BLACK MOUNTAIN ROAD TRANSPORTATION IMPACT STUDY (8TH SUBMITTAL)

May 2016



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On Behalf Of:

Black Mountain Ranch/ Standard Pacific Homes



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EXECUTIVE SUMMARY

Black Mountain Road is designated a 6-Lane Primary Arterial in the Rancho Peñasquitos Community Plan, which is part of the General Plan of the City of San Diego. Black Mountain Road currently functions as a 4-Lane Major. A Community Plan Amendment has been initiated at the request of the Black Mountain Ranch developer to reclassify Black Mountain Road to a 4-Lane Major from Twin Trails Drive on the north to the southern community boundary. For analysis purposes, the proposed reclassification of this segment of Black Mountain Road to a 4-Lane Major is considered the "Project".

The Rancho Peñasquitos community is located approximately 17 miles to the north of downtown San Diego and approximately 8 miles to the east of the Pacific Ocean. The extent of the study area was determined in consultation with City staff, along with their knowledge of the transportation system in the northern area of the City. Within this study area, 57 intersections and 37 roadway segments were selected for analysis. Daily traffic volumes along roadway segments were obtained through machine data collection. Intersection turning movement counts were conducted during the weekday morning peak period from 7:00 AM to 9:00 AM and evening peak period from 4:00 PM to 6:00 PM. The dates on which the segment and intersection counts were conducted range during the period of October, 2013 to July, 2014.

As the Project is the reclassification of a segment of Black Mountain Road to a 4-Lane Major, it itself is not a trip generator. Instead, the future traffic is derived from existing and future development within and around the study area, a large geographic area, and not by a single development site. For the study area, horizon year traffic volumes on the roadway network were estimated based on SANDAG's daily traffic volume forecasts. SANDAG's calibrated and validated base model (Series 12, base year 2008), was used for the base year and their 2050 model used for the horizon year, the latter reflecting build-out of the community plan. Horizon year daily volume forecasts were provided for two conditions: Without Project, which assumed the subject Black Mountain Road segment as a 6-Lane Primary Arterial, and With Project, which assumed the subject Black Mountain Road segment as a 4-Lane Major. The models included horizon year improvements and changes to the circulation network in the Rancho Peñasquitos area. (See Chapter 4 for network improvements in the horizon year as well as funding sources for these projects) These forecasted volumes along with the traffic counts were used to develop traffic growth factors and future condition volumes at each study segment and study intersection.

Significant traffic impacts due to volume changes associated with the Project were determined. Significant segment impacts were found for Black Mountain Road south of Twin Trails Drive and for Black Mountain Road north of Park Village Road-Adolphia Street. These impacts will be unmitigated as maintaining Black Mountain Road at its current classification of 4 lanes is the project.

A single significant intersection impact occurs during the AM peak hour at the intersection of Sundance Avenue and Twin Trails Drive. To mitigate this impact, a traffic signal is recommended to replace the all-way stop control. This upgrade would improve the level of service from LOS E to LOS A and fully mitigate the significant impact. Traffic signal peak hour warrants were conducted for existing conditions and 2050 with project conditions and indicate that this signal will be warranted in the future. This warrant can be found in Appendix J. This mitigation is not found in any PFFP or Regional Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to project T-11.1 of the Pacific Highlands, project T-57 of Black Mountain Ranch, and project T-2D of Rancho Penasquitos plans.

One significant freeway mainline impact was found within the study area. The freeway mainline significant impact was found in the PM peak hour on eastbound SR-56 between Camino del Sur and Black Mountain Road. This impact could be mitigated by the construction of an additional eastbound

auxiliary lane from Camino del Sur to Black Mountain Road. This mitigation is not found in any PFFP, Regional or Caltrans Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to project T-II.I of the Pacific Highlands, project T-57 of Black Mountain Ranch, and project T-2D of Rancho Penasquitos plans.

One ramp metering delay impact was also found within the study area. In the AM peak hour, the Rancho Penasquitos Blvd – SR56 WB on ramp experiences an increase in delay of 3 minutes from about 21 minutes to 24 minutes, resulting in a significant impact. This impact could be mitigated by the construction of an additional ramp lane onto westbound SR-56 at this location. This mitigation is not found in any PFFP, Regional or Caltrans Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to project T-11.1 of the Pacific Highlands, project T-57 of Black Mountain Ranch, and project T-2D of Rancho Penasquitos plans.

While not a significant impact, to improve the traffic flow along Black Mountain Road at SR-56, a restriping of the segment between the SR-56 westbound ramps and SR-56 eastbound ramps is recommended, as there is currently width for an additional northbound lane. This restriping would include an additional northbound lane along Black Mountain Road from the SR-56 eastbound ramps to the middle of the overpass. The inside lane would terminate into the dual left-turn pockets, designating the two outer lanes as exclusively through lanes as shown in Appendix K. This modification would increase the northbound-to-westbound left-turn pocket storage and improve flow of northbound through traffic. To accommodate the offsets from this restriping, the roadway will need to be widened for northbound traffic north of the bridge to accommodate a transition taper as shown in Appendix K. Although this reconfiguration and widening on the northeast corner would improve the traffic flow along Black Mountain Road at SR-56, the segments of Black Mountain Road south of Twin Trails Drive and north of Park Village Road would remain significantly impacted.

Tables ES-I, ES-2, ES-3, ES-4, and ES-5 below, respectively summarize roadway segment, peak hour intersection, freeway mainline and freeway ramp metering conditions for the existing conditions, horizon year without project and horizon year with project scenarios. For all assumptions, calculations, explanations in derivation and methodology, please refer to the more in depth analyses found in Chapters I-4.

KOA Corporation ES-II May 2016

Black Mountain Road TIS Executive Summary

Table ES-I Summary of Weekday Roadway Segment Conditions

			2050 W/	O Project	2050 W	/ Project		
	2014 E	xisting		6 Lanes)	_	4 Lanes)	Compa	rison
Segment Number and Name	V/C	LOS	V/C	LOS	V/C	LOS	Δ V/C	Impact
1. Camino Del Sur s/o Carmel valley Road	0.443	В	0.518	В	0.505	В	-0.01	No
2. Camino Del Sur s/o Wolverine Way - Fallhaven Road	0.518	В	0.605	С	0.590	С	-0.02	No
3. Camino Del Sur n/o SR-56 Westbound Ramps	0.648	С	0.757	С	0.738	С	-0.02	No
4. Camino Del Sur s/o SR-56 Eastbound Ramps	0.245	Α	0.534	В	0.548	В	0.01	No
5. Carmel Valley Road w/o Black Mountain Road	1.049	F	0.431	В	0.434	В	0.00	No
6. Carmel Valley Road e/o Black Mountain Road	0.345	Α	0.566	С	0.570	С	0.00	No
7. Black Mountain Road n/o Maler Road	0.308	Α	0.457	В	0.480	В	0.02	No
8. Black Mountain Road s/o Oviedo Street	0.474	В	0.589	С	0.587	С	0.00	No
9. Black Mountain Road s/o Carmel Mountain Road	0.369	Α	0.459	В	0.443	В	-0.02	No
10. Black Mountain Road bet. Paseo Montalban & Twin Trails Drive	0.358	Α	0.446	В	0.430	В	-0.02	No
11. Black Mountain Road s/o Twin Trails Drive	0.837	D	0.634	С	0.939	E	0.31	Yes
12. Black Mountain Road bet. SR-56 Westbound & Eastbound Ramps	0.764	D	0.578	В	0.857	D	0.28	No
13. Black Mountain Road n/o Park Village Road - Adolphia Street	0.886	E	0.732	С	0.888	E	0.16	Yes
14. Black Mountain Road n/o Canyonside Park Drive	0.760	D	0.674	С	0.867	D	0.19	No
15. Black Mountain Road bet. Mercy Road & Babuta Road	0.481	В	0.640	С	0.549	В	-0.09	No
16. Black Mountain Road s/o Westview Parkway	0.370	Α	0.493	В	0.423	В	-0.07	No
17. Westview Parkway e/o Black Mountain Road		Α	0.295	Α	0.240	Α	-0.06	No
18. Carmel Mountain Road bet. Paseo Aldabra & Sundevil Way	0.354	Α	0.367	Α	0.370	Α	0.00	No
19. Carmel Mountain Road bet. Paseo Montalban & SR-56 Westbound Ramps	0.548	С	0.567	С	0.574	С	0.01	No
20. Rancho Penasquitos Blvd bet. SR-56 EB Ramps - Azuaga St & Calle De Las Rosas	0.686	С	0.655	С	0.688	С	0.03	No
21. Rancho Penasquitos Boulevard bet. Calle De Las Rosas & Via Del Sud	0.703	С	0.672	С	0.705	С	0.03	No
22. Rancho Penasquitos Boulevard bet. Paseo Montril & I-15 Southbound Ramps	0.827	D	0.790	D	0.828	D	0.04	No
23. Poway Road e/o I-15 Northbound Ramps	0.751	С	0.887	D	0.887	D	0.00	No
24. Carmel Mountain Road s/o Sundance Avenue	0.124	Α	0.245	Α	0.250	Α	0.01	No
25. Carmel Mountain Road w/o Sparren Avenue	0.170	Α	0.222	Α	0.233	Α	0.01	No
26. Carmel Mountain Road w/o Black Mountain Road	0.208	Α	0.260	Α	0.265	Α	0.01	No
27. Sundance Avenue w/o War Bonnet Street*	-	-	-	-	-	-	-	-
28. Carmel Mountain Road e/o Freeport Road	0.283	Α	0.361	Α	0.360	Α	0.00	No
29. Carmel Mountain Road bet. Penasquitos Drive & Gerana Street	0.341	Α	0.435	В	0.434	В	0.00	No
30. Carmel Mountain Road bet. I-15 Southbound Ramps & Penasquitos Drive	0.627	С	0.736	С	0.733	С	0.00	No
31. Carmel Mountain Road e/o I-15 Northbound Ramps	0.749	С	0.880	D	0.877	D	0.00	No
32. Camino Del Sur n/o Park Village Road	0.030	Α	0.268	Α	0.255	Α	-0.01	No
33. Park Village Road e/o Camino Del Sur	0.211	Α	0.315	Α	0.293	Α	-0.02	No
34. Park Village Road w/o Black Mountain Road	0.439	В	0.444	В	0.440	В	0.00	No
35. Mercy Road bet. Chabola Road & Branicole Ln	0.357	Α	0.467	В	0.436	В	-0.03	No
36. Mercy Road n/o Alemania Road	0.496	В	0.592	С	0.561	С	-0.03	No
37. Scripps Poway Parkway e/o I-15 Northbound Ramps	0.880	D	1.057	F	1.033	F	-0.02	No

^{*} Capacity for local residential street not specified in San Diego Traffic Impact Study Manual, July 2008.

