55	D	0.90	A	0.57
22	Richmond Parkway/Parr Boulevard	C	0.77	D	0.88	A	0.51
23	Richmond Parkway/San Pablo Avenue	D	0.89	C	0.80	A	0.57
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	B	0.69	E	0.92	D	0.87
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.19	A	0.59	A	0.60
26	San Pablo Ave. Appian Way/Pinon Ave.	B	0.66	C	0.72	A	0.45
27	Western Drive/Chevron Access	A	1.8 ²	A	2.3 ²	A	2.9 ²
28	Sir Francis Drake Blvd./Andersen Drive	F	87.6¹	F	1196.3¹	F	73.0¹
29	Richmond Parkway/ Pittsburg Avenue	B	0.61	D	0.89	A	0.59
30	Richmond Parkway and Goodrick Avenue	B	0.63	D	0.87	A	0.58
31	Richmond Parkway/I-80 On/Off Ramps	A	0.27	B	0.68	A	0.40

V/C = Vehicle to capacity ratio. **Bold** type = unacceptable LOS.

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

² 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**).

Thus, based on the significance criteria noted above, a potentially significant impact would result at these intersections. Mitigation measures proposed for the Richmond Parkway/Blume Drive and Sir Francis Drake/Andersen Drive intersections would result in acceptable LOS and a less-than-significant impact at these intersections. The intersections at Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and Sir Francis Drake Boulevard and U.S. 101 Northbound On- and Off-Ramps would operate at LOS E and F, respectively. Analysis of intersections under Alternative A in the City of Larkspur along Sir Francis Drake Boulevard is provided in Appendix HH.

4.8.3 Construction traffic under Alternative A has the potential to increase the existing traffic load of roadways within the study area. This would be a less-than-significant impact.

Construction activities would add 2,595 trips per day. These trips would have the same impact on roadways as intersections, which are discussed in **Impact 4.8.1**; therefore, this is a *less-than-significant* impact.

4.8.4 Operational traffic under Alternative A has the potential to increase the existing traffic load of roadway segments within the study area. This would be a less-than-significant impact.

Volume to capacity ratios and LOS for Alternative A, have been calculated for the study area freeway segments and are shown in **Table 4.8-5**. With development of Alternative A, all of the study area freeway segments are projected to operate at an acceptable LOS, except for the SB U.S. 101 Off-Ramp to EB I-580 and WB I-580 On-Ramp to NB U.S. 101. Under Alternative A, SB U.S. 101 Off-Ramp to EB I-580 in the AM peak hour and WB I-580 On-Ramp to NB U.S. 101 in the PM peak hour would not have an increase in traffic greater than two percent. Therefore, a *less-than-significant* impact would occur due to increased project-related traffic.

4.8.5 Construction traffic under Alternative A has the potential to result in inadequate emergency access. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7**, Alternative A would have a *less-than-significant* impact.

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones. Primary impacts from construction-related activities would include short-term and intermittent lessening of roadway and intersection capacities. Most construction-related activities would occur throughout the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic, which may result

from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even a temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** would result in adequate emergency access to Western Drive, and reduce the potential impact to a *less-than-significant* level.

TABLE 4.8-5
BACKGROUND PLUS PROJECT FREEWAY SEGMENT LOS - 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	2,727	29.2	D	3,915	40.5	E
I-580 Western Drive to Castro Street ¹	EB	3	2,520	15.9	B	3,549	22.4	C
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,223	19.2	B	2,834	31.8	D
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	2,689	17.0	B	3,574	22.6	C
I-580 Canal Blvd. to Castro Street ¹	WB	3	3,313	20.9	C	3,913	24.7	C
I-580 at Castro Street On-Ramp ²	WB	3	3,223	28.0	D	3,768	30.0	D
I-580 Castro Street to Western Drive ¹	WB	3	4,344	27.4	D	4,787	30.3	D
I-580 Western Drive Off-Ramp ²	WB	3	4,344	30.7	D	4,787	33.5	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,136	18.4	B	5,612	32.2	D
I-80 at Richmond Parkway Off-Ramp ²	WB	4	6,981	28.2	D	5,253	18.1	B
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	1,834	19.0	F	1,914	4.1	A
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	2,082	7.5	A	1,822	31.8	F
WB I-580 Richmond/San Rafael Bridge	WB	2	3,921	39.5	E	4,037	41.7	E
EB I-580 Richmond/San Rafael Bridge	EB	2	2,478	23.5	C	3,414	32.6	D
SR-4 at I-80 EB Off-Ramp	EB	4	2,695	19.1	B	3,376	25.2	C
SR-4 at Willow Avenue	EB	4	1,910	16.4	B	2,274	19.5	C
SR-4 at Sycamore Avenue	WB	4	1,822	15.6	B	2,665	22.8	C
SR-4 at Willow Avenue	WB	4	1,338	11.5	B	1,609	13.8	B

Note: 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 STIA.

Source: DMJM Harris/AECOM, TIA, 2008; Abrams and Associates, STIA, 200 (**Appendix S**).

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones.

Primary impacts from construction-related activities would include short-term and intermittent

lessening of roadway and intersection capacities. Most construction-related activities would occur throughout the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic, which may result from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even a temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** would result in adequate emergency access to Western Drive, and reduce the potential impact to a *less-than-significant* level

4.8.6 Operational traffic under Alternative A would not result in inadequate emergency access. This is a less-than-significant impact.

Operation of Alternative A would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area, given that there are no significant impacts to study area roadways or intersections (see **Tables 4.8-4** and **4.8-5**); therefore, a *less-than-significant* impact would occur.

4.8.7 Construction and operational traffic under Alternative A would provide adequate parking. This is a less-than-significant impact.

Construction

During construction of Alternative A, an on-site staging area would be designated, which would include parking spaces for construction worker vehicles and equipment. This area would provide adequate parking for worker and construction vehicles; therefore, this is a *less-than-significant* impact.

Operation

Parking structures, parking lots, and bus parking described in **Section 2.0** would provide adequate parking for the operation of Alternative A. The casino and resort hotel parking structures would provide 7,500 parking spaces, while the Tribal parking lot would provide 30 spaces. An additional 30 parking spaces for buses would be provided on the north end of the Winehaven Building No. 1. The 7,560 total parking spaces would be adequate for the casino, entertainment, and hotel complex, and other land uses. This is a *less-than-significant* impact.

4.8.8 Construction and operational traffic under Alternative A would not conflict with adopted plans supporting alternative transportation. This is a less-than-significant impact.

Adopted plans that support alternative modes of transportation in the vicinity of the project site include the Bay Trail (1989), the Contra Costa County Bicycle and Pedestrian Plan, 2001, the Contra Costa County Trail Review Study and Trail Design Guidelines, 2001, and the East Bay Regional Park District Master Plan, 1997. Construction of Alternative A would not impede the completion of the Bay Trail or inhibit the goals of the above plans. Operation of Alternative A would aid in the completion of the Bay Trail and goals of the above plans. This is a *less than significant* impact.

4.8.9 Operation of ferry service, under Alternative A, has the potential to decrease vehicular traffic in the study area. This is a beneficial impact.