Black Mountain Road TIS Executive Summary

Table ES-2
Summary of AM Peak Hour Intersection Conditions

1. Camino Del Sur/Camel Valley Road *** 1. Camino Del Sur/Waton Rank Road *** 1. D3 B 8. A A 6.3. A − 0.1. No 3. Camino Del Sur/Waton Rank Road *** 1. D3 B 8. A 6.3. A − 0.1. No 3. Camino Del Sur/Vatoverine Way - Falliswen Road *** 1. San				2050 W/G	O Project	2050 W	/ Project		
		2014 E	xisting					Comp	arison
1. Camino Del Sur/Camel Valley Road *** 1. Camino Del Sur/Waton Rank Road *** 1. D3 B 8. A A 6.3. A − 0.1. No 3. Camino Del Sur/Waton Rank Road *** 1. D3 B 8. A 6.3. A − 0.1. No 3. Camino Del Sur/Vatoverine Way - Falliswen Road *** 1. San	Intersection Number and Name				The state of the s				
2. Camino Del Sur/Navison Rand Road *** 10.3 8 8.4 A 8.3 A -0.1 No 3. Camino Del Sur/Torrey Meadows Drive 18.1 8 16.5 8 16.7 8 0.2 No 4. Camino Del Sur/Torrey Meadows Drive 18.1 8 16.5 8 16.7 8 0.2 No 5. Camino Del Sur/Torrey Meadows Drive 19.3 8 15.4 8 14.9 8 -0.5 No 6. Camino Del Sur/Rey Meadows Drive 19.3 8 15.4 8 14.9 8 -0.5 No 6. Camino Del Sur/Rey Sei Survivound Ramps 15.6 8 17.5 8 17.8 8 0.3 No 7. Camino Del Sur/Sey Sei Survivound Ramps 15.6 8 17.5 8 17.8 8 0.3 No 8. Camino Del Sur/Sey Sei Survivound Ramps 15.6 8 13.4 8 13.3 8 -0.1 No 8. Camino Del Sur/Torrey Santa Fe Road 1*** 15.9 8 10.4 8 10.2 8 -0.2 No 8. Camino Del Sur/Torrey Santa Fe Road 1*** 15.9 8 10.4 8 10.2 8 -0.2 No 9. Black Mountain Road/Camer Valley Road 23.3 C 22.3 C 22.5 C 0.2 No 10. Black Mountain Road/Camer Mountain Road 14.4 8 13.4 8 13.3 8 -1.3 No 12. Black Mountain Road/Camer Mountain Road 47.4 D 40.0 D 47.9 C 9.3 No 14. Black Mountain Road/Sey Sey Newthound Ramps 15.4 D 17.5 No 15. Black Mountain Road/Sey Sey Eventhound Ramps 15.8 15.8 17.0 B 12.8 B 0.4 No 15. Black Mountain Road/Sey Sey Eventhound Ramps 15.8 15.			D		Е	_	Е	-0.7	•
4. Camino Del Sur/Tierrey Meadows Drive 18.1 B 16.5 B 16.7 B 0.2 No 5. Camino Del Sur/Ighlands Village Place *** 19.3 B 15.4 B 14.9 B 0.5 No 6. Camino Del Sur/Ighlands Village Place *** 19.3 B 15.6 B 17.5 B 17.8 B 0.3 No 7. Camino Del Sur/Ighlands Village Place *** 15.9 B 10.4 B 10.2 B 0.2 No 8. Camino Del Sur/Ighrey Santa Fe Road *** 15.9 B 10.4 B 10.2 B 0.2 No 8. Camino Del Sur/Tierrey Santa Fe Road *** 15.9 B 13.4 B 13.3 B -0.1 No 8. Camino Del Sur/Tierrey Santa Fe Road *** 13.8 B 33.4 B 13.3 B -0.1 No 9. Black Mountain Road/Surfey Valley Road 23.3 C 22.3 C 22.5 C 0.2 No 10. Black Mountain Road/Surfey Revenue *** 15.7 B 14.7 B 13.4 B 13.4 B 13.4 B 13.5 B 11. Black Mountain Road/Surfey Revenue *** 15.7 B 14.7 B 13.4 B 13.3 No 12. Black Mountain Road/Surfey Revenue *** 15.7 B 14.7 B 13.4 B 13.3 No 13. Black Mountain Road/Surfey Mountain Road 47.4 D 44.0 D 47.9 D 3.9 No 14. Black Mountain Road/Surfey Mountain Road 13.4 B 12.4 B 12.2 B 0.4 No 15. Black Mountain Road/Surfey Mountain Road 13.4 B 12.4 B 12.2 B 0.4 No 15. Black Mountain Road/Surfey Swestbound Ramps *** 37.9 D 47.3 D 45.0 D 2.3 No 16. Black Mountain Road/Surfey Road From Free 43.2 D 52.9 D 54.4 No 17. Black Mountain Road/Surfey Road Free 22.3 No 23.9 C 22.4 C 23.1 No 18. Black Mountain Road/Surfey Road Free 22.3 No 23.9 No 23.0		10.3	В		Α	8.3	Α	-0.1	No
4. Camino Del Sur/Torrey Meadows Drive 18.1	·		С					-1.8	No
6. Camino Del Sur/RS-56 Westbound Ramps 7. Camino Del Sur/RS-56 Westbound Ramps *** 15.9 B 10.4 B 10.2 B -0.2 No 8. Camino Del Sur/Torrey Santa Fe Road *** 13.8 B 13.4 B 13.3 B -0.1 No 9. Black Mountain Road/Camel Valley Road 23.3 C 2.3 C 2.3 C 2.2 No 10. Black Mountain Road/Stargaze Avenue *** 17.6 A 7.8 A 8.0 A 0.2 No 19. Black Mountain Road/Stargaze Avenue *** 15.7 B 14.7 B 13.4 B 1.3 No 11. Black Mountain Road/Stargaze Avenue *** 15.7 B 14.7 B 13.4 B 1.3 No 12. Black Mountain Road/Carmel Mountain Road 47.4 D 44.0 D 47.9 D 3.9 No 13. Black Mountain Road/Carmel Mountain Road 47.4 D 44.0 D 47.9 D 3.9 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montaiban 13.4 B 12.4 B 12.8 B 0.4 No 16. Black Mountain Road/Stargaze Montaiban 17.5 No 18. Black Mountain Road/Stargaze Montaiban 18. Black Mountain Road/Stargaze Montaiban 19. Black M	4. Camino Del Sur/Torrey Meadows Drive	18.1	В	16.5	В	16.7	В	0.2	No
2. Camino Del Sur/Ris Sé Eastbound Ramps*** 13.8		19.3	В	15.4	В	14.9	В	-0.5	No
B. Camino Del Sur/Torrey Santa Fe Road *** 9. Black Mountian Road/Caming Valley Road 23.3 C 23.3 C 22.5 C 20.7 No. 10. Black Mountian Road/Maler Road *** 7.6 A 7.8 A 8.0 A 0.2 No. 11. Black Mountian Road/Surgary Avenue *** 15.7 B 14.7 B 13.4 B 13.3 No. 12. Black Mountian Road/Cargary Avenue *** 15.7 B 14.7 B 13.4 B 13.3 No. 13. Black Mountian Road/Cargary Avenue *** 15.7 B 14.7 B 13.4 B 12.4 B 12.8 B 13.8 No. 13. Black Mountian Road/Cargary Mountian Road (Armel Mountian Road) 47.4 D 44.0 D 47.9 D 3.9 No. 13. Black Mountian Road/Cargary Montablan 13.4 B 12.4 B 12.8 B 0.4 No. 15. Black Mountian Road/Fire Mountian Road 47.4 D 44.0 D 47.9 D 3.9 No. 15. Black Mountian Road/Fire Mountian Road 47.4 D 44.0 D 47.9 D 3.9 No. 15. Black Mountian Road/Fire Mountian Road Fire Mountian Road Fir	6. Camino Del Sur/SR-56 Westbound Ramps	15.6	В	17.5	В	17.8	В	0.3	No
9. Black Mountain Road/Carmel Valley Road	7. Camino Del Sur/SR-56 Eastbound Ramps ***	15.9	В	10.4	В	10.2	В	-0.2	No
10. Black Mountain Road/Stargaze Avenue***	8. Camino Del Sur/Torrey Santa Fe Road ***	13.8	В	13.4	В	13.3	В	-0.1	No
11. Black Mountain Road/Oviedo Street 16.8 B 17.0 B 26.3 C 9.3 No 13. Black Mountain Road/Oviedo Street 16.8 B 17.0 B 26.3 C 9.3 No 14. Black Mountain Road/Oviedo Street 16.8 B 17.0 B 26.3 C 9.3 No 14. Black Mountain Road/Oviedo Street 17.0 C 9.3 No 14. Black Mountain Road/Oviedo Street 17.0 C 9.3 No 14. Black Mountain Road/Oviedo Mountain Road 17.0 D 44.0 D 47.3 D 3.9 No 14. Black Mountain Road/Street Mountain Road/Street 18.0 No 15. Black Mountain Road/Street 18.0 No 18. Black Mountain Road/Street 18.0 No 18. Black Mountain Road/Park Village Road - Adolphia Street 18.0 No 18. Black Mountain Road/Park Village Road - Adolphia Street 18.0 No 18. Black Mountain Road/Park Village Road - Adolphia Street 18.0 No 18. Black Mountain Road/Street 18.0 No 18.	9. Black Mountain Road/Carmel Valley Road	23.3	С	22.3	С	22.5	С	0.2	No
12. Black Mountain Road/Oriend Street 16.8 8 17.0 8 26.3 C 9.3 No	10. Black Mount Road/Maler Road ***	7.6	Α	7.8	Α	8.0	Α	0.2	No
13.8 Black Mountain Road/Paseo Montalban 13.4 8 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Paseo Montalban 13.4 8 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Paseo Montalban 13.4 8 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Paseo Montalban 13.4 15. No 16. Black Mountain Road/SR-56 Westbound Ramps *** 37.9 D 47.3 D 45.0 D 2.3 No 16. Black Mountain Road/SR-56 Westbound Ramps 22.0 C 22.4 C 23.1 C 0.7 No 18. Black Mountain Road/Paseo Montain Road Paseo Road/Paseo Montain Road Paseo Road/Paseo Montain Road Paseo Road/Paseo Road/Paseo Road/Paseo Road/Paseo Road/Paseo Road/Paseo	11. Black Mountain Road/Stargaze Avenue ***	15.7	В	14.7	В	13.4	В	-1.3	No
14.8 Black Mountain Road/Twin Trails Drive	12. Black Mountain Road/Oviedo Street	16.8	В	17.0	В	26.3	С	9.3	No
15. Black Mountain Road/SR-56 Westbound Ramps *** 37.9	13. Black Mountain Road/Carmel Mountain Road	47.4	D	44.0	D	47.9	D	3.9	No
16. Black Mountain Road/SR-56 Westbound Ramps *** 37.9	14. Black Mountain Road/Paseo Montalban	13.4	В	12.4	В	12.8	В	0.4	No
17. Black Mountain Road/Park Village Road - Adolphia Street 46.3	15. Black Mountain Road/Twin Trails Drive	43.2	D	52.9	D	54.4	D	1.5	No
18. Black Mountain Road/Park Village Road - Adolphia Street 46.3	16. Black Mountain Road/SR-56 Westbound Ramps ***	37.9		47.3		45.0		-2.3	No
19. Black Mountain Road/Caryonside Park Drive 2.3	17. Black Mountain Road/SR-56 Eastbound Ramps	22.0	С	22.4	С	23.1	С	0.7	No
20. Black Mountain Road/Mercy Road 29.8 C 24.4 C 27.4 C 3.0 No	18. Black Mountain Road/Park Village Road - Adolphia Street	46.3	D	33.9	С	37.3	D	3.4	No
21. Black Mountain Road/Westview Parkway *** 13.4 B 16.3 B 14.5 B -1.8 No				2.5					No
22. Carmel Mountain Road/Sundevil Way **** 20.2 C 16.0 B 15.6 B -0.4 No		29.8	С		С	27.4	С	3.0	No
23. Carmel Mountain Road/Paseo Montaliban *** 24.6 C 24.0 C 23.8 C -0.2 No		13.4		16.3			В		No
24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard				_					No
25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 20.6 C 24.8 C 24.2 C -0.6 No 26. Rancho Penasquitos Boulevard/Calle De Las Rosas *** 10.1 B 10.3 B 9.9 A -0.4 No 27. Rancho Penasquitos Boulevard/Pase DMontril 4.5 A 4.3 A 4.6 A 0.3 No No 28. Rancho Penasquitos Boulevard/Paseo Montril 13.5 B 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Paseo Montril 13.5 B 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 7.9 A 8.2 A 8.4 A 0.2 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 31. Carmel Mountain Road/(West) Sundance Avenue 13.8 B 12.9 B 12.9 B 0.0 No 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.5 A 8.2 A 8.1 A -0.1 No 33. Carmel Mountain Road/Entreken Way 21.3 C 22.6 C 22.6 C 0.0 No 34. Sparren Avenue/Carmel Mountain Road *** 24.1 C 32.1 C 28.2 C -3.9 No 35. Twin Trails Drive/Carmel Mountain Road 18.8 C 25.9 C 29.5 C 3.6 No 36. [East) Sundance Avenue/Carmel Mountain Road 18.4 C 15.5 C 15.2 C -0.3 No 37. Sundance Avenue/Carmel Mountain Road 18.2 B 18.3 B 18.3 B 18.4 B 0.1 No 39. Twin Trails Drive/ In Trails Drive (All-way stop control) 22.7 C 38.8 E 46.4 E 7.6 Yes 40.4 Twin Trails Drive/Paseo Montalban *** 13.6 B 18.3 B 18.3 B 18.4 B 0.1 No 39. Twin Trails Drive/Paseo Montalban *** 13.6 B 13.9 B 13.2 B 0.1 No 40. Twin Trails Drive/Paseo Montalban *** 13.6 B 13.9 B 13.2 B -0.7 No 42. Salmon River Road/Faisgrove Lane (All-way stop control) 8.0 A 8.0 A 8.0 A 8.0 A 0.0 No 43. Salmon River Road/Faisgrove Lane (All-way stop control) 7.5 A 7.5 A 7.5 A 0.0 No 44. Paseo Cardiel/Carmel Mountain Road 8.8 A 5.8 A 6.4 A				_					No
26. Rancho Penasquitos Boulevard/Calle De Las Rosas *** 10.1 B 10.3 B 9.9 A -0.4 No 27. Rancho Penasquitos Boulevard/Via Del Sud 4.5 A 4.3 A 4.6 A 0.3 No No 28. Rancho Penasquitos Boulevard/Paseo Montril 13.5 B 13.6 B 13.6 B 0.0 No No 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 7.9 A 8.2 A 8.4 A 0.2 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 30. Carmel Mountain Road/(West) Sundance Avenue 13.8 B 12.9 B 12.9 B 0.0 No 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.5 A 8.2 A 8.1 A -0.1 No 33. Carmel Mountain Road/Entreken Way 21.3 C 22.6 C 22.6 C 0.0 No 34. Sparren Avenue/Carmel Mountain Road *** 24.1 C 32.1 C 28.2 C 3.9 No 35. Twin Trails Drive/Carmel Mountain Road 28.8 C 25.9 C 29.5 C 3.6 No 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 18.4 C 15.5 C 15.2 C -0.3 No 37. Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 18.4 C 15.5 C 15.2 C -0.3 No 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 22.7 C 38.8 E 46.4 E 7.6 Yes 38. Penasquitos Post Office Driveway/Twin Trails Drive 18.2 B 18.3 B 18.4 B 0.1 No 41. Salmon River Road/Paseo Montalban 11.0 B 11.0 B 11.1 B 0.1 No 42. Salmon River Road/Adolphia Strees 48.0 A 0.1 No 42. Salmon River Road/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 44. Paseo Cardiel/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 44. Paseo Cardiel/Carmel Mo									No
27. Rancho Penasquitos Boulevard/Via Del Sud 4.5 A 4.3 A 4.6 A 0.3 No 28. Rancho Penasquitos Boulevard/Paseo Montril 13.5 B 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 7.9 A 8.2 A 8.4 A 0.2 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 31. Carmel Mountain Road/(Sedorus Street (All-way stop control)* 7.5 A 8.2 A 8.1 A 0.1 No 32. Carmel Mountain Road/Entreken Way 21.3 C 2.6 C 22.6 C 22.6 C 0.0 No 33. Carmel Mountain Road/Entreken Way 21.3 C 22.6 C 22.6 C 22.6 C 22.6 C 22.6 C 22.6 C 0.0 No 35. Twin Trails Drive/Carmel Mountain Road 18.2 28.8 C 25.9 C 29.5 C 3.6 No									
28. Rancho Penasquitos Boulevard/Paseo Montril 13.5 B 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 7.9 A 8.2 A 8.4 A 0.2 No 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No 31. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.5 A 8.2 A 8.1 A -0.1 No 32. Carmel Mountain Road/Sedorus Street (All-way stop control)** 7.5 A 8.2 A 8.1 A -0.1 No 34. Sparren Avenue/Carmel Mountain Road**** 24.1 C 32.1 C 28.2 C -3.9 No 35. Twin Trails Drive/Carmel Mountain Road (Two-way stop control)**** 18.8 C 25.9 C 29.5 C 3.6 Ke 36. (East) Sundance Avenue/Twin Trails Drive (All-way stop control)**** 18.4 C 15.5 C 15.2 C -3.6	·								
29. Rancho Penasquitos Boulevard/i-15 Southbound Off-Ramp 7.9 A 8.2 A 8.4 A 0.2 No	·								No
30. Rancho Penasquitos Boulevard/i-15 Northbound Off-Ramp 10.9 B 15.0 B 15.6 B 0.6 No									
31. Carmel Mountain Road/(West) Sundance Avenue 13.8 B 12.9 B 12.9 B 0.0 No	·			_					
32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.5									
33. Carmel Mountain Road/Entreken Way 21.3 C 22.6 C 22.6 C 0.0 No									
34. Sparren Avenue/Carmel Mountain Road *** 24.1									
35. Twin Trails Drive/Carmel Mountain Road 28.8									
36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control) ** * 18.4									
37. Sundance Avenue/Twin Trails Drive (All-way stop control) 22.7									
38. Penasquitos Post Office Driveway/Twin Trails Drive 18.2 B 18.3 B 18.4 B 0.1 No 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 8.0 A 8.0 A 8.1 A 0.1 No 40. Twin Trails Drive/Paseo Montalban 11.0 B 11.0 B 11.1 B 0.1 No 41. Salmon River Road/Paseo Montalban *** 13.6 B 13.9 B 13.2 B -0.7 No 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.0 A 9.0 N 8.0 A 9.0									
39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 8.0									
40. Twin Trails Drive/Paseo Montalban 11.0 B 11.0 B 11.1 B 0.1 No 41. Salmon River Road/Paseo Montalban *** 13.6 B 13.9 B 13.2 B -0.7 No 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.0 A 8.0 A 8.0 A 8.0 A 0.0 No 43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control) 7.5 A 7.5 A 7.5 A 0.0 No 44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 18.2 B 19.7 B 20.1	·								
41. Salmon River Road/Paseo Montalban *** 13.6 B 13.9 B 13.2 B -0.7 No 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.0 A 8.0 A 8.0 A 0.0 No 43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control) 7.5 A 7.5 A 7.5 A 0.0 No 44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.									
42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.0 A 8.0 A 8.0 A 0.0 No 43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control) 7.5 A 7.5 A 7.5 A 0.0 No 44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road *** 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C	,			_					
43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control) 7.5 A 7.5 A 7.5 A 0.0 No 44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road 7.9 A 7.8 A 7.9 A 7.8 A<				_					
44. Paseo Cardiel/Carmel Mountain Road 23.1 C 20.2 C 20.3 C 0.1 No 45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road *** 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 7.8 A 7.9									
45. Freeport Road/Carmel Mountain Road 8.8 A 5.8 A 6.4 A 0.6 No 46. Stoney Creek Road/Carmel Mountain Road *** 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4									
46. Stoney Creek Road/Carmel Mountain Road *** 10.5 B 9.0 A 8.9 A -0.1 No 47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 7.8 A 9.9 A				_					
47. Cuca Street - Caminata Deluz/Carmel Mountain Road 14.0 B 12.2 B 12.2 B 0.0 No 48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No									
48. Penasquitos Drive/Carmel Mountain Road 28.9 C 29.0 C 29.0 C 0.0 No 49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
49. I-15 Southbound Ramps/Carmel Mountain Road 18.2 B 19.7 B 20.1 C 0.4 No 50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No	·								
50. I-15 Northbound Ramps/Carmel Mountain Road 21.9 C 25.2 C 25.3 C 0.1 No 51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
51. Camino Del Sur/Park Village Road *** 24.5 C 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
52. Rumex Lane/Park Village Road 7.9 A 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
53. Ragweed Street/Park Village Road 15.9 B 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
54. Mercy Road/Kika Court 8.0 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No									
55. Alemania Road/Mercy Road 9.4 A 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No				_					
56. I-15 Southbound Ramps/Mercy Road *** 31.0 C 35.5 D 34.8 C -0.7 No	·								
	,								
I 37. I=13 NOTH DOUBLA BATTOS/IMPTCV KOAD = SCI DOS POWAV PATKWAV *** I 390 I D I // D I ⊨ I /O I I ⊨ I -6.9 I NO	57. I-15 Northbound Ramps/Mercy Road - Scripps Poway Parkway ***	39.0	D	77.0	E	70.1	E	-6.9	No

Timing and Phasing Source: City of San Diego Timing Sheets - See Appendix B

KOA Corporation ES-IV May 2016

^{*} Assumes a signalization upgrade in 2050.

 $[\]ensuremath{^{**}}$ Worst case control delay and LOS shown.

^{***} Positive improvements in avg. intersection delay are due to shift in traffic patterns and the re-optimization of the analysis for the intersection.

Black Mountain Road TIS Executive Summary

Table ES-3
Summary of PM Peak Hour Intersection Conditions

1. Camino Del Sur/Vatton Ranch Road *** 3.3.3				2050 W/	O Drainet	205014			
Intersection Number and Name					-	•			
1. Camino Del Sur/Carmel Valley Road *** 33.3 C 45.9 D 45.4 D								1 -	rence
2. Camino Del Sur/Wolverine Way - Fallhaven Road *** 9.4								∆ _{Delay}	
3. Camino Del Sur/Violverine Way - Fallhaven Road *** 17.9 8 20.2 C 18.3 B 4. Camino Del Sur/Violven 21.0 C 13.7 B 14.0 B 6. Camino Del Sur/Fighlands Village Place 13.2 B 16.6 B 16.8 B 6. Camino Del Sur/SR-56 Westbound Ramps 16.3 B 19.7 B 20.2 C C C C C C C C C								-0.5	No
4. Camino Del Sur/Torrey Meadows Drive 21.0 C 13.7 B 14.0 B								-1.1	No
5. Camino Del Sur/Fisk-56 Evestbound Ramps 16.3 B 19.7 B 20.2 C		_	+				-	-1.9	No
6. Camino Del Sur/SR-56 Westbound Ramps								0.3	No
7. Camino Del Sur/SR-56 Eastbound Ramps 8. Camino Del Sur/Torrey Santa Fe Road 15.8 B 19.2 B 19.7 B 8. Camino Del Sur/Torrey Santa Fe Road 50.2 D 47.9 D 48.8 D 10. Black Mountain Road/Carmel Valley Road 50.2 D 47.9 D 48.8 D 10. Black Mountain Road/Sargaze Avenue 11. Black Mountain Road/Stargaze Avenue 15.4 B 14.0 B 14.8 B 16.0 C C 13. Black Mountain Road/Carmel Mountain Road *** 16.0 B 17.6 B 26.0 C C 13. Black Mountain Road/Carmel Mountain Road *** 16.0 B 17.6 B 26.0 C C 13. Black Mountain Road/Twei Torie Tive *** 18. Black Mountain Road/Twei Trails Drive *** 18. Black Mountain Road/Twei Trails Drive *** 18. Black Mountain Road/Twei Trails Drive *** 18. Black Mountain Road/Fase Montalban 13.4 B 14.8 B 15.1		-	_					0.2	No
8. Camino Del Sur/Torrey Santa Fe Road 9. Black Mountain Road/Carmel Valley Road 50.2 D 47.9 D 48.8 D 10. Black Mount Road/Maler Road 7.5 A 7.5 A 7.6 A 11. Black Mountain Road/Stargaze Avenue 15.4 B 14.0 B 14.8 B 12. Black Mountain Road/Carmel Mountain Road*** 16.0 B 17.6 B 26.0 C 13. Black Mountain Road/Carmel Mountain Road*** 18. Black Mountain Road/Carmel Mountain Road*** 19. Black Mountain Road/Pase o Montalban 19. Black Mountain Road/Stargaze Avenue 19. Black Mountain Road/Stargaze Montalban 19. Black Mountain Road/Mercy Road *** 20. Black Mountain Road/Mercy Road *** 21. Black Mountain Road/Stargaze Montalban 22. Carmel Mountain Road/Stargaze Montalban 23. Carmel Mountain Road/Stargaze Mantalpan 24. Carmel Mountain Road/Stargaze Mantalpan 25. Rancho Penasquitos Boulevard/Stargaze Montalban 26. Rancho Penasquitos Boulevard/Stargaze Mantalpan 27. Rancho Penasquitos Boulevard/Stargaze Montalban 28. Rancho Penasquitos Boulevard/Stargaze Montalban 29. Rancho Penasquitos Boulevard/Stargaze Montalban 29. Rancho Penasquitos Boulevard/Stargaze Montalban 29. Rancho Penasquitos Boulevard/Stargaze Mantalpa Bargaze Avangazete** 10. A 3.9 A 4.5 A 19.7 A 19.			_					0.5	No
9. Black Mountain Road/Carmel Valley Road 50.2 D 47.9 D 48.8 D		-	_	_				0.0	No
10. Black Mountain Road/Maler Road		_					_	0.5	No
11. Black Mountain Road/Stargaze Avenue		-	_					0.9	No
12. Black Mountain Road/Carmel Mountain Road *** 36.5	·							0.1	No
13. Black Mountain Road/Carmel Mountain Road *** 14. Black Mountain Road/Paseo Montalban 13.4 B 14.8 B 15.1 B B B B B B B B B			_					0.8	No
14. Black Mountain Road/Paseo Montalban	·	_					_	8.4	No
15. Black Mountain Road/Twin Trails Drive *** 38.8	3. Black Mountain Road/Carmel Mountain Road ***	36.5						-0.2	No
16. Black Mountain Road/SR-56 Westbound Ramps 29.6		13.4	_					0.3	No
17. Black Mountain Road/SR-56 Eastbound Ramps 23.9 C 26.1 C 26.2 C 18. Black Mountain Road/Park Village Road - Adolphia Street *** 26.1 C 29.7 C 29.4 C 19. Black Mountain Road/Canyonside Park Drive 4.8 A 4.8 A 6.8 A 20. Black Mountain Road/Mercy Road *** 25.3 C 37.2 D 31.8 C 21. Black Mountain Road/Sundevil Way 16.8 B 14.6 B 14.6 B 22. Carmel Mountain Road/Paseo Montalban 33.4 C 23.3 C 23.1 C 24. Carmel Mountain Road/Paseo Montalban 33.4 C 23.5 D 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/I-15 Southbound	5. Black Mountain Road/Twin Trails Drive ***	38.8		40.5				-8.5	No
18. Black Mountain Road/Park Village Road - Adolphia Street *** 26.1 C 29.7 C 29.4 C 19. Black Mountain Road/Canyonside Park Drive 4.8 A 4.8 A 6.8 A 20. Black Mountain Road/Mercy Road *** 25.3 C 37.2 D 31.8 C 21. Black Mountain Road/Westview Parkway *** 16.1 B 22.7 C 20.5 C 22. Carmel Mountain Road/Sundevil Way 16.8 B 14.6 B 14.6 B 23. Carmel Mountain Road/Sh-56 WB Ramps - Rancho Penasquitos Boulevard ** 34.3 C 23.3 C 23.1 C 24. Carmel Mountain Road/Sh-56 WB Ramps - Rancho Penasquitos Boulevard ** 34.3 C 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/Paseo Montril 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 9.4 A 9.7 A 9.7 A 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/Sedorus Street (All-way stop control) * 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road *** 16.7 B 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road (Two-way stop control) * 4.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A 40. Twin Trails Drive/Raigrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A 40. Twin Trails Drive Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A 40. Twin Trails Drive Road/Fairgrove Lane (All-way stop control) 8.8	6. Black Mountain Road/SR-56 Westbound Ramps	29.6	_	34.4		34.7		0.3	No
19. Black Mountain Road/Canyonside Park Drive 4.8	7. Black Mountain Road/SR-56 Eastbound Ramps	23.9	-	26.1	С	26.2	С	0.1	No
20. Black Mountain Road/Mercy Road *** 25.3	8. Black Mountain Road/Park Village Road - Adolphia Street ***	26.1	С	29.7	С	29.4	С	-0.3	No
21. Black Mountain Road/Westview Parkway *** 16.1 B 22.7 C 20.5 C 22. Carmel Mountain Road/Sundevil Way 16.8 B 14.6 B 14.6 B 23. Carmel Mountain Road/Paseo Montalban 33.4 C 23.3 C 23.1 C 24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard *** 34.3 C 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/Paseo Montril 14.6 B 14.5 B 14.5 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B	9. Black Mountain Road/Canyonside Park Drive	4.8	Α	4.8	Α	6.8	Α	2.0	No
22. Carmel Mountain Road/Sundevil Way 16.8 B 14.6 B 14.6 B 23. Carmel Mountain Road/Paseo Montalban 33.4 C 23.3 C 23.1 C 24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard ** 34.3 C 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain	0. Black Mountain Road/Mercy Road ***	25.3	С	37.2	D	31.8	С	-5.4	No
23. Carmel Mountain Road/Paseo Montalban 33.4 C 23.3 C 23.1 C 24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard ** 34.3 C 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Jria Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/Jria Del Sud 4.3 A 3.9 A 4.5 A 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 14.6 B 14.5	1. Black Mountain Road/Westview Parkway ***	16.1	В	22.7	С	20.5	С	-2.2	No
24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard ** 34.3 C 35.6 D 35.3 D 25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Jvia Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/J-15 Southbound Off-Ramp 14.6 B 14.5 B 14.6 B 14.5 B 14.5 B 14.5 B 14.5 B 14.	2. Carmel Mountain Road/Sundevil Way	16.8	В	14.6	В	14.6	В	0.0	No
25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street *** 51.3 D 70.7 E 69.4 E 26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 9.4 A 9.7 A 9.0 A 16.5 B 16.5<	3. Carmel Mountain Road/Paseo Montalban	33.4	С	23.3	С	23.1	С	-0.2	No
26. Rancho Penasquitos Boulevard/Calle De Las Rosas 10.0 A 9.5 A 10.0 A 27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/Paseo Montril 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 9.4 A 9.7 A 9.7 A 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Twin Trails Drive (All-way stop control)			С	35.6	D	35.3	D	-0.3	No
27. Rancho Penasquitos Boulevard/Via Del Sud 4.3 A 3.9 A 4.5 A 28. Rancho Penasquitos Boulevard/Paseo Montril 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 9.4 A 9.7 A 9.7 A 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 10.3 B 10.3 B	5. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street **	* 51.3	D	70.7	E	69.4	E	-1.3	No
28. Rancho Penasquitos Boulevard/Paseo Montril 14.6 B 14.5 B 14.5 B 29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp 9.4 A 9.7 A 9.7 A 30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 9.9 A 10.3 <td>6. Rancho Penasquitos Boulevard/Calle De Las Rosas</td> <td>10.0</td> <td>Α</td> <td>9.5</td> <td>Α</td> <td>10.0</td> <td>Α</td> <td>0.5</td> <td>No</td>	6. Rancho Penasquitos Boulevard/Calle De Las Rosas	10.0	Α	9.5	Α	10.0	Α	0.5	No
29. Rancho Penasquitos Boulevard/i-15 Southbound Off-Ramp 9.4 A 9.7 A 9.7 A 30. Rancho Penasquitos Boulevard/i-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Pase	7. Rancho Penasquitos Boulevard/Via Del Sud	4.3	Α	3.9	Α	4.5	Α	0.6	No
30. Rancho Penasquitos Boulevard/i-15 Northbound Off-Ramp 14.9 B 19.4 B 20.6 C 31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	8. Rancho Penasquitos Boulevard/Paseo Montril	14.6	В	14.5	В	14.5	В	0.0	No
31. Carmel Mountain Road/(West) Sundance Avenue 16.1 B 16.0 B 16.5 B 32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** <td></td> <td></td> <td></td> <td></td> <td>Α</td> <td></td> <td></td> <td>0.0</td> <td>No</td>					Α			0.0	No
32. Carmel Mountain Road/Sedorus Street (All-way stop control)* 7.4 A 5.2 A 5.1 A 33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 15.1 B 15.1 B 15.1 B	0. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp	14.9	В	19.4	В	20.6	С	1.2	No
33. Carmel Mountain Road/Entreken Way *** 13.4 B 12.6 B 12.5 B 34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	1. Carmel Mountain Road/(West) Sundance Avenue	16.1	В	16.0	В	16.5	В	0.5	No
34. Sparren Avenue/Carmel Mountain Road 24.0 C 20.1 C 20.2 C 35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control) ** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	2. Carmel Mountain Road/Sedorus Street (All-way stop control)*	7.4	Α	5.2	Α	5.1	Α	-0.1	No
35. Oviedo Street/Carmel Mountain Road *** 16.7 B 20.1 C 19.6 B 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control) ** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	3. Carmel Mountain Road/Entreken Way ***	13.4		12.6		12.5		-0.1	No
36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)** 9.9 A 10.3 B 10.3 B 37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A		24.0	С	20.1	С	20.2	С	0.1	No
37. Sundance Avenue/Twin Trails Drive (All-way stop control) 14.9 B 23.8 C 27.5 D 38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	5. Oviedo Street/Carmel Mountain Road ***	16.7	В	20.1	С	19.6	В	-0.5	No
38. Penasquitos Post Office Driveway/Twin Trails Drive *** 26.7 C 26.6 C 26.1 C 39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	6. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)*	9.9	Α	10.3	В	10.3	В	0.0	No
39. Twin Trails Drive/Fairgrove Lane (All-way stop control) 9.0 A 9.1 A 9.2 A 40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A		14.9	В	23.8	С	27.5	D	3.7	No
40. Twin Trails Drive/Paseo Montalban 12.9 B 12.9 B 13.0 B 41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	8. Penasquitos Post Office Driveway/Twin Trails Drive ***	26.7	С	26.6	С	26.1	С	-0.5	No
41. Salmon River Road/Paseo Montalban *** 15.1 B 15.1 B 11.9 B 42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	9. Twin Trails Drive/Fairgrove Lane (All-way stop control)	9.0	Α	9.1	Α	9.2	Α	0.1	No
42. Salmon River Road/Fairgrove Lane (All-way stop control) 8.8 A 8.8 A 8.9 A	0. Twin Trails Drive/Paseo Montalban	12.9	В	12.9	В	13.0	В	0.1	No
	1. Salmon River Road/Paseo Montalban ***	15.1	В	15.1	В	11.9	В	-3.2	No
40 Column Bitter Bend Adolubio Charak Historia (All Control 1)	2. Salmon River Road/Fairgrove Lane (All-way stop control)	8.8	Α	8.8	Α	8.9	Α	0.1	No
43. Salmon Kiver Koad/Adolphia Street - Limar Way (All-way stop control) 7.9 A 7.9 A 7.9 A 7.9 A	3. Salmon River Road/Adolphia Street - Limar Way (All-way stop control)	7.9	Α	7.9	Α	7.9	Α	0.0	No
44. Paseo Cardiel/Carmel Mountain Road 29.1 C 25.1 C 27.3 C	4. Paseo Cardiel/Carmel Mountain Road	29.1	С	25.1	С	27.3	С	2.2	No
45. Freeport Road/Carmel Mountain Road 7.8 A 5.1 A 7.5 A			Α		Α		Α	2.4	No
46. Stoney Creek Road/Carmel Mountain Road *** 3.6 A 4.2 A 3.7 A		3.6	Α	4.2	Α	3.7	Α	-0.5	No
47. Cuca Street - Caminata Deluz/Carmel Mountain Road *** 10.9 B 10.9 B 10.8 B		10.9	В	10.9	В	10.8	В	-0.1	No
48. Penasquitos Drive/Carmel Mountain Road *** 28.1 C 30.9 C 30.8 C		28.1	С	30.9	С		С	-0.1	No
49. I-15 Southbound Ramps/Carmel Mountain Road 25.3 C 35.4 D 35.5 D		25.3	С	35.4	D	35.5	D	0.1	No
50. I-15 Northbound Ramps/Carmel Mountain Road 27.3 C 50.5 D 51.4 D		27.3	С					0.9	No
51. Camino Del Sur/Park Village Road 19.3 B 23.7 C 23.8 C		_	В		С		С	0.1	No
52. Rumex Lane/Park Village Road 7.1 A 6.9 A 7.0 A	2. Rumex Lane/Park Village Road	7.1	Α	6.9	Α	7.0	Α	0.1	No
53. Ragweed Street/Park Village Road 16.1 B 16.1 B 16.6 B		16.1	В	16.1	В	16.6	В	0.5	No
54. Mercy Road/Kika Court *** 7.4 A 8.3 A 7.5 A		7.4	Α	8.3	Α	7.5	Α	-0.8	No
55. Alemania Road/Mercy Road *** 10.3 B 10.6 B 10.3 B		10.3	В	10.6	В	10.3	В	-0.3	No
56. I-15 Southbound Ramps/Mercy Road *** 33.0 C 40.5 D 37.6 D	6. I-15 Southbound Ramps/Mercy Road ***	33.0		40.5	D	37.6	D	-2.9	No
57. I-15 Northbound Ramps/Mercy Road - Scripps Poway Parkway *** 34.8 C 61.7 E 52.9 D Timing and Phasing Source: City of San Diego Signal Timing Sheets - See Appendix B			С	61.7	E	52.9	D	-8.8	No

Timing and Phasing Source: City of San Diego Signal Timing Sheets - See Appendix B

^{*} Assumes a signalization upgrade in 2050.

^{**} Worst case control delay and LOS shown.

^{***} Positive improvements in avg. intersection delay are due to shift in traffic patterns and the re-optimization of the analysis for the intersection.

Black Mountain Road TIS **Executive Summary**

Table ES-4 **Summary of Freeway Mainline Conditions**

	-	man y On		4 ,						
Freeway Segment	AM/ PM	LOS E Capacity	Exis Condi	itions	Long 1 Without I (BMR 6-I	Project	With F (BMR 4	Term Project -Lanes)		mparison
OD FO Weetler and			V/C	LOS	V/C	LOS	V/C	LOS	Δ V/C	Significant?
SR-56 Westbound	AM	7,050	0.902	D	1.132	l F	1.136	F	0.004	No
West of Camino del Sur	PM	7,050	0.332	A	0.417	В	0.418	В	0.001	No
Camino del Sur to Black Mountain Rd	AM	7,050	0.999	Е	1.119	F	1.124	F	0.005	No
Carrillo del Sul to Diack Mountain Nu	PM	7,050	0.367	Α	0.412	В	0.414	В	0.002	No
Black Mountain Road to Rancho	AM	8,850	0.762	С	0.808	D	0.798	С	-0.010	No
Penasquitos Blvd *	PM	8,850	0.280	Α	0.297	Α	0.294	Α	-0.003	No
Rancho Penasquitos Blvd to I-15	AM	7,050	0.985	Е	0.997	Е	0.983	E	-0.014	No
Interchange *	PM	7,050	0.362	Α	0.367	Α	0.362	Α	-0.005	No
SR-56 Eastbound	•									
West of Carries del C	AM	7,050	0.346	Α	0.434	В	0.436	В	0.002	No
West of Camino del Sur	PM	7,050	0.885	D	1.112	F	1.115	F	0.003	No
Coming del Cur to Display Manustria Dis	AM	7,050	0.383	Α	0.429	В	0.431	В	0.002	No
Camino del Sur to Black Mountain Rd	PM	7,050	0.981	Е	1.098	F	1.104	F	0.006	Yes
Black Mountain Road to Rancho	AM	7,050	0.270	Α	0.389	Α	0.384	Α	-0.005	No
Penasquitos Blvd *	PM	7,050	0.690	С	0.995	Е	0.983	Е	-0.012	No
Rancho Penasguitos Blvd to I-15	AM	7,050	0.378	Α	0.382	Α	0.377	Α	-0.005	No
Interchange *	PM	7,050	0.967	Е	0.978	Е	0.965	Е	-0.013	No
I-15 Northbound						l	<u> </u>			
0 " (M - D - I +	AM	16,910	0.725	С	1.245	F	1.239	F	-0.006	No
South of Mercy Road *	PM	16,910	0.534	В	0.917	D	0.913	D	-0.004	No
Mercy Road to Rancho Penasquitos	AM	16,910	0.687	С	1.210	F	1.195	F	-0.015	No
Blvd *	PM	16,910	0.506	В	0.892	D	0.881	D	-0.011	No
Rancho Penasquitos Blvd to Ted	AM	15,110	0.674	С	1.246	F	1.232	F	-0.014	No
Williams Pkwy *	PM	16,910 0.534 B 0. 16,910 0.687 C 1. 16,910 0.506 B 0. 15,110 0.674 C 1. 15,110 0.497 B 0.	0.918	D	0.908	D	-0.010	No		
Ted Williams Pkwy to Carmel	AM	16,910	0.667	С	1.094	F	1.094	F	0.000	No
Mountain Rd *	PM	16,910	0.491	В	0.807	D	0.806	D	-0.001	No
N # 60 IM 1: DI	AM	16,910	0.692	С	1.145	F	1.146	F	0.001	No
North of Carmel Mountain Rd	PM	16,910	0.422	В	0.699	С	0.700	С	0.001	No
I-15 Southbound					•	,				
0 11 111 12 14	AM	16,910	0.532	В	0.913	D	0.909	D	-0.004	No
South of Mercy Road *	PM	16,910	0.716	С	1.230	F	1.224	F	-0.006	No
Mercy Road to Rancho Penasquitos	AM	16,910	0.504	В	0.888	D	0.877	D	-0.011	No
Blvd *	PM	16,910	0.679	С	1.196	F	1.181	F	-0.015	No
Rancho Penasguitos Blvd to Ted	AM	16,910	0.442	В	0.817	D	0.808	D	-0.009	No
Williams Pkwy *	PM	16,910	0.596	В	1.100	F	1.088	F	-0.012	No
Ted Williams Pkwy to Carmel	AM	16,910	0.489	В	0.803	D	0.803	D	0.000	No
Mountain Rd	PM	16,910	0.659	С	1.081	F	1.081	F	0.000	No
	AM	15,110	0.338	Α	0.559	В	0.560	В	0.001	No
North of Carmel Mountain Rd	PM	15,110	0.773	С	1.279	F	1.280	F	0.001	No
	1	, •		L		L .				