The proposed ferry service, which is included in all four proposed development alternatives, is anticipated to accommodate 3,000 round trip passengers per day, with a maximum of 30 individual ferry landings per day and would operate between the project site, San Francisco, and Vallejo. According to the Gaming Market Assessment (**Appendix T**), most of the trips generated by Alternative A would come from cities that have access to ferry transportation (i.e. San Francisco and Vallejo). As discussed in the TIA (**Appendix S**), the addition of the ferry service to the project site and integration of an intermodal transit hub would have a *beneficial* impact on local vehicular traffic, rail, bus, and other ferry services.

4.8.10 Implementation of Alternative A has the potential to increase riders on local rail and bus services. This is a less-than-significant impact.

In the peak hour it is estimated approximately 10% of all project trips would arrive via public or private transit. This translates to approximately 60 AM peak, 140 PM peak trips. These trips would arrive via public sector providers (AC Transit, Golden Gate Transit, Amtrak and BART), private sector shuttles and chartered coach. Shuttles provided by the Tribe would run every half hour from the project site to the Richmond BART station during BARTS operating hours. Near term plans include construction of a five-story 800 space parking garage located on the west side of the station, which would replace the existing parking spaces (refer to **Section 4.15**). The Richmond BART Station has eight bus/shuttle stops, which provides adequate loading/unloading space for AC Transit buses 70, 71, 76, 376 and WestCAT buses 16, 17, 18, JPX, JR and additional project shuttles. Given the available capacity on existing public transit facilities plus augmentation of capacity by shuttle busses and coach services, this is a *less-than-significant* impact.

4.8.11 Implementation of Alternative A would not substantially increase hazards due to a design feature or incompatible uses along roadways in the study area. This is a less-than-significant impact.

The project would improve Western Drive from I-580 through the project site. However, the roadway improvement would not involve construction of any sharp curves or dangerous intersections nor would it be incompatible with the proposed land use (see **Section 2.0**). This is a *less-than-significant* impact.

4.8.12 Implementation of Alternative A has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

Table 10 of the STIA provided in **Appendix S** provides the LOS for westbound I-580 through the toll plaza under Alternative A. Under Alternative A, the LOS at the toll plaza is LOS E for both the AM and PM peak hours. Table 9 of the STIA shows the vehicles-per-lane per hour westbound through the toll plaza is 3,921 in the AM peak hour and 4,037 in the PM peak hour. Under Alternative A, I-580 at the toll plaza would not exceed 4,225 vehicles per hour; therefore, a *less-than-significant* impact would occur.

4.8.2 ALTERNATIVE B – MIXED-USE TRIBAL DESTINATION RESORT AND CASINO WITH RESIDENTIAL COMPONENT

IMPACTS OF ALTERNATIVE B

4.8.13 Construction traffic under Alternative B has the potential to substantially increase the existing traffic load of intersections within the study area. This is a less-than potentially significant impact.

Significance After Mitigation

With implementation of **Mitigation Measures 7-1 through 7-3** provided in **Section 5.2.7**, construction-related traffic would be *less-than-significant*.

Impact Discussion

The construction period of Alternative B would generate temporary and intermittent traffic from construction workers, soil hauling of clean and impacted soil, and material deliveries, most of which would occur outside of the peak hour. It is estimated that up to 2,730 trips per day would be generated by construction workers, 61 trips per day from excavated soil hauling, and 8 trips from building material deliveries. A passenger car equivalent (PCE) factor of 2.0 was applied to the truck trips for the project, based on the size of the vehicles, the relative weight of the load, and the surrounding terrain. Thus, soil hauling and building material delivery trips would be equal to 138 passenger cars. The construction phase would result in a total of 2,868 ~~799~~ PCE trips per day, which is ~~14.75 percent~~ less than one fifth of total operational trips for Alternative B. Considering that the number of construction generated trips is significantly less than the estimated trips generated during operation of Alternative B, this would be a *less-than-significant*

impact. However, with implementation of **Mitigation Measures 7-1** through **7-3**, would further reduce construction related impacts.

4.8.14 Operational traffic under Alternative B has the potential to substantially increase the existing traffic load of intersections within the study area. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-4** and **7-5** provided in **Section 5.2.7**, impacts to the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive intersections would be *less-than-significant*. **Mitigation Measures 7-6** and **7-7**, **7-24** and **7-25**, as well as **Improvement Measures 7-18** and **7-19** through **7-23**, would be implemented to further reduce traffic load and capacity impacts at intersections within the study area.

Impact Discussion: Trip Generation

The projected vehicle trip generation resulting from the operation of Alternative B is shown in **Table 4.8-6**.

TABLE 4.8-6
TRIP GENERATION - ALTERNATIVE B

Facility	ITE Code	Size (Units)	Weekday						Saturday		
			AM Peak Hour			PM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Casino	-	279.25 (KSF)	204	96	300	404	357	760	486	572	1,059
Hotel	310	800 (rooms)	82	52	134	75	67	142	97	76	173
Point Hotel	330/310	329 (rooms)	22	9	31	18	24	41	40	31	71
Retail	820	300 (KSF)	67	43	110	194	209	403	278	257	534
Office	710	7.10 (KSF)	10	1	11	2	9	11	2	1	3
Townhouse	230	340 (per/unit)	25	124	150	118	58	177	86	74	160
Total Trips			410	325	736	811	724	1,534	989	1,011	2,000

Note: KSF = thousand square feet

Hotel trip generation is based from ITE Trip Generation 7th Edition, and reduced by 70% and 50% to allow for internal interaction between casino and retail, respectively.

Source: DMJM Harris/AECOM, TIA, 2008.

Impact Discussion: Operation

Table 4.8-7 shows the weekday intersection delays and LOS for AM and PM weekday and PM Saturday peak hour traffic at each of the study intersections with the implementation of Alternative B. Weekday AM and PM and Saturday PM peak hour turning volumes at each of the study intersections are provided in **Appendix S**.