Peak Hour Volume = (ADT)(K)(D)/(Truck Factor))
V/C = Peak Hour Volume / Capacity
Truck Source: 2013 Annual Average Daily Truck Traffic on the California State Highway System

ADT Source: SANDAG Modeling (Appendix E)
K/D Source: 2013 K and D Factors on the California State Highway System

^{*} Improvement in Change in V/C Ratio are due to shift in traffic patterns

Executive Summary Black Mountain Road TIS

Table ES-5 **Summary of Freeway Ramp Metering Conditions**

	# of	Meter Rate		sting litions	-	on Year ut Project		n Year Project	Comp	arison
Location	Lane	(veh/hr/ lane)	Delay (min)	Queue (ft)	Delay (min)	Queue (ft)	Delay (min)	Queu e (ft)	Δ Dela y	Imp- act
AM Peak Hour										
Camino del Sur - SR56 WB Ramp	2	435	0	0	0	0	0	0	0	No
Camino del Sur - SR56 WB Ramp (HOV)	1	435	0	0	0	0	0	0	0	No
Black Mountain Rd - SR56 WB Ramp *	2	520	17	8,729	28	14,027	27	13,427	-1	No
Black Mountain Rd - SR56 WB Ramp (HOV)	1	520	0	0	0	0	0	0	0	No
Rancho Penasquitos - SR56 WB Ramp	1	600	16	4,553	21	6,119	24	6,815	3	Yes
Carmel Mountain Rd - I15 SB Ramp	2	367	3	1,134	14	5,075	14	4,971	0	No
Carmel Mountain Rd - I15 SB Ramp (HOV)	1	367	0	0	0	0	0	0	0	No
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	492	30	14,094	46	21,721	46	21,837	0	No
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	492	0	0	0	0	0	0	0	No
Mercy Rd - I15 SB Ramp *	2	420	18	7,221	32	13,172	28	11,214	-5	No
Mercy Rd - I15 SB Ramp (HOV)	1	420	0	0	0	0	0	0	0	No
PM Peak Hour	•									
Camino del Sur - SR56 EB Ramp *	2	480	0	0	16	7,317	14	6,273	-2	No
Camino del Sur - SR56 EB Ramp (HOV)	1	480	0	0	0	0	0	0	0	No
Black Mountain Rd - SR56 EB Ramp	2	600	0	0	0	0	0	0	0	No
Black Mountain Rd - SR56 EB Ramp (HOV)	1	600	0	0	0	0	0	0	0	No
Rancho Penasquitos - SR56 EB Ramp	2	300	0	0	0	0	0	0	0	No
Carmel Mountain Rd - I15 SB Ramp	2	473	6	2,555	17	7,801	17	7,671	0	No
Carmel Mountain Rd - I15 SB Ramp (HOV)	1	473	0	0	0	0	0	0	0	No
Carmel Mountain Rd - I15 NB Ramp	2	463	0	0	0	0	0	0	0	No
Carmel Mountain Rd - I15 NB Ramp (HOV)	1	463	0	0	0	0	0	0	0	No
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	576	0	0	0	0	0	0	0	No
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	576	0	0	0	0	0	0	0	No
Rancho Penasquitos - I15 NB Ramp - WB->NB	1	335	17	2,755	31	4,988	31	5,017	0	No
Rancho Penasquitos - I15 NB Ramp - Loop EB->NB	1	335	0	0	0	0	0	0	0	No
Mercy Rd - I15 SB Ramp *	2	406	27	10,591	44	17,142	38	15,028	-5	No
Mercy Rd - I15 SB Ramp (HOV)	1	406	0	0	0	0	0	0	0	No
Mercy Rd - I15 NB Ramp *	2	270	46	11,902	67	17,435	64	16,704	-3	No

Source: Caltrans January 2015

Meter rate is based on the most restrictive meter rate provided by Caltrans, see Appendix I

HOV demand is equal to 10% of Total Demand

Total Demand onto all lanes of each Freeway Ramp is found in the vehicle turning movements in Figures 3-4 and 3-5

Combined Meter Rate = (Meter Rate per Lane) * (# of Lanes)
Excess Demand = (Demand * # of lanes) -(Combined Meter Rate); if Excess Demand < 0, then Excess Demand = 0

Delay = Excess Demand / Combined Meter Rate

Queue = Excess Demand * 29 ft/vehicle

^{*} Improvement in average ramp delay is due to shift in traffic patterns

CHAPTER I THE PROJECT

Black Mountain Road is designated a 6-Lane Primary Arterial in the Rancho Peñasquitos Community Plan, which is part of the General Plan of the City of San Diego. Black Mountain Road currently functions as a 4-Lane Major. A Community Plan Amendment has been initiated by the City Planning Commission at the request of the Black Mountain Ranch developer to reclassify Black Mountain Road to a 4-Lane Major from Twin Trails Drive on the north to the southern community boundary. The Rancho Peñasquitos community is located approximately 17 miles to the north of downtown San Diego and approximately 8 miles to the east of the Pacific Ocean. It is bounded on the east by the communities of Carmel Mountain Ranch and Sabre Springs, on the south by the Los Peñasquitos Canyon Preserve and the Mira Mesa community, and on the west and north by subareas I and IV known as Black Mountain Ranch and Torrey Highlands and the Rancho Bernardo community planning area. Future development in this area is described in Chapter 4. The community is topographically diverse and is physically characterized by numerous canyons, hillsides and ridges.

This transportation impact study has been prepared to analyze and evaluate the reclassification of Black Mountain Road to a 4-Lane Major from Twin Trails Drive to the southern boundary of the Community of Rancho Peñasquitos. For analysis purposes, the proposed reclassification of this segment of Black Mountain Road to a 4-Lane Major is considered the "Project". Figure 1-1 shows the Project segment and surrounding area.

PROJECT DESCRIPTION

Black Mountain Road is a north-south roadway located west of Interstate 15 (I-15). Black Mountain Road is entirely within the City of San Diego, extending continuously from Carmel Valley Road on the north to Miramar Road on the south, a distance of approximately 6.6 miles. The northern half of Black Mountain Road is within and governed by the Rancho Peñasquitos Community Plan. The Project segment is within the northern half of Black Mountain Road. It is approximately I.3 miles long from Twin Trails Drive on the north to the southern community boundary adjacent to the Los Peñasquitos Canyon Preserve. Currently, Black Mountain Road operates as a 4-Lane Major with landscaped medians, contiguous sidewalks and Class II bike lanes. The bridge section of Black Mountain Road that crosses State Route 56 (SR-56) is wider and operates as a 5-lane Primary Arterial.

The Project, the reclassification of Black Mountain Road to a 4-Lane Major from Twin Trails Drive to the southern community boundary, as initiated under a Community Plan Amendment, has been proposed in order to preserve the existing character of the community, as well as avoid the need to acquire private property necessary to expand Black Mountain Road to a six-lane facility.

A primary goal of the Community Plan is the construction and maintenance of an adequate system for vehicular, bicycle and pedestrian circulation. The expansion of Black Mountain Road to a 6-Lane Primary Arterial was identified as a primary roadway improvement to relieve congestion and mitigate impacts due to proposed development. Therefore, implementation of the Project would need to address traffic impacts resulting from Black Mountain Road not being improved to six lanes, as well as impacts to the bicycle and pedestrian networks.

STUDY AREA

The study area is a large area that includes numerous intersections and street segments expected to be affected by the Project. The extent of the study area was determined in consultation with City staff, along with their knowledge of the transportation system in the northern area of the City. Within this study area, 57 intersections and 37 roadway segments were selected for analysis, which are listed below and denoted in Figure 1-2.

KOA Corporation I May 2016

Intersections

Except as noted, all of the following intersections are signalized.

- I. Camino Del Sur/Carmel Valley Road
- 2. Camino Del Sur/Watson Ranch Road
- 3. Camino Del Sur/Wolverine Way Fallhaven Road
- 4. Camino Del Sur/Torrey Meadows Drive
- 5. Camino Del Sur/Highlands Village Place
- 6. Camino Del Sur/SR-56 Westbound Ramps
- 7. Camino Del Sur/SR-56 Eastbound Ramps
- 8. Camino Del Sur/Torrey Santa Fe Road
- 9. Black Mountain Road/Carmel Valley Road
- 10. Black Mount Road/Maler Road
- 11. Black Mountain Road/Stargaze Avenue
- 12. Black Mountain Road/Oviedo Street
- 13. Black Mountain Road/Carmel Mountain Road
- 14. Black Mountain Road/Paseo Montalban
- 15. Black Mountain Road/Twin Trails Drive
- 16. Black Mountain Road/SR-56 Westbound Ramps
- 17. Black Mountain Road/SR-56 Eastbound Ramps
- 18. Black Mountain Road/Park Village Road Adolphia Street
- 19. Black Mountain Road/Canyonside Park Drive
- 20. Black Mountain Road/Mercy Road
- 21. Black Mountain Road/Westview Parkway
- 22. Carmel Mountain Road/Sundevil Way
- 23. Carmel Mountain Road/Paseo Montalban
- 24. Carmel Mountain Road/SR-56 Westbound Ramps Rancho Peñasquitos Boulevard
- 25. Rancho Peñasquitos Boulevard/SR-56 Eastbound Ramps Azuaga Street
- 26. Rancho Peñasquitos Boulevard/Calle De Las Rosas
- 27. Rancho Peñasquitos Boulevard/Via Del Sud
- 28. Rancho Peñasquitos Boulevard/Paseo Montril
- 29. Rancho Peñasquitos Boulevard/I-15 Southbound Off-Ramp
- 30. Rancho Peñasquitos Boulevard/I-15 Northbound Off-Ramp
- 31. Carmel Mountain Road/(West) Sundance Avenue
- 32. Carmel Mountain Road/Sedorus Street (All-way stop control)
- 33. Carmel Mountain Road/Entreken Way
- 34. Sparren Avenue/Carmel Mountain Road
- 35. Twin Trails Drive/Carmel Mountain Road
- 36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)
- 37. Sundance Avenue/Twin Trails Drive (All-way stop control)
- 38. Peñasquitos Post Office Driveway/Twin Trails Drive
- 39. Twin Trails Drive/Fairgrove Lane (All-way stop control)
- 40. Twin Trails Drive/Paseo Montalban
- 41. Salmon River Road/Paseo Montalban
- 42. Salmon River Road/Fairgrove Lane (All-way stop control)
- 43. Salmon River Road/Adolphia Street Limar Way (All-way stop control)
- 44. Paseo Cardiel/Carmel Mountain Road
- 45. Freeport Road/Carmel Mountain Road
- 46. Stoney Creek Road/Carmel Mountain Road
- 47. Cuca Street Caminata Deluz/Carmel Mountain Road
- 48. Peñasquitos Drive/Carmel Mountain Road
- 49. I-15 Southbound Ramps/Carmel Mountain Road
- 50. I-15 Northbound Ramps/Carmel Mountain Road
- 51. Camino Del Sur/Park Village Road
- 52. Rumex Lane/Park Village Road

- 53. Ragweed Street/Park Village Road
- 54. Mercy Road/Kika Court
- 55. Alemania Road/Mercy Road
- 56. I-15 Southbound Ramps/Mercy Road
- 57. I-15 Northbound Ramps/Mercy Road Scripps Poway Parkway

Roadway Segments

- 1. Camino Del Sur south of Carmel Valley Road
- 2. Camino Del sur south of Wolverine Way Fallhaven Road
- 3. Camino Del Sur north of SR-56 Westbound Ramps
- 4. Camino Del Sur south of SR-56 Eastbound Ramps
- 5. Carmel Valley Road west of Black Mountain Road
- 6. Carmel Valley Road east of Black Mountain Road
- 7. Black Mountain Road north of Maler Road
- 8. Black Mountain road south of Oviedo Street
- 9. Black Mountain Road south of Carmel Mountain Road
- 10. Black Mountain Road between Paseo Montalban and Twin Trails Drive
- 11. Black Mountain Road south of Twin Trails Drive
- 12. Black Mountain Road between SR-56 Westbound and Eastbound Ramps
- 13. Black Mountain Road north of Park Village Road Adolphia Street
- 14. Black Mountain Road north of Canyonside Park Drive
- 15. Black Mountain Road between Mercy Road and Babuta Road
- 16. Black Mountain Road south of Westview Parkway
- 17. Westview Parkway east of Black Mountain Road
- 18. Carmel Mountain Road between Paseo Aldabra and Sundevil Way
- 19. Carmel Mountain Road between Paseo Montalban and SR-56 Westbound Ramps
- 20. Rancho Peñasquitos Boulevard between SR-56 Westbound Ramps Azuaga Street and Calle De Las Rosas
- 21. Rancho Peñasquitos Boulevard between Calle De Las Rosas and Via Del Sud
- 22. Rancho Peñasquitos Boulevard between Paseo Montril and I-15 Southbound Ramps
- 23. Poway Road east of I-15 Northbound Ramps
- 24. Carmel Mountain Road south of Sundance Avenue
- 25. Carmel Mountain Road west of Sparren Avenue
- 26. Carmel Mountain Road west of Black Mountain Road
- 27. Sundance Avenue west of War Bonnet Street
- 28. Carmel Mountain Road east of Freeport Road
- 29. Carmel Mountain Road between Peñasquitos Drive and Gerana Street
- 30. Carmel Mountain Road between I-15 Southbound Ramps and Peñasquitos Drive
- 31. Carmel Mountain Road east of 1-15 Northbound Ramps
- 32. Camino Del Sur north of Park Village Road
- 33 Park Village road east of Camino Del Sur
- 34. Park Village Road west of Black Mountain Road
- 35. Mercy Road between Chabola road and Branicole Lane
- 36. Mercy Road north of Alemania Road
- 37. Scripps Poway Parkway east of I-15 Northbound Ramps

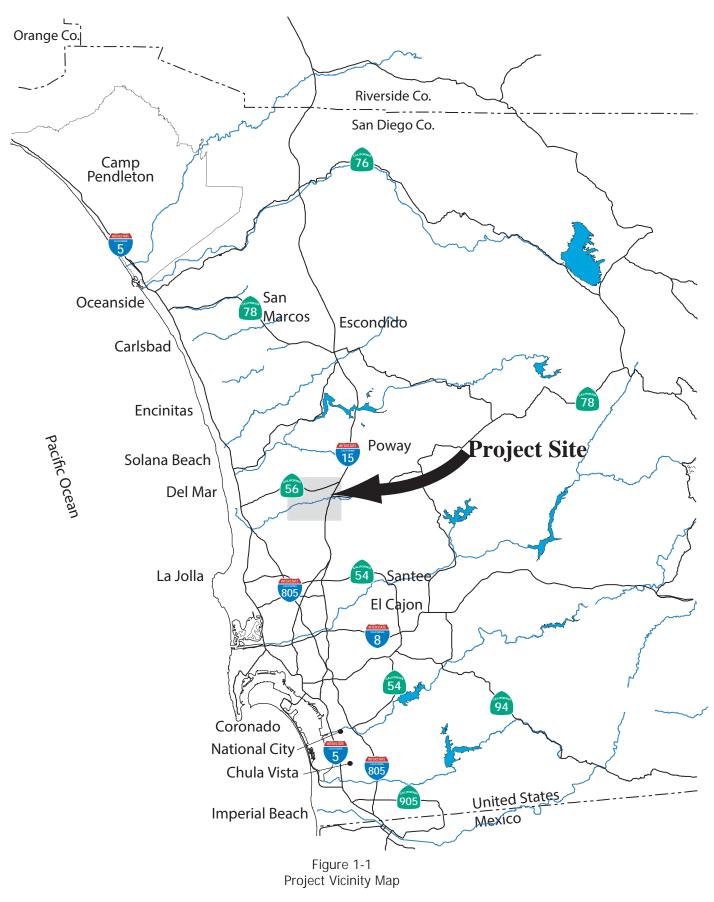
PROJECT TRIP GENERATION

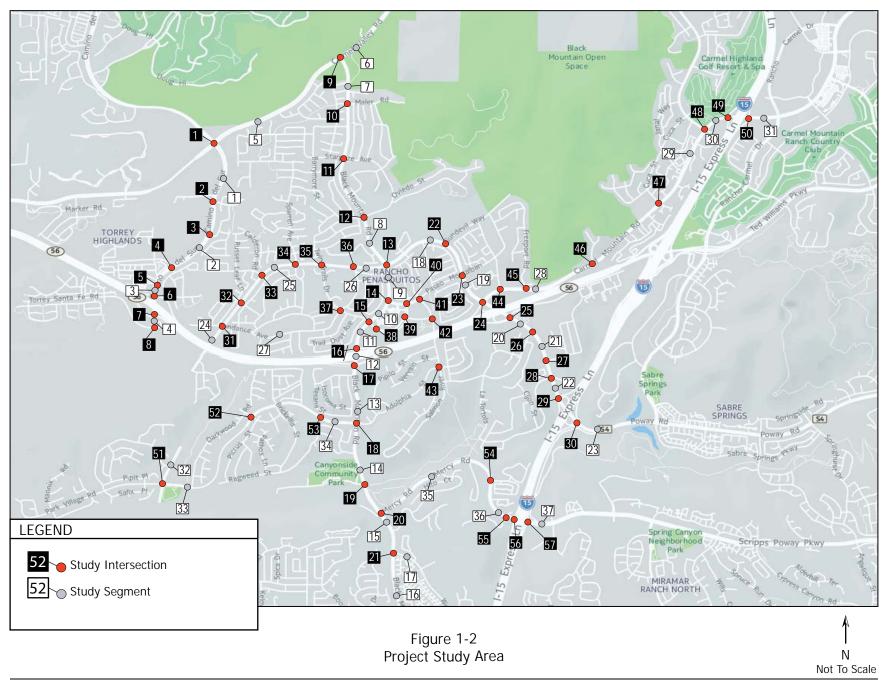
Vehicular trip generation is a measure or forecast of the number of trips that begin or end at a project site. In this case, there is no project or project site in the typical sense. As the Project is the reclassification of a segment of Black Mountain Road to a 4-Lane Major, it itself is not a trip generator. Instead, the trips are generated by the existing and future development within and around the study area, a large geographic area, and not by a single development site. The determination of the trips on the study area roadway network, including Black Mountain Road and the Project segment, is described below and in other sections of this report.

Traffic volume forecasts for the year 2050 for roadway network in the study area were developed and provided by the San Diego Association of Governments (SANDAG). These forecasts were produced from SANDAG's latest travel demand forecasting model, the primary long-range transportation planning tool in the San Diego region. The future traffic volumes for the study intersections and street segments and the methodology used to estimate those volumes are described in Chapter 4.

TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution refers to the process of identifying the general destination of outbound trips and origins of inbound trips within a regional context. Trip assignment refers to the process of identifying the specific routes drivers would likely use to reach their destinations. The trip distribution and assignment of the future traffic volumes to the study area roadway network were intrinsically performed by the SANDAG model as part of its forecasting process for both the 4-lane major scenario and the 6-lane major scenario.





Black Mountain Road TIS Methodologies

CHAPTER 2 METHODOLOGIES

This chapter describes the methodologies and assumptions used to conduct the transportation impact study for the Project. The study methodology and analysis were consistent with the City of San Diego Traffic Impact Study Manual (1998) and City of San Diego Significance Determination Thresholds, Development Services Department (2011). These guidelines were used to determine the potential significant impacts of the Project, based on the following considerations:

- Study scenarios and time periods
- Capacity analysis methodologies

STUDY SCENARIOS AND TIME PERIODS

The following scenarios were analyzed for the AM peak hour, PM peak hour and daily time periods in the study:

- Existing (2014) Conditions
- Horizon Year (2050) Conditions Without Project (BMR Segment 6-Lane Primary Arterial)
- Horizon Year (2050) Conditions With Project (BMR Segment 4-Lane Major)

A full list of the network changes that occur and were studied in both Horizon Year scenarios is expanded on in Chapter 4 in Table 4.2.

CAPACITY ANALYSIS METHODOLOGIES

Roadway operating conditions are typically described in terms of "level of service." Level of service is a "report card" type scale used to indicate the quality of traffic flow on roadway segments and at intersections under prevailing conditions. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). A more detailed description of the LOS concepts, along with the analysis methodologies and standards of significance discussed below, are provided in Appendix A.

Roadway Segment Capacity Analysis

The City of San Diego has published daily traffic volumes standards for roadways within its jurisdiction. To determine service levels on study area roadways segments, the appropriate average daily traffic thresholds for level of service were compared to the daily capacity of the roadway segments, relative to the existing and future volumes in the study area. The thresholds for determining level of service used in this analysis are summarized in Appendix A.

Intersection Capacity Analysis

The analysis of peak-hour intersection performance was conducted using Synchro, a traffic analysis and signal optimization software application. Synchro supports the Highway Capacity Manual (HCM) methodology for signalized and unsignalized intersections. Appendix A contains the HCM delay and level of service criteria for signalized and unsignalized intersections.

Signalized Intersections

The HCM methodology for analyzing signalized intersections is based on the "operational analysis" procedure. This procedure uses 1,900 passenger cars per hour of green per lane as the maximum saturation flow of a single lane at a signalized intersection. This saturation flow rate is adjusted to account for lane width, on-street parking, conflicting pedestrian flow, traffic composition (e.g., percentage of vehicles that are trucks), and shared lane movements (e.g., through and right-turn

Black Mountain Road TIS Methodologies

movements from the same lane). Average control delay is calculated using a volume-weighted average of all of the delays for all vehicles entering the intersection.

All-Way Stop-Controlled Intersections

The HCM methodology for analyzing all-way stop-controlled intersections is based on conflicting traffic for vehicles stopped at an intersection. These intersections operate in either two-phase or four-phase patterns, and flows are determined by a consensus of right-of-way that alternates between north-south and east-west movements. Average control delay is calculated using a volume-weighted average of all of the delays for all vehicles entering the intersection.

Two-Way Stop-Controlled Intersections

The HCM methodology for analyzing two-way stop-controlled intersections is based on gap acceptance and conflicting traffic for vehicles stopped on the minor street approaches. The critical gap (or minimum gap that would be acceptable) is defined as the minimum time interval in the major street traffic flow that allows one vehicle from the minor street to enter the intersection. Control delay and level of service for the "worst" approach are reported, rather than for the intersection as a whole.

Freeway Mainline Analysis

The method for calculating freeway level of service is based on the volume-to-capacity (V/C) ratio using the following equation:

V/C = [(ADT * Peak hour percent * Directional factor)/Truck factor]

Capacity

where:

ADT = average daily traffic volume (2-way);

Peak hour percent = the proportion of ADT that occurs during the peak hour (not specifically AM or PM);

Directional factor = the proportion of peak hour traffic traveling in the peak direction;

Truck factor = a reduction in capacity to account for heavy vehicles and grades; and

Capacity = 2,300 vehicles per hour per lane.

The resultant v/c ratios are compared to the standard v/c thresholds for level of service contained in Appendix A. The freeway mainline ADT, directional factors, peak hour factors, and truck factors used in these analyses are found in Appendix I.

Metered Freeway On-Ramp Conditions

Freeway ramp meters are designed to maximize mainline freeway capacity, reduce traffic congestion and reduce peak period delays. This is accomplished by regulating the flow of vehicles entering the freeway, allowing for traffic flow on the mainline to achieve reasonable speeds. If excess demand exists at freeway on-ramps, delays and considerable queue lengths could result on ramps and adiacent surface roadways. All freeway ramp meters were analyzed based on the most restrictive ramp metering rates provided by Caltrans. Additionally, max observed queue lengths and max observed delay were recorded for the existing conditions. Appendix I contains the ramp meter rates obtained from Caltrans as well as the field notes for observed queueing and flow rates.

Analysis of Significance

To determine direct project impacts, the City of San Diego has developed a series of thresholds based on allowable increases in volume-to-capacity (V/C) ratios that become more stringent as service levels worsen. These thresholds are summarized in Appendix A. Where roadway segments and intersections operate at LOS A, B, C or D, no project impacts are considered significant.

CHAPTER 3 EXISTING CONDITIONS

Existing conditions represent the current conditions of the study area. Under existing conditions, the subject segment along Black Mountain Road functions as a 4-Lane Major.

TRAFFIC VOLUMES

Daily traffic volumes along roadway segments were obtained through machine data collection. Intersection turning movement counts were conducted during the weekday morning peak period from 7:00 AM to 9:00 AM and evening peak period from 4:00 PM to 6:00 PM. The dates on which the segment and intersection counts were conducted range during the period of October, 2013 to July, 2014 on non-holiday weekdays, specifically Tuesday through Thursday. Figures 3-2, 3-3, 3-4 and 3-5 show existing condition volumes. Appendix B contains the individual roadway segment and intersection count sheets.

ROADWAY NETWORK

The principal roadways in the project study area are described briefly below. The description includes the physical characteristics, adjacent land uses, and traffic control devices along these roadways as well as discussion of the Rancho Peñasquitos Community Plan. A map of the ultimate street classifications upon build-out of the community can be found in Appendix D. The existing roadway geometry and control conditions are shown in Figures 3-1 and 3-2.

Primary regional access to the study area is provided via two freeways, Interstate 15 (Escondido Freeway), a north-south facility, and State Route 56 (Ted Williams Freeway), an east-west facility. State Route 56 merges with Interstate 15 to the east of the study area. Interstate 15 provides access to the greater San Diego area to the south and the City of Escondido to the north.

Interstate 15 (I-15) is a north-south highway extending southward from the State of Montana to the State of California. Within the vicinity of the study area, I-15 has five through lanes per direction, 2 managed lanes in each direction, an auxiliary lane in each direction between each on/off ramp, and on/off-ramps at Mercy Road-Scripps Poway Parkway, Rancho Peñasquitos Boulevard-Poway Road and Carmel Mountain Road.

State Route 56 (SR-56) is an east-west highway running between Interstate 5, near the Pacific Ocean, and I-15, in the Rancho Peñasquitos Community. Within the vicinity of the study area, SR-56 has two through lanes per direction with and additional intermittent auxiliary/transition lane in each direction and on/off-ramps at Camino Del Sur, Black Mountain Road and Rancho Peñasquitos Boulevard.

The following streets provide freeway access and circulation to local destinations.

Camino Del Sur is functionally classified as a 4-Lane Prime Arterial running primarily north-south from Rancho Bernardo Road in the north becoming Camino del Norte to Torrey Santa Fe Road. Camino Del Sur is then broken off by a canyon and continues to the south from Dormouse Road to just past Park Village Road. An extension of Camino Del Sur is planned to be constructed by the Merge 56 project and will connect the two segments between Torrey Santa Fe Road and Dormouse Road. It is striped with two through lanes in each direction, separated by a raised median, and left-turn channelization. The curb-to-curb width varies throughout the segment with a common measurement of 110 feet. Sidewalks and bike lanes are present and on-street parking is restricted. The posted speed limit is generally 45 MPH within the study area. From the SR-56 westbound ramps north to Carmel Valley Road, Camino Del Sur has an ultimate community plan classification of a 6-Lane Major Arterial. The Merge 56 project, a proposed development in the Rancho

Penasquitos area is currently proposing to downgrade the ultimate classification of Camino del Sur to a 2 lane facility between a portion of its frontage and the existing terminus near Dormouse Road.

Black Mountain Road is functionally classified as a 4-Lane Prime Arterial within the study area and extends southward from Carmel Valley Road to its terminus at Carroll Centre Road, where it continues as Kearny Villa Road. Within the study area, Black Mountain Road is generally striped with two through lanes per direction, separated by a raised median, and left-turn channelization. The roadway has sidewalks, bike lanes and a curb-to-curb width that varies throughout the segment with a common measurement of 90 feet. On-street parking is restricted. Within the study area, the speed limit is generally 45 MPH, with the exception of the segment between Twin Trails Drive and Oviedo Street, where it is 40 MPH. South of Mercy Road, the speed limit increases to 50 MPH. The roadway serves both residential and commercial uses. Black Mountain Road is built to its ultimate community plan classification of a 4-Lane Primary Arterial, with the exception of the segment from Twin Trails Drive to Mercy Road. The Rancho Peñasquitos Community Plan identifies this segment to become a 6-Lane Primary Arterial. This study analyzes the implications of this segment being maintained as four lanes instead of being widened to six lanes.

Carmel Mountain Road is functionally classified as a 4-Lane Major Arterial within the study area. It is generally an east-west roadway that extends from Via Panacea to Camino Del Norte, where it continues as Paseo Lucido. It is generally striped with two through lanes in each direction, with the exception of the segment from Paseo Montalban to Azuaga Street/SR-56 northbound ramps, which is striped with three eastbound lanes and two westbound lanes. A raised center median is generally present, along with left-turn channelization. The curb-to-curb width varies throughout the segment with a common measurement of 80 feet and the speed limit is generally 40 MPH. Sidewalks are present and the roadway is striped with bike lanes along most of its segments. On-street parking is restricted. Carmel Mountain Road south of Sundance Avenue to Via Panacea currently functions as a 2-Lane Collector with a 35 foot curb-to-curb width. Carmel Mountain Road is built to its ultimate community plan classification of a 4-Lane Major Arterial except for south of Sundance Avenue. An extension of Carmel Mountain Road is planned to be constructed by the Merge 56 project, and will extend from Via Panacea to the extended section of Camino Del Sur described above. The Merge 56 development project also looks to downgrade the ultimate classification of this extension portion from Sundance Avenue to extended section of Camino del Sur to a 2-Lane Collector.

Rancho Peñasquitos Boulevard, is functionally classified as a 4-Lane Major Arterial, generally spans an area between SR-56 and I-15. It begins at Carmel Mountain Road, where it bends eastward at the SR-56 southbound ramps, and terminates at I-15, where it continues as Poway Road. Sidewalks are present, bike lanes are absent, and the roadway is striped with two lanes per direction, separated by a raised median and left-turn channelization. The curb-to-curb width varies throughout the segment with a common measurement of 80 feet and the posted speed is 40 MPH. Rancho Peñasquitos Boulevard is built to its ultimate community plan classification of a 4-Lane Major Arterial.

Mercy Road is functionally classified as a 4-Lane Major Arterial from Black Mountain Road to the I-15 freeway ramps, where it continues as Scripps Poway Parkway. It is striped with two lanes per direction and divided by a raised median. The roadway provides sidewalks, bike lanes and left-turn channelization and prohibits on-street parking. The curb-to-curb width varies throughout the segment with a common measurement of 75 feet and the posted speed limit is 45 MPH traveling eastbound and 50 MPH traveling westbound. Mercy Road is built to its ultimate community plan classification of a 4-Lane Major Arterial.

Carmel Valley Road is functionally classified as a four lane Major Arterial from SR-56 to Chadamy Way and striped with one lane in each direction from Chadamy Way to Black Mountain Road. Carmel Valley Road runs primarily east/west within the northern half of Torrey Highlands, and extends all the way east to Camino del Norte. The roadway provides sidewalks and a raised median from SR-56 to Chadamy Way and provides bike lanes, left turn channelization and prohibits onstreet parking throughout the study area. The curb-to-curb width varies throughout the segment with a common measurement of 100 feet and a posted speed limit of 55 mph. Carmel Valley Road's

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ultimate classification is a 4-Lane Major Arterial with additional right-of-way for transit dedicated lanes.

A summary of other study area streets is provided in Table 3-1. Tables 3-2 and 3-3 present the operational performance of the roadway segments and intersections for the existing conditions. Additional details regarding specific existing peak-hour intersection operating conditions can be found on the analysis worksheets in Appendix C. Additionally, Appendix C denotes which intersections were run in analysis as coordinated system. These coordinated systems continue to run as coordinated in all future scenarios as well.

ROADWAY CAPACITY LOS

A detailed roadway capacity analysis was conducted per the methodology discussed in Chapter 2 for the Existing Conditions scenario. These results are found in Table 3-2.

INTERSECTION CAPACITY LOS

A detailed intersection capacity analysis was conducted per the methodology discussed in Chapter 2 for the Existing Conditions scenario. These are found in Table 3-3.