TABLE 4.8-7
PEAK HOUR INTERSECTION OPERATIONS – 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	0.44	D	0.81	A	0.60
2	Marine Street/EB I-580 On/Off Ramps	A	0.30	D	0.82	A	0.53
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	A	0.51	A	0.43	A	0.24
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	A	0.51	A	0.44	A	0.28
5	Cutting Boulevard/WB I-580 On/Off Ramp	A	0.47	A	0.19	A	0.09
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.23	A	0.22	A	0.11
7	Harbour Way/WB I-580 Off-Ramp	B	10.8 ¹	B	12.3 ¹	A	9.8 ¹
8	Cutting Boulevard/S. Harbor Way	A	0.51	A	0.58	A	0.42
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.35	A	0.38	A	0.20
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.25	A	0.36	A	0.20
11	Cutting Boulevard/Marina Bay Parkway/23 rd Street	A	0.53	A	0.52	A	0.36
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	10.0 ¹	B	10.7 ¹	A	9.1 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.22	A	0.15	A	0.07
14	Carlson Boulevard /Cutting Boulevard	A	0.39	A	0.36	A	0.28
15	Cutting Boulevard/S. 49 th Street	A	0.30	A	0.31	A	0.24
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.45	A	0.47	A	0.32
17	MacDonald Avenue/S. Harbor Way	A	0.44	A	0.55	A	0.40
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.42	A	0.44	A	0.29
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	A	0.52	A	0.47	A	0.29
20	Richmond Parkway/Castro St./Hensley St.	A	0.40	A	0.70	A	0.24
21	Richmond Parkway/Gertrude Avenue	A	0.57	D	0.90	A	0.57
22	Richmond Parkway/Parr Boulevard	C	0.77	D	0.88	A	0.51
23	Richmond Parkway/San Pablo Avenue	D	0.89	D	0.80	A	0.57
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	B	0.69	E	0.92	D	0.87
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.19	A	0.59	A	0.60
26	San Pablo Ave./Appian Way/Pinon Ave.	B	0.66	C	0.72	A	0.45
27	Western Drive and Chevron Access	A	1.9 ²	A	2.4 ²	A	3.1 ²
28	Sir Francis Drake Blvd. and Andersen Drive	F	88.7¹	F	1,207.3¹	F	73.7¹
29	Richmond Parkway/Pittsburg Avenue	B	0.62	D	0.89	A	0.60
30	Richmond Parkway/Goodrick Avenue	B	0.63	D	0.87	A	0.59
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.28	B	0.68	A	0.40

V/C = Vehicle to capacity ratio. Bold type = unacceptable LOS.

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

² 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**).

With the addition of project-related traffic, all of the study intersections are projected to operate at an acceptable LOS or the project contributes less than one percent of traffic volume at previously impacted intersections (in the background condition) with the exception of the following:

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM peak hour);
- Sir Francis Drake Blvd. and Andersen Drive (weekday AM and PM and Saturday PM peak hours);
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal);
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard.

Thus, based on the significance criteria noted above, a potentially significant impact would result at these intersections. Mitigation measures proposed for the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive intersections would result in acceptable LOS and a less-than-significant impact at these intersections. The intersections at Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and Sir Francis Drake Boulevard and U.S. 101 Northbound On- and Off-Ramps would operate at LOS E and F, respectively. Analysis of intersections under Alternative B in the City of Larkspur along Sir Francis Drake Boulevard is provided in **Appendix HH**.

4.8.15 Construction traffic under Alternative B has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Under Alternative B construction-related traffic impacts along roadways within the study area would be similar to Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.16 Operational traffic under Alternative B has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Volume to capacity ratios and LOS for Alternative B has been calculated for the study area freeway segments and are shown in **Table 4.8-8**. With development of Alternative B, all of the study freeway segments are projected to operate at an acceptable LOS, except for SB U.S. 101 Off-Ramp to EB I-580 and WB I-580 On-Ramp to NB U.S. 101. Under Alternative B, SB U.S. 101 Off-Ramp to EB I-580 in the AM peak hour and WB I-580 On-Ramp to NB U.S. 101 in the PM peak hour would not have an increase in traffic greater than two percent. Therefore, a *less-than-significant* impact would occur due to increased project-related traffic.

TABLE 4.8-8
BACKGROUND PLUS PROJECT ROADWAY SEGMENT LOS - 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	2,732	29.2	D	3,937	40.7	E
I-580 Western Drive to Castro Street ¹	EB	3	2,622	16.5	B	3,599	22.7	C
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,299	20.3	C	2,871	32.3	D
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	2,765	17.4	B	3,611	22.8	C
I-580 Canal Blvd. to Castro Street ¹	WB	3	3,329	21.0	C	3,987	25.2	C
I-580 at Castro Street On-Ramp ²	WB	3	3,329	28.2	D	3,842	30.7	D
I-580 Castro Street to Western Drive ¹	WB	3	4,371	27.6	D	4,909	31.1	D
I-580 Western Drive Off-Ramp ²	WB	3	4,371	30.8	D	4,909	34.3	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,138	18.5	B	5,613	32.3	D
I-80 at Richmond Parkway Off-Ramp ²	WB	4	6,986	28.2	D	5,277	18.3	B
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	1,838	19.0	F	2,102	9.4	A
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	1,934	7.7	A	1,831	31.9	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	3,944	39.9	E	4,048	41.9	E
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,580	24.5	C	3,464	33.1	D
SR-4 at I-80 EB Off-Ramp	EB	4	2,709	18.9	B	3,383	25.3	C
SR-4 at Willow Avenue	EB	4	1,924	16.2	B	2,281	19.6	C
SR-4 at Sycamore Avenue	WB	4	1,825	15.3	B	2,678	23.0	C
SR-4 at Willow Avenue	WB	4	1,341	11.1	B	1,622	13.9	B

Note: **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 (**Appendix S**).

4.8.17 Construction traffic under Alternative B has the potential to result in inadequate emergency access. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** Alternative B would have a *less-than-significant* impact.

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones. Primary impacts from construction-related activities would include short-term and intermittent

lessening of roadway and intersection capacities. Most construction-related activities would occur throughout the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic, which may result from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even a temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** would result in adequate emergency access to Western Drive, and reduce the potential impact to a less-than-significant level.

4.8.18 Operational traffic under Alternative B has the potential to result in inadequate emergency access. This is a less-than-significant impact.

Operation of Alternative B would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area, given that there are no significant impacts to study area roadways or intersections (see **Tables 4.8-7** and **4.8-8**). Therefore, a *less-than-significant* impact would occur.

4.8.19 Construction and operational traffic under Alternative B would provide adequate parking. This is a less-than-significant impact.

Construction

During construction of Alternative B, an on-site staging area would be designated that would include adequate parking spaces for construction worker vehicles and equipment. Therefore, this is a *less-than-significant* impact.

Operation

Parking structures, parking lots, and bus parking spaces described in **Section 2.0** would provide adequate parking for the operation of Alternative B. The casino and resort hotel parking structures would provide 7,500 parking spaces, while the Tribal parking lot would provide 30 spaces. An additional 30 parking spaces for buses would be provided on the north end of the Building No. 1. The 7,560 total parking spaces would be adequate for the casino, entertainment, and hotel complex, and other land uses. This is a *less-than-significant* impact.

4.8.20 Construction and operational traffic under Alternative B would not conflict with adopted plans supporting alternative transportation. This is a less-than-significant impact.

Alternative B would have the same impact on alternative transportation as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.21 Operation of ferry service, under Alternative B, has the potential to decrease vehicular traffic within the study area. This is a beneficial impact.

Alternative B would have a similar impact on local vehicular traffic, rail, bus, and other ferry services as Alternative A; therefore, a *beneficial* impact would occur.

4.8.22 Implementation of Alternative B has the potential to increase riders on local rail and bus services. This is a less-than-significant 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.

4.8.23 Implementation of Alternative B would not substantially increase hazards due to a design feature or incompatible uses along roadways in the study area. This is a less-than-significant impact.

Alternative B would have the same impact on roadways as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.24 Implementation of Alternative B has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

Table 10 of the supplemental TIA provided in Appendix S provides the LOS for westbound I-580 through the toll plaza under Alternative B. Under Alternative B the LOS at the toll plaza is LOS E 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 3,944 in the AM peak hour and 4,048 in the PM peak hour. Under Alternative B, I-580 at the toll plaza would not exceed 4,225 vehicles per hour; therefore, a *less-than-significant* impact would occur.