FREEWAY MAINLINE LOS

A detailed freeway mainline analysis was conducted to determine the study area freeway mainline LOS under existing conditions. Existing count volumes were provided by Caltrans for the year 2013. A summary of existing freeway mainline LOS is presented in Table 3-4. As shown in Table 3-4, two of the four study segments along SR-56 are operating at LOS E during the AM and/or PM peak hours. Study segments along I-15 are operating at LOS C or better during the peak hours. The detailed LOS analysis worksheet, including adjustment factors, is included in Appendix I.

FREEWAY INTERCHANGE ON-RAMP METERING DELAY

An on-ramp metering delay analysis was conducted for existing conditions. A summary of the analysis results is provided in Table 3-5. The ramp metering rates were obtained from Caltrans and are included in Appendix I and existing metering delay is shown in Table 3-6.

In addition, an Intersection Lane Vehicles (ILV) analysis of existing conditions was performed for controlled interchanges. The calculation worksheets are contained in Appendix N.

Table 3-I
Other Study Area Streets Summary

Roadway Name	Functional Classification	Lanes Per Direction	Curb-to-Curb Width	Posted Speed Limit	Raised Median	TWLTL	Left-Turn Channel.		Bike Lanes
Sundance Avenue	Local	1	40 ft	25 mph				✓	
Twin Trails Drive (W-O Black Mtn Rd)	2-Lane Collector	1 1	60 ft	30 mph		✓	✓	✓	✓
Twin Trails Drive (E-O Black Mtn Rd)	2-Lane Collector	1	50 ft	25-35 mph		✓	✓	✓	
Paseo Montalban (W-O Carmel Mtn Rd)	4-Lane Major	2	80 ft	40 mph	✓		✓	✓	✓
Fairgrove Lane	Local	1	40 ft	25 mph				✓	
Salmon River Road	Local	1	40-50 ft	30 mph		✓	✓	✓	
Park Village Road	4-Lane Major	2	80 ft	45 mph	✓		✓	✓	✓
Westview Parkway	4-Lane Collector	2	70 ft	45 mph		✓	✓	✓	

^{1.} Community Plan recommended classification is 4-Lane Collector.

Table 3-2 Existing Roadway Segment Conditions

=xisting itsuuwuj esginent	Lanes/	LOS E	Existing		
Segment Number and Name	Class	(Capacity)	ADT	V/C	LOS
1. Camino Del Sur s/o Carmel valley Road	4PA	40,000	17,728	0.443	В
2. Camino Del Sur s/o Wolverine Way - Fallhaven Road	4PA	40,000	20,710	0.518	В
3. Camino Del Sur n/o SR-56 Westbound Ramps	4PA	40,000	25,921	0.648	С
4. Camino Del Sur s/o SR-56 Eastbound Ramps	4MA	40,000	9,818	0.245	Α
5. Carmel Valley Road w/o Black Mountain Road	2C NF	10,000	10,489	1.049	F
6. Carmel Valley Road e/o Black Mountain Road	4MA	40,000	13,793	0.345	Α
7. Black Mountain Road n/o Maler Road	4MA	40,000	12,303	0.308	Α
8. Black Mountain Road s/o Oviedo Street	4MA	40,000	18,956	0.474	В
9. Black Mountain Road s/o Carmel Mountain Road	4MA	40,000	14,740	0.369	Α
10. Black Mountain Road bet. Paseo Montalban & Twin Trails Drive	4MA	40,000	14,315	0.358	Α
11. Black Mountain Road s/o Twin Trails Drive	4MA	40,000	33,492	0.837	D
12. Black Mountain Road bet. SR-56 Westbound & Eastbound Ramps	4MA	40,000	30,567	0.764	D
13. Black Mountain Road n/o Park Village Road - Adolphia Street	4MA	40,000	35,443	0.886	E
14. Black Mountain Road n/o Canyonside Park Drive	4MA	40,000	30,380	0.760	D
15. Black Mountain Road bet. Mercy Road & Babuta Road	6PA	60,000	28,862	0.481	В
16. Black Mountain Road s/o Westview Parkway	6PA	60,000	22,214	0.370	Α
17. Westview Parkway e/o Black Mountain Road	4C	30,000	6,099	0.203	Α
18. Carmel Mountain Road bet. Paseo Aldabra & Sundevil Way	4MA	40,000	14,152	0.354	Α
19. Carmel Mountain Road bet. Paseo Montalban & SR-56 Westbound Ramps	4MA	40,000	21,907	0.548	С
20. Rancho Penasquitos Blvd bet. SR-56 EB Ramps - Azuaga St & Calle De Las Rosas	4MA	40,000	27,441	0.686	С
21. Rancho Penasquitos Boulevard bet. Calle De Las Rosas & Via Del Sud	4MA	40,000	28,120	0.703	С
22. Rancho Penasquitos Boulevard bet. Paseo Montril & I-15 Southbound Ramps	4MA	40,000	33,066	0.827	D
23. Poway Road e/o I-15 Northbound Ramps	6PA	60,000	45,045	0.751	С
24. Carmel Mountain Road s/o Sundance Avenue	2C NF	10,000	1,241	0.124	Α
25. Carmel Mountain Road w/o Sparren Avenue	4MA	40,000	6,811	0.170	Α
26. Carmel Mountain Road w/o Black Mountain Road	4MA	40,000	8,316	0.208	Α
27. Sundance Avenue w/o War Bonnet Street*	-	-	1,884	-	-
28. Carmel Mountain Road e/o Freeport Road	4MA	40,000	11,328	0.283	Α
29. Carmel Mountain Road bet. Penasquitos Drive & Gerana Street	4MA	40,000	13,655	0.341	Α
30. Carmel Mountain Road bet. I-15 Southbound Ramps & Penasquitos Drive	4MA	40,000	25,071	0.627	С
31. Carmel Mountain Road e/o I-15 Northbound Ramps	6PA	60,000	44,953	0.749	С
32. Camino Del Sur n/o Park Village Road	4MA	40,000	1,185	0.030	Α
33. Park Village Road e/o Camino Del Sur	4MA	40,000	8,430	0.211	Α
34. Park Village Road w/o Black Mountain Road	4MA	40,000	17,546	0.439	В
35. Mercy Road bet. Chabola Road & Branicole Ln	4MA	40,000	14,279	0.357	Α
36. Mercy Road n/o Alemania Road	4MA	40,000	19,851	0.496	В
37. Scripps Poway Parkway e/o I-15 Northbound Ramps	6PA	60,000	52,815	0.880	D

^{*} Capacity for local residential street not specified in San Diego Street Design Manual, July 2002.

Abbreviations: 2C NF: 2 lane collector with no fronting property. 2MA: 2 lane Major Arterial. 4C: 4 lane Collector. 4MA: 4 lane Major Arterial. 4PA: 4 lane Prime Arterial. 6PA: 6 lane Prime Arterial.

Table 3-3
Existing Intersection Conditions

ection Number and Name Delay LOS Delay Camino Del Sur/Carmel Valley Road 41.1 D 33.3						
	AM Pea	ak Hour	PM Pe	ak Hou		
ntersection Number and Name	Delay	LOS	Delay	LOS		
1. Camino Del Sur/Carmel Valley Road	41.1	D	33.3	С		
2. Camino Del Sur/Watson Ranch Road	10.3	В	9.4	Α		
3. Camino Del Sur/Wolverine Way - Fallhaven Road	25.3	С	17.9	В		
4. Camino Del Sur/Torrey Meadows Drive	18.1	В	21.0	С		
5. Camino Del Sur/Highlands Village Place	19.3	В	13.2	В		
6. Camino Del Sur/SR-56 Westbound Ramps	15.6	В	16.3	В		
7. Camino Del Sur/SR-56 Eastbound Ramps	15.9	В	23.4	С		
8. Camino Del Sur/Torrey Santa Fe Road	13.8	В	15.8	В		
9. Black Mountain Road/Carmel Valley Road	23.3	С	50.2	D		
10. Black Mount Road/Maler Road	7.6	Α	7.5	Α		
11. Black Mountain Road/Stargaze Avenue	15.7	В	15.4	В		
12. Black Mountain Road/Oviedo Street	16.8	В	16.0	В		
13. Black Mountain Road/Carmel Mountain Road	47.4	D	36.5	D		
14. Black Mountain Road/Paseo Montalban	13.4	В	13.4	В		
15. Black Mountain Road/Twin Trails Drive	43.2	D	38.8	D		
16. Black Mountain Road/SR-56 Westbound Ramps	37.9	D	29.6	С		
17. Black Mountain Road/SR-56 Eastbound Ramps	22.0	С	23.9	С		
18. Black Mountain Road/Park Village Road - Adolphia Street	46.3	D	26.1	С		
19. Black Mountain Road/Canyonside Park Drive	2.3	Α	4.8	Α		
20. Black Mountain Road/Mercy Road	29.8	С	25.3	С		
21. Black Mountain Road/Westview Parkway	13.4	В	16.1	В		
22. Carmel Mountain Road/Sundevil Way	20.2	С	16.8	В		
23. Carmel Mountain Road/Paseo Montalban	24.6	С	33.4	С		
24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard	41.9	D	34.3	С		
25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street	20.6	С	51.3	D		
26. Rancho Penasquitos Boulevard/Calle De Las Rosas	10.1	В	10.0	Α		
27. Rancho Penasquitos Boulevard/Via Del Sud	4.5	Α	4.3	Α		
28. Rancho Penasquitos Boulevard/Paseo Montril	13.5	В	14.6	В		
29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp	7.9	Α	9.4	Α		
30. Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp	10.9	В	14.9	В		
31. Carmel Mountain Road/(West) Sundance Avenue	13.8	В	16.1	В		
32. Carmel Mountain Road/Sedorus Street (All-way stop control)	7.5	Α	7.4	Α		
33. Carmel Mountain Road/Entreken Way	21.3	С	13.4	В		
34. Sparren Avenue/Carmel Mountain Road	24.1	С	24.0	С		
35. Oviedo Street/Carmel Mountain Road	28.8	С	16.7	В		
36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)*	18.4	С	9.9	Α		
37. Sundance Avenue/Twin Trails Drive (All-way stop control)	22.7	С	14.9	В		
38. Penasquitos Post Office Driveway/Twin Trails Drive	18.2	В	26.7	С		
39. Twin Trails Drive/Fairgrove Lane (All-way stop control)	8.0	Α	9.0	Α		
40. Twin Trails Drive/Paseo Montalban	11.0	В	12.9	В		
41. Salmon River Road/Paseo Montalban	13.6	В	15.1	В		
42. Salmon River Road/Fairgrove Lane (All-way stop control)	8.0	Α	8.8	Α		
43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control)	7.5	Α	7.9	Α		
44. Paseo Cardiel/Carmel Mountain Road	23.1	С	29.1	С		
45. Freeport Road/Carmel Mountain Road	8.8	Α	7.8	Α		
46. Stoney Creek Road/Carmel Mountain Road	10.5	В	3.6	Α		
47. Cuca Street - Caminata Deluz/Carmel Mountain Road	14.0	В	10.9	В		
48. Penasquitos Drive/Carmel Mountain Road	28.9	С	28.1	С		
49. I-15 Southbound Ramps/Carmel Mountain Road	18.2	В	25.3	С		
50. I-15 Northbound Ramps/Carmel Mountain Road	21.9	С	27.3	С		
51. Camino Del Sur/Park Village Road	24.5	С	19.3	В		
52. Rumex Lane/Park Village Road	7.9	A	7.1	A		
53. Ragweed Street/Park Village Road	15.9	В	16.1	В		
54. Mercy Road/Kika Court	8.0	A	7.4	A		
55. Alemania Road/Mercy Road	9.4	A	10.3	В		
56. I-15 Southbound Ramps/Mercy Road	31.0	C	33.0	C		
	39.0	D	34.8	C		
57. I-15 Northbound Ramps/Mercy Road - Scripps Poway Parkway						

Table 3-4
Existing Freeway Mainline LOS

Freeway Segment	Direction	# of Lanes	Hourly	ADT	ADT Peak Hour Volun		ne V/C			os
Freeway Segment	Direction	# Of Laries	Capacity	ADI	AM	PM	AM	PM	AM	PM
SR-56	•			•			•		•	
West of Camino del Sur	WB	2 Mainline, 0 Auxiliary, 0 HOV	4700	65,000	4238	1559	0.902	0.332	D	Α
vvest of Carrillo del Gui	EB	2 Mainline, 0 Auxiliary, 0 HOV	4700	00,000	1625	4161	0.346	0.885	Α	D
Camino del Sur to Black Mountain Rd	WB	2 Mainline, 0 Auxiliary, 0 HOV	4700	72,000	4695	1727	0.999	0.367	Е	Α
Carrillo dei Sui di Biack Modificani Nu	EB	2 Mainline, 0 Auxiliary, 0 HOV	4700	12,000	1800	4609	0.383	0.981	Α	Е
Black Mountain Road to Rancho Penasquitos Blvd	WB	2 Mainline, 1 Auxiliary, 0 HOV	6500	76,000	4956	1823	0.762	0.280	С	Α
Black Moulitain Road to Rancho Penasquitos Bivu	EB	3 Mainline, 0 Auxiliary, 0 HOV	7050	70,000	1900	4865	0.270	0.690	Α	С
Rancho Penasquitos Blvd to I-15 Interchange	WB	2 Mainline, 0 Auxiliary, 0 HOV	4700	71,000	4630	1703	0.985	0.362	Е	Α
Trancho Fenasquilos Biva to 1-13 merchange	EB	2 Mainline, 0 Auxiliary, 0 HOV	4700	71,000	1775	4545	0.378	0.967	Α	Ε
I-15	•			•			•			
South of Mercy Road	NB	5 Mainline, 1 Auxiliary, 2 HOV	16910	249,000	12258	9034	0.725	0.534	С	В
South of Mercy 170au	SB	5 Mainline, 1 Auxiliary, 2 HOV	16910	243,000	8997	12113	0.532	0.716	В	С
Mercy Road to Rancho Penasquitos Blvd	NB	5 Mainline, 1 Auxiliary, 2 HOV	16910	236,000	11618	8563	0.687	0.506	С	В
intercy road to realisting reliasquitos bivu	SB	5 Mainline, 1 Auxiliary, 2 HOV	16910	250,000	8527	11481	0.504	0.679	0.280 C 0.690 A 0.362 E 0.967 A 0.534 C 0.716 B 0.506 C 0.679 B 0.497 C 0.596 B 0.491 C 0.659 B	С
Rancho Penasquitos Blvd to Ted Williams Pkwy	NB	5 Mainline, 0 Auxiliary, 2 HOV	15110	207,000	10190	7510	0.674	0.497	С	В
Trancho Fenasquitos Biva to Tea Williams Frwy	SB	5 Mainline, 1 Auxiliary, 2 HOV	16910	207,000	7480	10070	0.442	0.596	В	В
Tod Williams Dkwy to Carmol Mountain Pd	NB	5 Mainline, 1 Auxiliary, 2 HOV	16910	229,000	11273	8309	0.667	0.491	С	В
Ted Williams Pkwy to Carmel Mountain Rd	SB	5 Mainline, 1 Auxiliary, 2 HOV	16910	223,000	8274	11140	0.489	0.659	В	С
North of Carmel Mountain Rd	NB	5 Mainline, 1 Auxiliary, 2 HOV	16910	218,000	11694	7142	0.692	0.422	С	В
TVOITI OI CAITTEI MOUITAITI NU	SB	5 Mainline, 0 Auxiliary, 2 HOV	15110	210,000	5108	11678	0.338	0.773	Α	С

Peak Hour Volume = (ADT)(K)(D)/(Truck Factor))

V/C = Peak Hour Volume / Capacity

Truck Source: 2013 Annual Average Daily Truck Traffic on the California State Highway System

ADT Source: 2013 Traffic Volumes on the California State Highway System K/D Source: 2013 K and D Factors on the California State Highway System

Hourly Capacity Assumptions:

Mainline - 2350 vph; Auxiliary - 1800 vph; Managed -1680 vph; HOV - 1600 vph

Table 3-5
Existing Freeway Interchange Calculated On-Ramp Metering Delay

		Meter	Combined	Without Connection				
Location	# of Lanes	Rate (veh/hr/ lane)	Meter Rate (veh/hr)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	
AM Peak Hour								
Camino del Sur - SR56 WB Ramp	2	435	870	462	0	0	0	
Camino del Sur - SR56 WB Ramp (HOV)	1	435	435	51	0	0	0	
Black Mountain Road - SR56 WB Ramp	2	520	1,040	1,341	301	17	8,729	
Black Mountain Road - SR56 WB Ramp (HOV)	1	520	520	149	0	0	0	
Rancho Penasquitos - SR56 WB Ramp	1	600	600	757	157	16	4,553	
Carmel Mountain Road - I15 SB Ramp	2	367	734	773	39	3	1,134	
Carmel Mountain Road - I15 SB Ramp (HOV)	1	367	367	86	0	0	0	
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	492	984	1,470	486	30	14,094	
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	492	984	785	0	0	0	
Mercy Road - I15 SB Ramp	2	420	840	1,089	249	18	7,221	
Mercy Road - I15 SB Ramp (HOV)	1	420	420	121	0	0	0	
PM Peak Hour								
Camino del Sur - SR56 EB Ramp	2	480	960	917	0	0	0	
Camino del Sur - SR56 EB Ramp (HOV)	1	480	480	102	0	0	0	
Black Mountain Road - SR56 EB Ramp	2	600	1,200	651	0	0	0	
Black Mountain Road - SR56 EB Ramp (HOV)	1	600	600	72	0	0	0	
Rancho Penasquitos - SR56 EB Ramp	2	300	600	194	0	0	0	
Carmel Mountain Road - I15 SB Ramp	2	473	946	1,034	88	6	2,555	
Carmel Mountain Road - I15 SB Ramp (HOV)	1	473	473	115	0	0	0	
Carmel Mountain Road - I15 NB Ramp	2	463	926	723	0	0	0	
Carmel Mountain Road - I15 NB Ramp (HOV)	1	463	463	80	0	0	0	
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	576	1,152	849	0	0	0	
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	576	1,152	781	0	0	0	
Rancho Penasquitos - I15 NB Ramp - WB->NB	1	335	335	430	95	17	2,755	
Rancho Penasquitos - I15 NB Ramp - Loop EB->NB	1	335	335	130	0	0	0	
Mercy Road - I15 SB Ramp	2	406	812	1,177	365	27	10,591	
Mercy Road - I15 SB Ramp (HOV)	1	406	406	131	0	0	0	
Mercy Road - I15 NB Ramp	2	270	540	950	410	46	11,902	
Mercy Road - I15 NB Ramp (HOV)	1	270	270	106	0	0	0	