4.8.3 ALTERNATIVE C – REDUCED INTENSITY MIXED-USE TRIBAL DESTINATION RESORT AND CASINO

IMPACTS OF ALTERNATIVE C

4.8.25 Construction traffic under Alternative C has the potential to increase the existing traffic load of intersections within the study area. This is a less-than potentially significant impact.

Significance After Mitigation

With implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7**, construction-related traffic would be *less-than-significant*.

Impact Discussion

The construction period of Alternative C would generate temporary and intermittent traffic from construction workers, ~~soil-hauling~~ clean and impacted soil and material deliveries, most of which would occur outside of the peak hour. The TIA estimated construction trips for Alternative B; therefore, construction trips generated during construction of Alternative C would be reduced to match the project specific design of Alternative C (i.e. reduced soil hauling and no housing component). It is estimated that up to 1,634 trips per day would be generated by construction workers, 61 trips per day from excavated soil hauling, and 5 trips from building material deliveries. A passenger car equivalent (PCE) factor of 2.0 was applied to the truck trips for the project, based on the size of the vehicles, the relative weight of the load, and the surrounding terrain. Thus, soil hauling and building material delivery trips would be equal to 132 passenger cars. The construction phase would result in a total of 1,766 PCE trips per day, which is 15.8 percent less than one fifth of total operational trips for Alternative C. Considering that the number of construction generated trips is significantly less than the estimated trips generated during operation of Alternative C, this would be a less-than-significant impact. However impact with implementation of Mitigation Measures 7-1 through 7-3. would further reduce construction related impacts.

4.8.26 Operational traffic under Alternative C has the potential to substantially increase the existing traffic load of intersections within the study area. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-4 and 7-5** provided in **Section 5.2.7**, impacts to the Richmond Parkway/Blume Drive Sir Francis Drake Boulevard/Andersen Drive intersections would be *less-than-significant*. **Mitigation Measures 7-6 and 7-7, 7-24 and 7-25**, as well as **Improvement Measure 7-19 through 7-23**, would be implemented to further reduce existing traffic load and capacity impacts at intersections within the study area.

Impact Discussion: Trip Generation

The projected vehicle trip generation resulting from the operation of Alternative C is shown in **Table 4.8-9**.

TABLE 4.8-9
TRIP GENERATION - ALTERNATIVE C

Facility	ITE Code	Size (Units)	Weekday						Saturday		
			AM Peak Hour			PM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Casino	-	279.25 (KSF)	204	96	300	404	357	760	486	572	1,059
Hotel	310	429 (rooms)	43	27	70	35	33	68	49	38	87
Retail	820	20 (KSF)	2	2	3	7	7	14	10	9	18
Office	710	7.10 (KSF)	10	1	11	2	9	11	2	1	3
Total Trips			259	126	384	448	406	853	547	620	1,167

Notes: KSF = thousand square feet

Hotel trip generation is based from ITE Trip Generation 7th Edition, and reduced by 70% and 50% to allow for internal interaction between casino and retail, respectively.

Source: DMJM Harris/AECOM, TIA, 2008 (**Appendix S**).

Impact Discussion: Operation

Table 4.8-10 shows the weekday intersection delays and LOS for AM and PM weekday and 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 or the project contributes less than one percent of traffic volume at previously impacted intersections (in the background condition) with the exception of the following:

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM peak hour);
- Sir Francis Drake Blvd and Andersen Drive. (Weekday AM and PM and Saturday PM peak hours);
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal);
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard.

Thus, based on the significance criteria noted above, a potentially significant impact would result at these intersections. Mitigation measures proposed for the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive intersections would result in acceptable LOS and a less-than-significant impact at these intersections.– The intersections at Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and Sir Francis Drake Boulevard and U.S. 101 Northbound On- and Off-Ramps would operate at LOS E and F, respectively. Analysis of intersections under Alternative C in the City of Larkspur along Sir Francis Drake Boulevard is provided in **Appendix HH**.

TABLE 4.8-10
PEAK HOUR INTERSECTION OPERATIONS – 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	0.44	C	0.77	A	0.56
2	Marine Street/EB I-580 On/Off Ramps	A	0.28	C	0.78	A	0.49
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	A	0.51	A	0.40	A	0.23
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	A	0.50	A	0.42	A	0.26
5	Cutting Boulevard/WB I-580 On/Off Ramp	A	0.46	A	0.18	A	0.07
6	Cutting Blvd./EB I-580 Off-Ramp/Hoffman Blvd.	A	0.23	A	0.21	A	0.10
7	Harbour Way/WB I-580 Off-Ramp	B	10.8 ¹	B	12.3 ¹	A	9.8 ¹
8	Cutting Boulevard/S. Harbor Way	A	0.50	A	0.57	A	0.40
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.35	A	0.38	A	0.20
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.25	A	0.36	A	0.20
11	Cutting Boulevard/Marina Bay Parkway/23 rd St.	A	0.53	A	0.52	A	0.35
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	10.0 ¹	B	10.7 ¹	A	9.1 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.22	A	0.15	A	0.07
14	Carlson Boulevard /Cutting Boulevard	A	0.39	A	0.36	A	0.28
15	Cutting Boulevard/S. 49 th Street	A	0.30	A	0.31	A	0.24
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.45	A	0.46	A	0.31
17	MacDonald Avenue/S. Harbor Way	A	0.44	A	0.54	A	0.40
18	Richmond Parkway/Garrard Blvd./W. MacDonald Ave.	A	0.41	A	0.42	A	0.26
19	Richmond Parkway/Garrard Blvd/W. Barrett Ave.	A	0.50	A	0.45	A	0.27
20	Richmond Parkway/Castro Street/Hensley Street	A	0.39	B	0.70	A	0.21
21	Richmond Parkway/Gertrude Avenue	A	0.54	D	0.88		0.55
22	Richmond Parkway/Parr Boulevard	C	0.76	D	0.86	A	0.49
23	Richmond Parkway/San Pablo Avenue	D	0.88	C	0.79	A	0.56
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	B	0.69	E	0.92	D	0.87
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.19	A	0.59	A	0.60
26	San Pablo Avenue/Appian Way/Pinole Avenue	B	0.66	C	0.72	A	0.44
27	Western Drive and Chevron Access	A	1.7 ²	A	1.9 ²	A	2.2 ²
28	Sir Francis Drake Blvd. and Andersen Drive	F	86.8¹	F	1165.2¹	F	70.4¹
29	Richmond Parkway/Pittsburg Avenue	B	0.61	D	0.87	A	0.58
30	Richmond Parkway/Goodrick Avenue	B	0.62	D	0.85	A	0.57
31	Richmond Parkway /I-80 On/Off Carpool Ramps	A	0.27	B	0.67	A	0.39

V/C = Vehicle to capacity ratio. **Bold** type = unacceptable LOS.

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

² 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**).

4.8.27 Construction traffic under Alternative C has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Under Alternative C construction-related traffic impacts along roadways within the study area would be less than those of Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.28 Operational traffic under Alternative C has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Volume to capacity ratios and LOS for Alternative C, have been calculated for the study area freeway segments and are shown in **Table 4.8-11**. With development of Alternative C, all of the study freeway segments are projected to operate at an acceptable LOS, except for SB U.S. 101 Off-Ramp to EB I-580 and WB I-580 On-Ramp to NB U.S. 101. Under Alternative C, SB U.S. 101 Off-Ramp to EB I-580 in the AM peak hour and WB I-580 On-Ramp to NB U.S. 101 in the PM peak hour would not have an increase in traffic greater than two percent. Therefore, a *less-than-significant* impact would occur due to increased project-related traffic.

4.8.29 Construction traffic under Alternative C has the potential to result in inadequate emergency access. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** Alternative C would have a *less-than-significant* impact.

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones. Primary impacts from construction-related activities would include short-term and intermittent lessening of roadway and intersection capacities. Most construction-related activities would occur during the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic that may result from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even a temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of mitigation measures provided in **Section 5.2.7** would result in adequate emergency access to Western Drive and would reduce the potential impact to a *less-than-significant* level.

TABLE 4.8-11
BACKGROUND PLUS PROJECT FREEWAY SEGMENT LOS - 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	2,705	29.0	D	3,871	40.1	E
I-580 Western Drive to Castro Street ¹	EB	3	2,451	15.5	B	3,293	20.8	C
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,170	18.9	B	2,631	29.4	D
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	2,636	16.6	B	3,371	21.3	C
I-580 Canal Blvd. to Castro Street ¹	WB	3	3,221	20.3	C	3,726	23.5	C
I-580 at Castro Street On-Ramp ²	WB	3	3,131	27.1	C	3,581	28.1	D
I-580 Castro Street to Western Drive ¹	WB	3	4,200	26.5	D	4,493	28.4	D
I-580 Western Drive Off-Ramp ²	WB	3	4,200	29.7	D	4,493	31.5	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,134	18.3	B	5,607	32.2	D
I-80 at Richmond Parkway Off-Ramp ²	WB	4	6,956	27.9	C	5,206	17.7	B
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	1,815	18.8	F	2,045	9.0	A
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	1,903	7.4	A	1,781	31.5	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	3,907	39.2	E	3,989	40.8	E
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,409	22.9	C	3,158	30.0	D
SR-4 at I-80 EB Off-Ramp	EB	4	2,687	19.0	B	3,348	25.0	C
SR-4 at Willow Avenue	EB	4	1,902	16.3	B	2,246	19.2	C
SR-4 at Sycamore Avenue	WB	4	1,808	15.5	B	2,639	22.6	C
SR-4 at Willow Avenue	WB	4	1,324	11.4	B	1,583	13.6	B

Note: **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
 (Appendix S).

4.8.30 Operational traffic under Alternative C would not result in inadequate emergency access. This is a less-than-significant impact.

Operation of Alternative C would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area, given that there are no significant impacts to study area roadways or intersections (see **Tables 4.8-10** and **4.8-11**). Therefore, a *less-than-significant* impact would occur.

4.8.31 Construction and operational traffic under Alternative C would provide adequate parking. This is a less-than-significant impact.

Construction

During construction of Alternative C, an on-site staging area would be designated that would include an adequate number of parking spaces for construction worker vehicles and equipment. Therefore, this is a *less-than-significant* impact.

Operation

Parking structures, parking lots, and bus parking spaces outlined in **Section 2.0** would provide adequate parking for the operation of Alternative C. The parking structure would provide 5,000 parking spaces, while the tribal parking lot would provide 30 spaces. An additional 30 parking spaces for buses would be provided on the north end of the Winehaven building. The 5,060 total parking spaces would be adequate for the casino, entertainment, and hotel complex. This is a *less-than-significant* impact.

4.8.32 Construction and operational traffic under Alternative C would not conflict with adopted plans supporting alternative transportation. This is a less-than-significant impact.

Alternative C would have the same impact on alternative transportation as Alternative A; therefore, a *less-than-significant* impact would occur

4.8.33 Operation of ferry service, under Alternative C, has the potential to decrease vehicular traffic in the study area. This is a beneficial impact.

Alternative C would have a similar impact on local vehicular traffic, rail, bus, and other ferry services as Alternative A; therefore, a *beneficial* impact would occur.

4.8.34 Implementation of Alternative C has the potential to increase riders on local rail and bus services. This is a less-than-significant impact.

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

4.8.35 Implementation of Alternative C would not substantially increase hazards due to a design feature or incompatible uses along roadways in the study area. This is a less-than-significant impact.

Alternative C would have a similar impact on roadways as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.36 Implementation of Alternative C has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

Table 10 of the supplemental TIA provided in **Appendix S** provides the LOS for westbound I-580 through the toll plaza under Alternative C. Under Alternative C the LOS at the toll plaza is LOS E 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 3,907 in the AM peak hour and 3,989 in the PM peak hour. Under Alternative C, I-580 at the toll plaza would not exceed 4,225 vehicles per hour; therefore, a *less-than-significant* impact would occur.

4.8.4 ALTERNATIVE D – NON-TRUST ACQUISITION WITH NON-GAMING MIXED-USE DEVELOPMENT

IMPACTS OF ALTERNATIVE D

4.8.37 Construction traffic under Alternative D has the potential to increase the existing traffic load of intersections within the study area. This is a less-than potentially significant impact.

Significance After Mitigation

With implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7**, construction-related traffic would be *less-than-significant*.

Impact Discussion

The construction period of Alternative D would generate temporary and intermittent traffic from construction workers, ~~soil-hauling,~~ clean and impacted soil and material deliveries, most of which would occur outside of the peak hour. The TIA estimated construction trips for Alternative B; therefore, construction trips generated during construction of Alternative D would be reduced to match the project specific design of Alternative D. It is estimated that up to 1,365 trips per day would be generated by construction workers, 61 trips per day from soil hauling, and 4 trips from building material deliveries. A passenger car equivalent (PCE) factor of 2.0 was applied to the truck trips for the project, based on the size of the vehicles, the relative weight of the load, and the surrounding terrain. Thus, soil hauling and building material delivery trips would be equal to 130 passenger cars. The construction phase would result in a total of 1,495 PCE trips per day, which is ~~17 percent~~ less than one fifth of total operational trips for Alternative D. Considering that the number of construction generated trips is significantly less than the estimated trips generated during operation of Alternative D, this would be a *less-than-significant* impact. ~~Implementation with implementation of **Mitigation Measures 7-1** through **7-3**. would further reduce construction related impacts.~~

4.8.38 Operational traffic under Alternative D has the potential to increase the existing traffic load of intersections within the study area. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-4** and **7-5** provided in **Section 5.2.7**, impacts to the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive intersection would be *less-than-significant*. **Mitigation Measures 7-6** and **7-7**, **7-24** and **7-25** and **Improvement Measures 7-18** and **7-19** through **7-23** would be implemented to further reduce traffic load and capacity impacts of intersections within the study area.