Source: Caltrans January 2015

Meter rate is based on the most restrictive meter rate provided by Caltrans, see Appendix C

HOV demand is equal to 10% of Total Demand

Total Demand onto all lanes of each Freeway Ramp is found in the vehicle turning movements in Figures 3-4 and 3-5 Combined Meter Rate = (Meter Rate per Lane) * (# of Lanes)

Excess Demand = (Demand * # of lanes) -(Combined Meter Rate); if Excess Demand <0, then Excess Demand = 0

Delay = Excess Demand / Combined Meter Rate

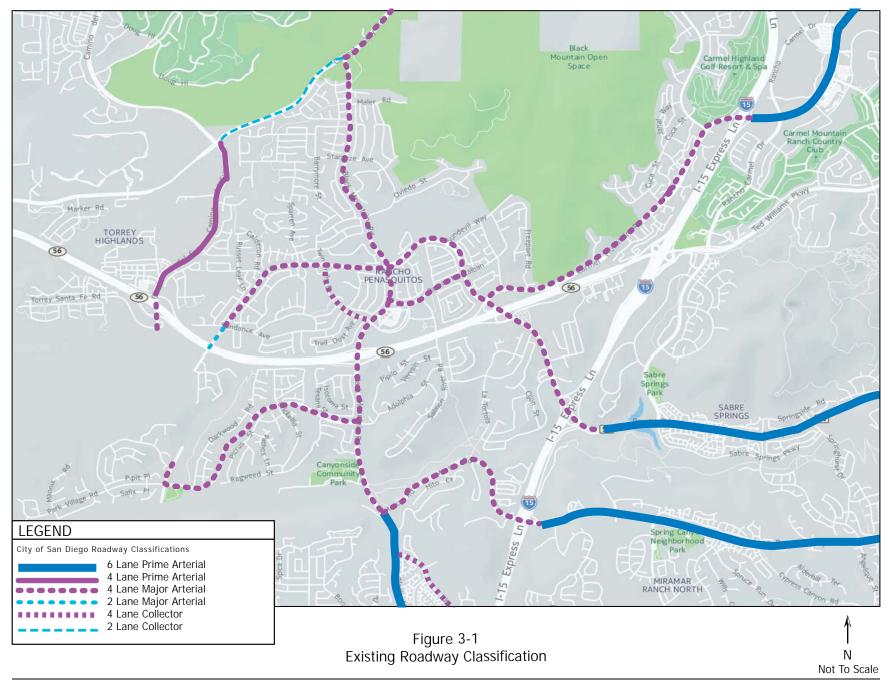
Queue = Excess Demand * 29 ft/vehicle

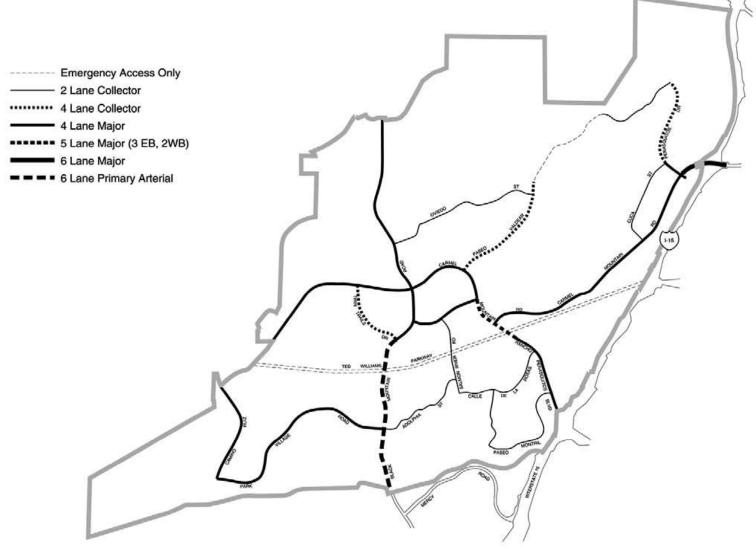
Table 3-6
Existing Freeway Interchange Observed On-Ramp Metering Delay

Ramp Location	Date	Time	# of lanes	Max Observed Queue (Veh / Ln)	Max Observed Delay (min)	Observed Queue Length (ft)	Calculated Flow Rate (veh / hr / lane)
AM Peak Hour							
Camino del Sur - SR56 WB Ramp	6/17/15	7:50 AM	2-SOV, 1- HOV	4	0.2	116.0	421
Black Mountain Road - SR56 WB Ramp	6/17/15	7:28 AM	2-SOV, 1- HOV	15	0.6	435.0	529
Rancho Penasquitos - SR56 WB Ramp	6/17/15	7:05 AM	1-SOV	8	0.5	232.0	900
Carmel Mountain Road - I15 SB Ramp	6/17/15	7:45 AM	2-SOV, 1- HOV	10	0.5	290.0	436
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	6/17/15	7:30 AM	2-SOV	25	1.9	725.0	391
Rancho Penasquitos - I15 SB Ramp - EB->SB	6/17/15	7:40 AM	2-SOV	12	0.7	348.0	514
Mercy Road - I15 SB Ramp	6/17/15	8:10 AM	2-SOV, 1- HOV	12	0.4	348.0	600
PM Peak Hour							
Camino del Sur - SR56 EB Ramp	6/17/15	5:00 PM	2-SOV, 1- HOV	8	0.2	232.0	736
Black Mountain Road - SR56 EB Ramp	6/17/15	4:48 PM	2-SOV, 1- HOV	4	0.1	116.0	736
Rancho Penasquitos - SR56 EB Ramp	6/17/15	4:53 PM	1-SOV	4	0.2	116.0	1,200
Carmel Mountain Road - I15 SB Ramp	6/17/15	5:00 PM	2-SOV, 1- HOV	8	0.4	232.0	436
Carmel Mountain Road - I15 NB Ramp	6/17/15	5:10 PM	2-SOV, 1- HOV	8	0.4	232.0	436
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	6/17/15	4:55 PM	2-SOV	9	0.3	261.0	948
Rancho Penasquitos - I15 SB Ramp - EB->SB	6/17/15	5:20 PM	2-SOV	4	0.3	116.0	818
Rancho Penasquitos - I15 NB Ramp - WB->NB	6/17/15	5:08 PM	1-SOV	13	1.9	377.0	419
Rancho Penasquitos - I15 NB Ramp - Loop EB->NB	6/17/15	5:33 PM	1-SOV	3	0.4	87.0	439
Mercy Road - I15 SB Ramp	6/17/15	5:44 PM	2-SOV, 1- HOV	13	1.2	377.0	218
Mercy Road - I15 NB Ramp	6/17/15	4:45 PM	2-SOV, 1- HOV	11	0.6	319.0	387

Meter Rate = Observed in Field, see Appendix I

SOV = Single Occupancy Vehicle Lane HOV = High Occupancy Vehicle Lane



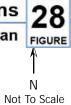




Recommended Street Classifications 28

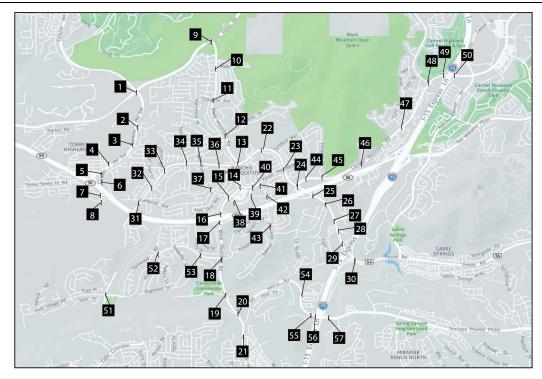
Rancho Peñasquitos Community Plan

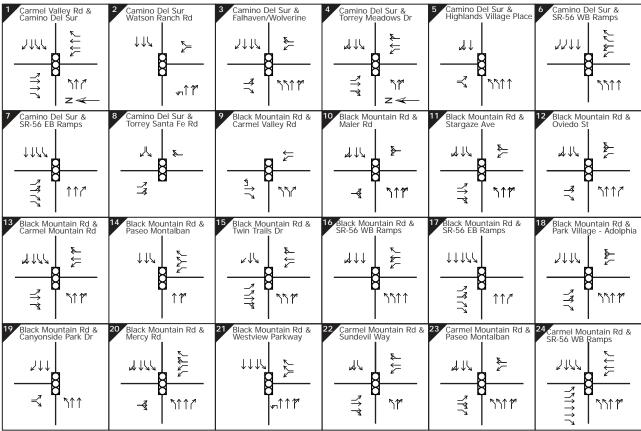




April 2016

Figure 3-1b



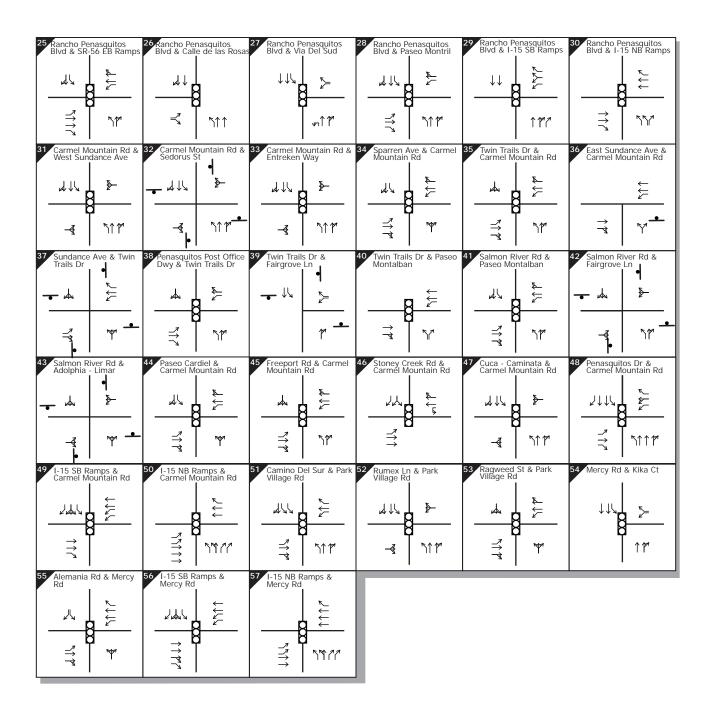


LEGEND

Geometric Configuration

Traffic Signal / Stop Sign

Figure 3-2 L Existing Circulation Network



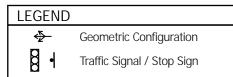
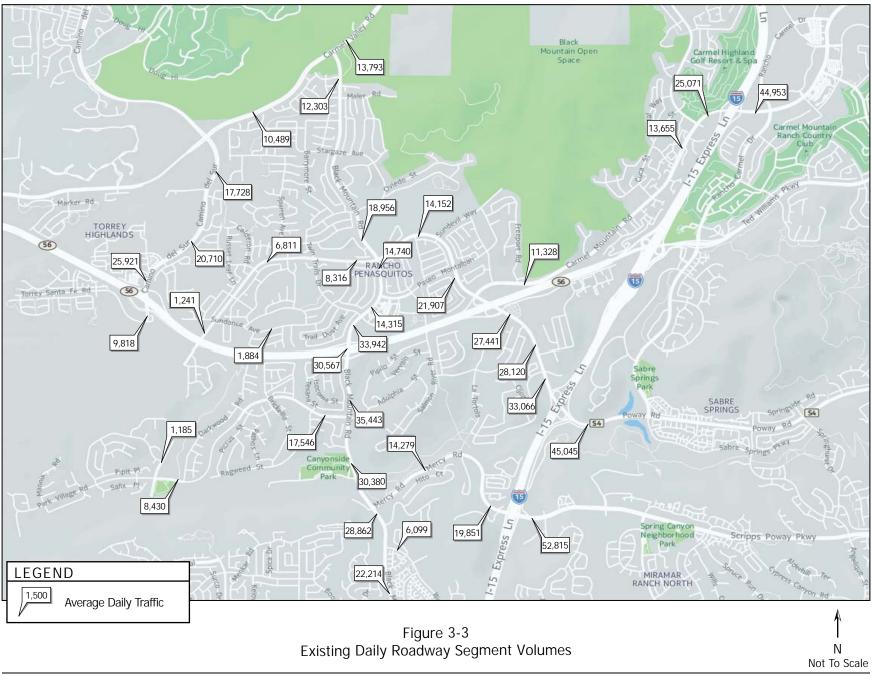
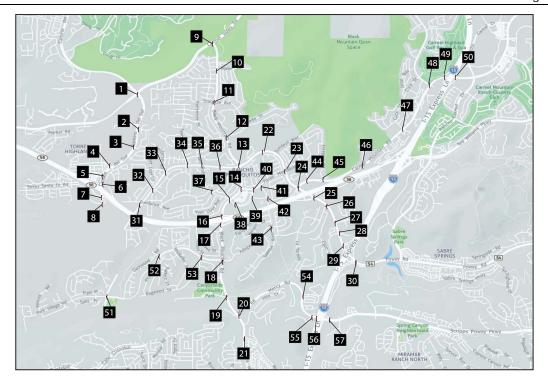


Figure 3-2 cont. L Existing Circulation Network





1 Carmel Va Camino D	alley Rd & Del Sur	² Camino Del Sur Watson Ranch Rd		3 Camino Del Sur & Falhaven/Wolverine		4 Camino Del Sur & Torrey Meadows Dr		5 Camino Del Sur & Highlands Village Place		6 Camino Del Sur & SR-56 WB Ramps	
7_186 ←466 176	179 ←512 √371	←865	∑=26 ∑=27	701 701 48	17 ←2 ≥86	2 9 F	18 ←799 ∠30			744 €—744	1 829 ← 9 2 367
111_₹ 177→ 81¬³	95 7 76 7		1025 642 8 2	12_∄ 0→ 45 \	256 A 649 → 18 N	65_≉ 858→ 58¬₄	89 29 29	100= ⁷ 220	236 <u>√</u> 881 →		108 → 288 →
7 Camino D SR-56 EB	el Sur & Ramps	8 Camino D Torrey Sa	Del Sur & Inta Fe Rd	9 Black Mountain Rd & Carmel Valley Rd		10 Black Mountain Rd & Maler Rd		Black Mountain Rd & Stargaze Ave		12 Black Mountain Rd & Oviedo St	
+567 544		647	№ _99 ←13		← 192 -558	-28 ₁	€_40	1 € 16 € 287	€_32	7.7 ← 465 13	©21 ←4 ∠ 80
121_⁄1 1→ 184´	275→ 185→	351_л 15→		2 § 210→ 77¬₄	285 4 256	39_₹ 1→ 6¬¾	455 12	81_∄ 1→ 109 →	31.7 342.7 17.4	32_∄ 12→ 99¬ч	41 361→ 45
13 Black Mod Carmel M	untain Rd & ountain Rd I	14 Black Mor Paseo Mo	untain Rd & Intalban	15 Black Mou Twin Trail	ıntain Rd & s Dr	16 Black Mou SR-56 WB	ntain Rd & Ramps	17 Black Mou SR-56 EB I	ntain Rd & Ramps I	18 Black Mou Park Villag	untain Rd & ge - Adolphia
757 + 673 - 489	1410 ←261 ←142	738 ✓284	∑-93 200 293		133 ←715 243		€ 270	←1156 €378		7.244 ←1428 130	101 ←34 ∠145
119_₹ 381→ 221 ´	199 7 525 37 37		4+ √18	329_л 458→ 97 ¬₄	358 124 16 \		652_ 7 667—→	185_₹ 0→ 383 ¾	1095→ 335¬⊾	629_₹ 65→ 283	79 642→ 50 \
19 Black Mor Canyonsid	untain Rd & de Park Dr I	Mercy Rd		21 Black Mou Westview		22 Carmel M Sundevil	ountain Rd & Way I	23 Carmel M Paseo Mo	ountain Rd & ntalban	24 Carmel Mod SR-56 WB I	untain Rd & Ramps
€£33 ←1925		7 1365	€ 268 € 0 € 386	←1682 €_293	∑-31 2-31	700	155 ←701 ∠13		1244 ←555 1285	7.261 ←261 €258	€ 213 ← 543 £ 428