Impact Discussion: Trip Generation

The projected vehicle trip generation resulting from the operation of Alternative D is shown in **Table 4.8-12**.

TABLE 4.8-12
TRIP GENERATION - ALTERNATIVE D

Facility	ITE Code	Size (Units)	Weekday						Saturday		
			AM Peak Hour			PM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Hotel Tower	310	150 (rooms)	39	31	70	42	35	77	53	42	95
Retail	820	100 (KSF)	27	16	44	79	81	161	101	93	194
Office	710	7.10 (KSF)	2	-	2	-	2	2	-	-	1
Townhouse	230	1,100 (units)	47	283	330	258	125	383	186	154	340
Restaurant	932	40 (KSF)	128	111	240	124	71	196	250	119	369
Total Trips			243	441	686	503	314	819	590	408	999

Notes: KSF = thousand square feet

Hotel trip generation is based from ITE Trip Generation 7th Edition, and reduced by 70% and 50% to allow for internal interaction between casino and retail, respectively.

Source: DMJM Harris/AECOM, Transportation Impact Analysis, 2008.

Impact Discussion: Operation

Table 4.8-13 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 D. 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 or the project contributes less than one percent of traffic volume at previously impacted intersections (in the background condition) with the exception of the following:

TABLE 4.8-13
PEAK HOUR INTERSECTION OPERATIONS – 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	0.44	C	0.78	A	0.56
2	Marine Street/EB I-580 On/Off Ramps	A	0.28	C	0.79	A	0.49
3	Garrard Boulevard/Canal Boulevard/ WB I-580 On/Off	A	0.51	A	0.40	A	0.23
4	Garrard Boulevard/Canal Boulevard/EB I-580 On/Off	A	0.52	A	0.41	A	0.24
5	Cutting Boulevard/WB I-580 On/Off Ramp	A	0.46	A	0.18	A	0.07
6	Cutting Boulevard/EB I-580 Off-Ramp/Hoffman Boulevard	A	0.24	A	0.21	A	0.10
7	Harbour Way/WB I-580 Off-Ramp	B	10.8 ¹	B	12.3 ¹	A	9.8 ¹
8	Cutting Boulevard/S. Harbor Way	A	0.51	A	0.57	A	0.40
9	Marina Bay Parkway/WB I-580 On/Off Ramps	A	0.35	A	0.38	A	0.20
10	Marina Bay Parkway/EB I-580 On/Off Ramps	A	0.25	A	0.36	A	0.20
11	Cutting Blvd./Marina Bay Parkway/23 rd St.	A	0.53	A	0.52	A	0.35
12	Regatta Boulevard/WB I-580 On/Off Ramps	B	10.0 ¹	B	10.7 ¹	A	9.1 ¹
13	Regatta Boulevard/EB I-580 On/Off Ramps/Meade Street	A	0.22	A	0.15	A	0.07
14	Carlson Boulevard /Cutting Boulevard	A	0.39	A	0.36	A	0.28
15	Cutting Boulevard/S. 49 th Street	A	0.30	A	0.31	A	0.24
16	Cutting Boulevard/WB I-80 Off-Ramp	A	0.46	A	0.46	A	0.31
17	MacDonald Avenue/S. Harbor Way	A	0.44	A	0.54	A	0.40
18	Richmond Parkway/Garrard Boulevard/W. MacDonald Avenue	A	0.41	A	0.42	A	0.24
19	Richmond Parkway/Garrard Boulevard/W. Barrett Avenue	A	0.52	A	0.44	A	0.26
20	Richmond Parkway/Castro St./Hensley St.	A	0.39	B	0.70	A	0.22
21	Richmond Parkway/Gertrude Avenue	A	0.54	D	0.88	A	0.54
22	Richmond Parkway/Parr Boulevard	C	0.76	D	0.86	A	0.48
23	Richmond Parkway/San Pablo Avenue	D	0.88	C	0.79	A	0.56
24	Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps	B	0.69	E	0.92	D	0.87
25	Richmond Parkway/Fitzgerald Drive/NB I-80 On/Off Ramps	A	0.19	A	0.59	A	0.60
26	San Pablo Ave./Appian Way/Pinole Ave.	B	0.66	C	0.72	A	0.44
27	Western Drive and Chevron Access	A	1.9 ²	A	2.0 ²	A	2.2 ²
28	Sir Francis Drake Blvd. and Andersen Drive	F	89.7¹	F	1161.8¹	F	69.7¹
29	Richmond Parkway/Pittsburg Avenue	B	0.61	D	0.87	A	0.56
30	Richmond Parkway/Goodrick Avenue	B	0.62	D	0.85	A	0.56
31	Richmond Parkway/I-80 On/Off Carpool Ramps	A	0.28	B	0.67	A	0.38

V/C = Vehicle to capacity ratio. **Bold** type = unacceptable LOS.

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

² 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**).

- Richmond Parkway/Blume Drive/WB I-80 On/Off Ramps (weekday PM peak hour);
- Sir Francis Drake Blvd. and Andersen Drive (weekday AM and PM and Saturday PM peak hours);
- Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal);
- U.S. 101 Northbound On- and Off-Ramps at Sir Francis Drake Boulevard.

Thus, based on the significance criteria noted above, a potentially significant impact would result at these intersections. Mitigation measures proposed for the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard intersections would result in acceptable LOS and a less-than-significant impact at these intersections. The intersections at Sir Francis Drake Boulevard and Larkspur Landing Circle (Ferry Terminal) and Sir Francis Drake Boulevard and U.S. 101 Northbound On- and Off-Ramps would operate at LOS E and F, respectively. Analysis of intersections under Alternative D in the City of Larkspur along Sir Francis Drake Boulevard is provided in Appendix HH.

4.8.39 Construction traffic under Alternative D has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Under Alternative D construction-related traffic impacts along roadways within the study area would be similar to Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.40 Operational traffic under Alternative D has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Volumes to capacity ratios and LOS for Alternative D have been calculated for the study area freeway segments and are shown in **Table 4.8-14**. With development of Alternative D, all of the study freeway segments are projected to operate at an acceptable LOS, except for SB U.S. 101 Off-Ramp to EB I-580 and WB I-580 On-Ramp to NB U.S. 101. Under Alternative D, SB U.S. 101 Off-Ramp to EB I-580 in the AM peak hour and WB I-580 On-Ramp to NB U.S. 101 in the PM peak hour would not have an increase in traffic greater than two percent. Therefore, a *less-than-significant* impact would occur due to increased project-related traffic.

4.8.41 Construction traffic under Alternative D has the potential to result in inadequate emergency access. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** Alternative D would have a *less-than-significant* impact.

TABLE 4.8-14
BACKGROUND PLUS PROJECT FREEWAY SEGMENT LOS - ALTERNATIVE D (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	2,702	28.9	D	3,881	40.2	E
I-580 Western Drive to Castro Street ¹	EB	3	2,748	17.3	B	3,225	20.3	C
I-580 Weave Between Castro Street and Canal Blvd. ³	EB	3	2,401	21.3	C	2,583	28.8	D
I-580 Canal Blvd. to Cutting Blvd. ¹	EB	3	2,867	18.1	C	3,323	21.0	C
I-580 Canal Blvd. to Castro Street ¹	WB	3	3,248	20.5	C	3,794	23.9	C
I-580 at Castro Street On-Ramp ²	WB	3	3,158	27.3	C	3,649	28.7	D
I-580 Castro Street to Western Drive ¹	WB	3	4,231	26.7	D	4,591	29.0	D
I-580 Western Drive Off-Ramp ²	WB	3	4,231	29.9	D	4,591	32.2	D
I-80 at Richmond Parkway On-Ramp ²	EB	4	3,141	18.6	B	5,604	32.1	D
I-80 at Richmond Parkway Off-Ramp ²	WB	4	6,953	27.9	C	5,217	17.8	B
SB U.S. 101 Off-Ramp to EB I-580 ^{2, #}	SB	2	1,812	18.5	F	2,053	8.9	A
WB I-580 On-Ramp to NB U.S. 101 ^{2, #}	WB	1	1,952	7.8	A	1,767	31.3	F
WB I-580 Richmond/San Rafael Bridge [#]	WB	2	3,965	40.3	E	3,915	39.4	E
EB I-580 Richmond/San Rafael Bridge [#]	EB	2	2,706	25.7	C	3,090	29.3	D
SR-4 at I-80 EB Off-Ramp	EB	4	2,721	19.2	B	3,338	25.0	C
SR-4 at Willow Avenue	EB	4	1,936	16.6	B	2,236	19.2	C
SR-4 at Sycamore Avenue	WB	4	1,806	15.5	B	2,645	22.7	C
SR-4 at Willow Avenue	WB	4	1,322	11.3	B	1,589	13.6	B

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 (Appendix S).

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones. Primary impacts from construction-related activities would include short-term and intermittent lessening of roadway and intersection capacities. Most construction-related activities would occur throughout the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic, which may result from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** would result in adequate emergency access to Western Drive, and reduce the potential impact to a *less-than-significant* level.

4.8.42 Operational traffic under Alternative D would not result in inadequate emergency access. This is a less-than-significant impact.

Operation of Alternative D would not congest traffic in a manner that would impede emergency access along any roadway or intersection in the study area, given that there are no significant impacts to study area roadways or intersection (see **Tables 4.8-13** and **4.8-14**); therefore, a *less-than-significant* impact would occur.

4.8.43 Construction and operational traffic under Alternative D would provide adequate parking. This is a less-than-significant impact.

Construction

During construction of Alternative D, an on-site staging area would be designated, which would include an adequate number of parking spaces for construction worker vehicles and equipment. Therefore, this is a *less-than-significant* impact.

Operation

Parking facilities outlined in **Section 2.0** would provide adequate parking for the operation of Alternative D. Under this alternative, a subterranean parking structure would be located under the hotel and additional surface parking would be available throughout the project site. Parking would be provided adjacent to the retail and commercial structures and local residents would be provided parking within individual housing units. The parking spaces provided in these structures and lots would be adequate for the retail, commercial, conference facility, and hotel complex. This is a *less-than-significant* impact.

4.8.44 Construction and operation traffic under Alternative D would not conflict with adopted plans supporting alternative transportation. This is a less-than-significant impact.

Alternative D would have the same impact on alternative transportation as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.45 Operation of ferry service under Alternative D has the potential to decrease vehicular traffic in the study area. This is a beneficial impact.

Alternative D would have a similar but smaller (due to reduced ferry schedule) impact on local vehicular traffic, rail, bus, and other ferry services as Alternative A; therefore, a *beneficial* impact would occur.

4.8.46 Implementation of Alternative D has the potential to increase riders on local rail and bus services. This is a less-than-significant impact.

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

4.8.47 Implementation of Alternative D would not substantially increase hazards due to a design feature or incompatible uses along roadways in the study area. This is a less-than-significant impact.

Alternative D would have the same impact on roadways as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.48 Implementation of Alternative D has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

Table 10 of the STIA provided in **Appendix S** provides the LOS for westbound I-580 through the toll plaza under Alternative D. Under Alternative D the LOS at the toll plaza is LOS E for both the AM and PM peak hours. Table 9 of the STIA shows the vehicles-per-lane per hour westbound through the toll plaza is 3,965 in the AM peak hour and 3,915 in the PM peak hour. Under Alternative D, I-580 at the toll plaza would not exceed 4,225 vehicles per hour; therefore, a *less-than-significant* impact would occur.

4.8.5 ALTERNATIVE E – TOTAL PARKLAND

ITE manual data for county parks was used to estimate the daily and AM peak hour trips resulting from 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 be a maximum of 638, and estimated AM peak hour trips were estimated to be a maximum of 146.

IMPACTS OF ALTERNATIVE E

4.8.49 Development of Alternative E would introduce limited new traffic to the study area. This is a less-than-significant impact.

Construction

Construction activities would be associated with renovation/stabilization of the Winehaven buildings and construction of a segment of the Bay Trail. The construction activities under Alternative E would generate temporary, intermittent traffic from construction worker and material delivery truck trips. Up to 100 trips per day were estimated to be generated by construction workers and up to three trips per day from building material deliveries, for a total of

up to 103 trips per day. Most of the trips generated during construction would occur outside of the peak hour and, because the number of construction generated trips is considerably less than the estimated trips generated during operation of Alternative E, a *less-than-significant* impact would occur.

Operation

Operation of Alternative E would generate an estimated maximum of 146 car trips during the AM peak hour (peak hour is between 7:00 AM and 9:00 AM weekdays) and estimated maximum of 638 car trips per day. Given that the estimated AM peak hour traffic is significantly less than Alternative A, Alternative E would have a *less-than-significant* impact on study area intersections and roadway segments.

4.8.50 Construction traffic under Alternative E would not result in inadequate emergency access. This is a less-than-significant impact.

Construction-related traffic would not create delays, stoppages, or detours in construction area zones, due to the small amount of traffic generated during construction (up to 103 trips per day). Construction activities would not include export of soil and only limited heavy equipment used for grading and earthmoving, which would reduce or eliminate the potential for on-road delays and detours. This is a *less-than-significant* impact. However, **Mitigation Measures 7-2 and 7-3** would be implemented to further reduce impacts to access of emergency vehicles along Western Drive and the project site.

4.8.51 Operational traffic under Alternative E would not result in inadequate emergency access. This is a less-than-significant 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; therefore, a *less-than-significant* impact would occur.

4.8.52 Adequate parking would be available for the construction and operational traffic under Alternative E. This is a less-than-significant impact.

Construction

During the construction of Alternative E, an on-site staging area would be designated, which would include parking spaces for construction worker vehicles and equipment. This area would provide adequate parking for worker and construction vehicles; therefore, this is a *less-than-significant* impact would occur.

Operation

Existing on-site parking facilities described in **Section 2.0** would provide adequate parking for the operation of Alternative E. Under this alternative, parking would be provided in the large paved lot known as the Drum Lot 2, located in the southern portion of the project site. This paved area would be more than sufficient to handle operational parking needs. This is a *less-than-significant* impact.

4.8.53 Construction and operational traffic under Alternative E would not conflict with adopted plans supporting alternative transportation. No impact would occur.

Alternative E would have a far-reduced impact on alternative transportation compared to Alternative A; therefore, no impact would occur.

4.8.54 Implementation of Alternative E has the potential to slightly increase riders on local rail and bus services. This is a less-than-significant impact.

Alternative E would have less of an impact on local rail and bus services as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.55 Implementation of Alternative E would not substantially increase hazards due to a design feature or incompatible uses along roadways in the project study area. No impact would occur.

No roadway improvements or changes are proposed under Alternative E; therefore, no impact would occur.

4.8.56 Implementation of Alternative E has the potential to slightly increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

Alternative E would have a far-reduced impact on the toll plaza compared to Alternative A due to substantially reduced trip generation. A *less-than-significant* impact would occur.

4.8.6 ALTERNATIVE F – NO-ACTION

IMPACTS OF ALTERNATIVE F

4.8.57 Alternative F would not introduce new traffic to the study area. No impact to the existing setting would occur.

Construction

No construction would occur under Alternative F and therefore, would not require construction parking or advance notice to emergency access providers. Traffic would not increase on roadways or at intersections due to construction material delivery or worker trips. *No impact* to the existing setting would occur.

Operation

Under Alternative F, there would be no increases in regional traffic at intersections or along area roadways. Parking needs for the project site and emergency access routes would not be altered. *No impact* to the existing setting would occur.

4.8.58 Alternative F would not introduce restrictions on alternative transportation uses. No impact to the existing setting would occur.

The No Project Alternative would not impose any new restrictions or otherwise affect alternative transportation. As such, no impact would occur.

4.8.59 Alternative F would not introduce new riders to the regional transportation system. No impact would occur.

As stated in **Section 2.6**, under Alternative F there would be no new development at the project site and no new trips generated. Therefore, no impact would occur.

4.8.7 ALTERNATIVE B1 – “PRESERVE BUILDING 6” MIXED-USE TRIBAL DESTINATION RESORT AND CASINO

IMPACTS OF ALTERNATIVE B1

4.8.60 Construction traffic under Alternative B1 has the potential to substantially increase the existing traffic load of intersections within the study area. This is a potentially significant impact.

Significance After Mitigation

With implementation of **Mitigation Measures 7-1 through 7-3** provided in **Section 5.2.7**, construction-related traffic would be *less-than-significant*.

Impact Discussion

The construction period of Alternative B1 would generate temporary and intermittent traffic from construction workers, hauling of clean and impacted soil, and material deliveries, most of which would occur outside of the peak hour. Due to the expanded alternative layout of Alternative B1, investment in construction activities would cost more to construct and would require more

employees to construct the project than Alternative B. Therefore, it is estimated that the number of trips per day generated by Alternative B1 will be greater than that of Alternative B.

Considering that the number of construction generated trips would be less than the estimated trips generated during operation of Alternative B1, this would be a *less-than-significant* impact with implementation of **Mitigation Measures 7-1 through 7-3**.

4.8.61 Operational traffic under Alternative B1 has the potential to substantially increase the existing traffic load of intersections within the study area. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-4 and 7-5** provided in **Section 5.2.7**, impacts to the Richmond Parkway/Blume Drive and Sir Francis Drake Boulevard/Andersen Drive intersections would be *less-than-significant*. **Mitigation Measures 7-6 and 7-7, 7-24 and 7-25**, as well as **Improvement Measures 7-18 and 7-19 through 7-23**, would be implemented to further reduce traffic load and capacity impacts at intersections within the study area.

Impact Discussion: Trip Generation

As described in **Section 2.0**, the capacity of each project component under Alternative B1 would be identical to those described under Alternative B. Therefore the projected vehicle trip generation resulting from the operation of Alternative B1 is identical to those resulting from the operation of Alternative B, as shown in **Table 4.8-6**.

Impact Discussion: Operation

Under Alternative B1 operation-related traffic impacts to the existing traffic load of intersections within the study area would be identical to Alternative B.

4.8.62 Construction traffic under Alternative B1 has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Under Alternative B1 construction-related traffic impacts along roadways within the study area would be similar to, although slightly greater than, Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.63 Operational traffic under Alternative B1 has the potential to increase the existing traffic load of roadways within the study area. This is a less-than-significant impact.

Under Alternative B1 operation-related traffic impacts to the existing traffic load of roadways within the study area would be identical to Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.64 Construction traffic under Alternative B1 has the potential to result in inadequate emergency access. This is a potentially significant impact.

Significance after Mitigation

With the implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** Alternative B1 would have a *less-than-significant* impact.

Impact Discussion

Construction activities may create delays, stoppages, and detours in construction area zones. Primary impacts from construction-related activities would include short-term and intermittent lessening of roadway and intersection capacities. Most construction-related activities would occur throughout the daytime. Construction-related activities that occur during weekday peak hour could impede traffic flow. The delays, stoppages, and detours of traffic, which may result from construction activities, could impact emergency access. Although these disruptions will only occur temporarily, even a temporary disruption of emergency access could result in a significant impact due to the time-sensitive needs and critical public services provided by emergency service providers. However, implementation of **Mitigation Measures 7-1** through **7-3** provided in **Section 5.2.7** would result in adequate emergency access to Western Drive, and reduce the potential impact to a less-than-significant level.

4.8.65 Operational traffic under Alternative B has the potential to result in inadequate emergency access. This is a less-than-significant impact.

Under Alternative B1 operation-related traffic impacts to the existing traffic load of roadways within the study area would be identical to Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.66 Construction and operational traffic under Alternative B1 would provide adequate parking. This is a less-than-significant impact.

Construction

During construction of Alternative B1, an on-site staging area would be designated that would include adequate parking spaces for construction worker vehicles and equipment. Therefore, this is a *less-than-significant* impact.

Operation

Under Alternative B1 the total number of parking spaces would be identical to Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.67 Construction and operational traffic under Alternative B1 would not conflict with adopted plans supporting alternative transportation. This is a less-than-significant impact.

Alternative B1 would have the same impact on alternative transportation as Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.68 Operation of ferry service, under Alternative B1, has the potential to decrease vehicular traffic within the study area. This is a beneficial impact.

Alternative B1 would have a similar impact on local vehicular traffic, rail, bus, and other ferry services as Alternative B; therefore, a *beneficial* impact would occur.

4.8.69 Implementation of Alternative B1 has the potential to increase riders on local rail and bus services. This is a less-than-significant impact.

Alternative B1 would have the same impact on local rail and bus services as Alternative B; therefore, a *less-than-significant* impact would occur.

4.8.70 Implementation of Alternative B1 would not substantially increase hazards due to a design feature or incompatible uses along roadways in the study area. This is a less-than-significant impact.

Alternative B1 would have the same impact on roadways as Alternative A; therefore, a *less-than-significant* impact would occur.

4.8.71 Implementation of Alternative B1 has the potential to increase delays at the Richmond/San Rafael Bridge toll plaza. This is a less-than-significant impact.

The effect of the implementation of Alternative B1 on the Richmond/San Rafael Bridge toll plaza would be identical to Alternative B; therefore, a *less-than-significant* impact would occur.