LEGEND

10 **J** AM Peak Hour Traffic

Figure 3-4 Existing AM Peak Hour Intersection Volumes

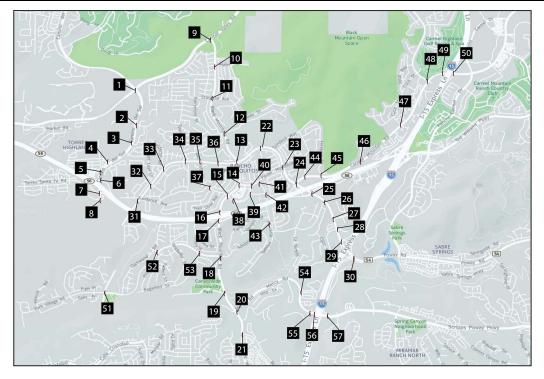
25 Rancho Pe Blvd & SR-	enasquitos -56 EB Ramps	26 Rancho Pe Blvd & Call	nasquitos le de las Rosas	Rancho Penasquitos Blvd & Via Del Sud		28 Rancho Penasquitos Blvd & Paseo Montril		29 Rancho Penasquitos Blvd & I-15 SB Ramps		30 Rancho Pe Blvd & I-1	enasquitos 5 NB Ramps
7 120 ← 48 √ 71	14 ←931 ∠52			←1280 ✓ 48	∑-56 ∑-47	45 46 46	№20 ←7 ⊬111	209→	∑-85 ∑-262		~ _906 ←954
45_ <i>₁</i> 789→ 317 ¾	103 7 19 → 346 ³	141= ⁷ 120	43_ 7 858 →		13 821 20 20	77_ <i>₁</i> 10→ 201 ¬₄	65 / 575 / 13 /		888→ 1470¬	777→ 102 ¬3	439~701
31 Carmel M West Sun	ountain Rd & dance Ave	32 Carmel M Sedorus S	ountain Rd & St	33 Carmel M Entreken	ountain Rd & Way	34 Sparren A Mountain	Ave & Carmel Rd	35 Twin Trail Carmel M	s Dr & lountain Rd	36 East Sund Carmel Me	lance Ave & ountain Rd
7 3 3 3	12 ←6 ∠2	7 16 20 20 4	€20 €1 €0	7 440 141 6	€6 €13 €1	7.36 7.26 511	539 16	7 4 4 4 5 7 4 4 5 7 4 6 6 7 4 6 6 7 6 7 6 9 7 6 9 9 9 9 9 9 9 9 9 9 9	€_20		← 472 ← 19
8_7 18→ 1 \	0 52 18 ✓	49_7 2→ 1 \	%80 √42	396_л 13→ 38 ¬	25 7	16_∄ 558→ 12 \	12 27 57	14_π 762→ 350 ¬	244 7 26 → 104 ×	741→ 25 ¾	28 75
37 Sundance Trails Dr	Ave & Twin	38 Penasquito Dwy & Tw	os Post Office in Trails Dr	39 Twin Trail Fairgrove		40 Twin Trail Montalba		41 Salmon R Paseo Mo		42 Salmon Ri Fairgrove	
7 19 7 55	₹_23 ←_358 ⊭ 72	3446	11 ←161 ∠25	(5 2	∑_67 ∑_96		←135 ⊬ 99	7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	14 ←179 ∠ 66	7 7 7 16 16	12 ←19 2
17_π 492→ 7 \	40 7 15 → 192 ≥	53_₹ 103→ 24 \	110 × 23 × 26 ×		€77 717	90→ 34 ⁻ \2	32	15_ <i>₁</i> 149→ 26 ¾	37_4 4 + + 89_	30_⊅ 30→ 32¬\	103.7 72.→ 5.>
43 Salmon R Adolphia	iver Rd & - Limar 	44 Paseo Car Carmel M	rdiel & ountain Rd 	45 Freeport Mountain	Rd & Carmel Rd	46 Stoney Cr Carmel M	reek Rd & lountain Rd 	47 Cuca - Ca Carmel M	minata & ountain Rd 	48 Penasquit Carmel M	os Dr & ountain Rd
234 127	√_0		₹_37 ←370 ∠ 10		10	644	₹_41 ←314 50	284	1	74177 1777	14 ∠27
12_7 53→ 13 ¾	13.7 23.7	78_ <i>7</i> 270→ 36 ¬₄	96 10 10 10 10 10 10 10 10 10 10 10 10 10	42_7 262→ 20 ´	507	75_ <i>₁</i> 231→		46_₹ 1→ 59 ´	27.7 27.7 0	575_ <i>≱</i> 60→ 80 ¬\	47. 7 37.1→ 28.¬
49 I-15 SB R Carmel M	amps & ountain Rd	50 I-15 NB F Carmel M	Ramps & ountain Rd	51 Camino D Village Ro	oel Sur & Park d 	52 Rumex Lr Village Ro	n & Park	Ragweed Village Ro	St & Park d	54 Mercy Rd	& Kika Ct
776 ←0 €218	← 286 ∠ 438		₹ _256 ← 591	7,567	€92 ←90 €33	25 42 E	%_97 ←0 ∠3		€8 €242 ∠30	7774 √174	∑-69 2-88
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900	€ 751	215	- 882		1206						

LEGEND

10 **J** AM Peak Hour Traffic

Figure 3-4 cont. Existing AM Peak Hour Intersection Volumes

Black Mountain Road TIS Existing Conditions



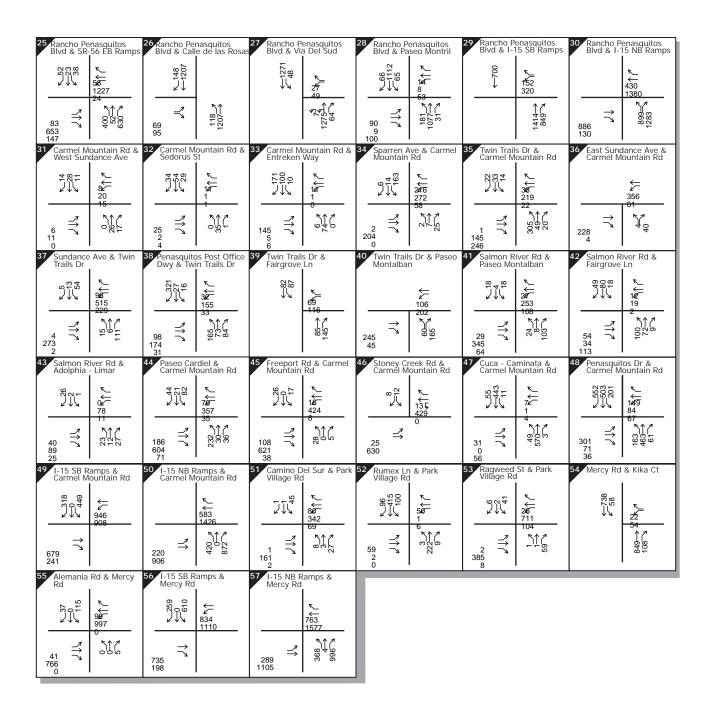
1 Carmel Va Camino D	alley Rd & Del Sur	2 Camino D Watson R	el Sur anch Rd	3 Camino D Falhaven/	el Sur & Wolverine	4 Camino D Torrey Me	el Sur & eadows Dr	5 Camino D Highlands	el Sur & S Village Place	6 Camino D SR-56 WE	el Sur & 3 Ramps
₹ 70 ₹ 477 ₹ 139	115 ←138 ∠84	← 673	∑-11 ∑-16	610 742	~_6	74 ₄₂	√42 ←693 ∠40	7~102 ←699		7.156 ←708	%_803 ←0 162
215_₹ 399→ 137 ¾	116 7 520 > 240 \		604 632 20 7	28_∄ 1→ 34 \	130 7 925 7 12 7	93_∄ 1075→ 83 ¬\	25 10 10 10 10 10 10 10 10 10 10 10 10 10	139=7 180	263 ₹ 1112→		142_₹ 572—≯
7 Camino D SR-56 EB	el Sur & Ramps	8 Camino D Torrey Sa	el Sur & nta Fe Rd	9 Black Mou Carmel Va	untain Rd & alley Rd	10 Black Mou Maler Rd	untain Rd &	11 Black Mou Stargaze	untain Rd & Ave I	12 Black Mou Oviedo St	untain Rd &
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409_₹ 1→ 136 ¾	309→	582_⁄a 35→		2∮ 626→ 274¬₄	134	24_∄ 1→ 5¬\	330	39_л 4→ 81¬ч	90 441 707	17_π 6→ 51¬ч	102_7 564_> 156_>
13 Black Mor Carmel M	untain Rd & ountain Rd I	14 Black Mor Paseo Mo	untain Rd & intalban	15 Black Mou Twin Trail	untain Rd & s Dr I	16 Black Mou SR-56 WB	ntain Rd & Ramps	17 Black Mou SR-56 EB I	ntain Rd & Ramps I	18 Black Mou Park Villag	ıntain Rd & ge - Adolphia
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44_₹ 176→ 47 \	95 617 54		711 → 125	616_∌ 843→ 192 ¬₄	358 154 40		376_₹	305_₹ 0→ 461 ¾	1384→ 367⊃⊾	337_₹ 9→ 123 ¾	446.7 1217→ 136.7
19 Black Mor Canyonsid	untain Rd & de Park Dr I	20 Black Mor Mercy Rd	untain Rd &	21 Black Mou Westview		22 Carmel M Sundevil	ountain Rd & Way	23 Carmel M Paseo Mo	ountain Rd & ntalban 	24 Carmel Mod SR-56 WB I	untain Rd & Ramps
		7 0 V 674 304	€448 ←1 2 358	—996 ✓ 249	∑=261 ∑=24	7.63 ←4 117	€ 94 ← 634 € 22	7 24 ←521 € 40	1 25 ←71 2 59	7 234 ←223 € 298	117 ←597 ⊬ 307
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LEGEND

10
PM Peak Hour Traffic

Figure 3-5
Existing PM Peak Hour Intersection Volumes

Black Mountain Road TIS Existing Conditions



LEGEND

10 J PM Peak Hour Traffic

Figure 3-5 cont. Existing PM Peak Hour Intersection Volumes

CHAPTER 4 HORIZON YEAR CONDITIONS

As the remaining phases of development of the Rancho Peñasquitos community and neighboring communities would be intermittent between the existing year (2014) and 2050, with no specific phasing timelines, a Near-Term analysis was not considered applicable for this study. Therefore, this study focused on horizon year conditions utilizing long-range traffic volume forecasts for the year 2050.

HORIZON YEAR TRAFFIC VOLUMES

Long-range traffic growth is associated with land development, land use changes, increases in economic activity, and changes in demographics. For the study area, horizon year traffic volumes on the roadway network were estimated based on SANDAG's daily traffic volume forecasts. SANDAG's most current calibrated and validated base model was used for the base year and their 2050 model used for the horizon year, the latter reflecting complete build-out of Black Mountain Ranch and adjacent subareas. This 2050 model incorporates the updated land use/socio-economic projections and planned/programmed transportation improvements and changes for the region. The land use/socio-economic projections were augmented by the inclusion of three cumulative projects that are proposing Community Plan Amendments, described in Table 4-1.

Table 4-I
Cumulative Projects

Project Name	Location	Change in ADT	Approved?
	Torrey		
	Highlands/		
Merge 56 (CPA) (19,500 daily trips to 19,040 trips)	Subarea IV	-459	No
	Torrey		
	Highlands/		
Rhodes Crossing (CPA) (14 SFU TO 260 MDU)	Subarea IV	2,740	No
	Torrey		
	Highlands/		
Kilroy Commercial Office (CPA)	Subarea IV	9,000	No

Horizon year daily volume forecasts were provided for two conditions: Without Project, which assumed the subject Black Mountain Road segment as a 6-Lane Primary Arterial, and With Project, which assumed the subject Black Mountain Road segment as a 4-Lane Major. The incremental differences in volumes and growth percentages between the two years, 2008 and 2050, both Without Project and With Project, were determined for the roadway network segments in common. These volume increments and growth percentages were over a time frame of 42 years, whereas the time frame for this study is 36 years, from 2014 to 2050. An adjustment factor of 0.857 (i.e., ratio of 36 / 42) was applied to the volume increments and growth percentages for the Without Project and With Project conditions to make them consistent with the 2014 - 2050 time frame. These adjusted daily volume increments and growth percentages were generally applied to the 2014 daily traffic count volumes of the 37 study segments, resulting in Without Project and With Project segment daily volumes for the horizon year. The resulting Without Project and With Project volumes were examined for reasonableness and also consistency with volumes at nearby study locations. At locations where volumes were found to grow negatively into the future per the models, we rounded up from existing to ensure zero negative growth into the future. An exception to this procedure was made along Rancho Peñasquitos Boulevard in the 6-lane 2050 scenario. At this location under this condition, Rancho Peñasquitos was allowed to have negative growth as the

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model suggested, attributed to the increased volumes on the 6-lane configured Black Mountain Road. Segment growth rates, models and segment adjustments are provided in Appendix E.

The same SANDAG 2008, 2050 Without Project and 2050 With Project models were also used to estimate Without Project and With Project peak-hour turning movement volumes at the study intersections for the horizon year. The 2050 daily volumes were compared to the 2008 daily volumes to identify areas adjacent to or near study intersections showing negligible or no increase in volumes. These areas were further examined to see whether development within them appeared essentially completed. If so, it was reasoned that the turning movement volumes to and from the study intersections directly serving these areas would remain unchanged or increase only nominally.

Where the comparison between the 2050 and 2008 daily volumes showed meaningful increases, it was assumed that the percentage increases were also indicative of approximately the same increases in the peak-hour turning movement volumes at the adjacent or nearby study intersections. The segment growth factors described above along with additional area specific growth factors were applied to the estimation the future peak-hour turning movement volumes. As with the estimation of future daily volumes, the factor of 0.857 was applied to the growth factors to adjust for the time frame of 2014 to 2050, rather than 2008 to 2050. The adjusted growth factors were then applied to the 2014 peak-hour traffic count volumes of the adjacent or nearby study intersections, as appropriate, to estimate the Without Project and With Project peak-hour turning movement volumes for the horizon year.

HORIZON YEAR CIRCULATION NETWORK

The SANDAG transportation models used to develop the above traffic volume forecasts included horizon year improvements and changes to the circulation network in the Rancho Peñasquitos area. The model assumed two scenarios for the subject segment of Black Mountain Road between Twin Trails Drive and Mercy Road, one with the segment as a 6-Lane Primary Arterial (Without Project condition) and one with the segment as a 4-Lane Major (With Project condition). Both of these scenarios also include additional circulation network changes that were listed in Table 4-2. The horizon year roadway geometry and control conditions are shown in Figure 4-1 and 4-2.

The operational performance of the study segments and intersections for the horizon year, Without Project and With Project, are presented in Table 4-3 through Table 4-8. Figure 4-2 through 4-8 show the horizon year study segment and intersection volumes for the Without Project and With Project conditions. Details regarding horizon year operating conditions for each intersection can be found in the capacity analysis worksheets in Appendices F (With Project scenario) and G (Without Project scenario).

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Table 4-2
Horizon Year (2050) Circulation Network Improvements/Changes

Roadway Segment and Intersection Locations	Improvement/Change	Project Source	Completion Date
Camino Del Sur			
From Carmel Valley Road to SR-56 Westbound Ramps	Widen from 4PA to 6MA	Torrey Highlands PFFP Project # T-2.2	Phase 3 @ 2,700 EDU of T.H. PFFP
From Torrey Santa Fe Road to Park Village Road	Construct road, modeled as 4MA, Merge 56 proposes to downgrade from 4MA to 2C	Torrey Highlands PFFP Project # T-3.1 A&B Rancho Penasquitos PFFP Project # T-4B	Phase 4 @3,610 EDU of T.H. PFFP
Carmel Valley Road			
From west of Camino Del Sur	Widen from 2C NF, 2MA to 4MA	Torrey Highlands PFFP Project # T-4.3 & T-4.4	Phase 3 @ 2,700 EDU of T.H. PFFP
Carmel Mountain Road			
From Via Panacea to Camino Del Sur	Construct road, modeled as 2C, Merge 56 proposes to downgrade classification from 4MA to 2C	Torrey Highlands PFFP Project # T-5.2	Phase 4 @3,610 EDU of T.H. PFFP
Carmel Mountain Road/Sedorus Street Intersection	Upgrade from AWSC to Signalized	K-B Homes Project Feature	Part of Project
Black Mountain Road			
From Twin Trails Drive to Mercy Road	Widen from 4MA to 6PA (Without Project Scenario)	Black Mountain Ranch PFFP Project #T-57	Phase 3 @4,270 EDU of B.M.R. PFFP
SR-56			
From I-5 to Ted Williams Parkway	Widen from 4 lanes to 6 lanes	Caltrans	2050 in Regional Plan
From SR-56 to I-5 North	Construct Fly-over ramps to I-5N	Caltrans	2035 in Regional Plan
SR-56 On-Ramps at Camino del Sur	Construct cloverleaf on-ramp loops	Torrey Highlands PFFP Project #T-1.3	Phased

Abbreviations: 2C NF: 2 lane collector with no fronting property. 2MA: 2 lane Major Arterial. 4MA: 4 lane Major Arterial. 4PA: 4 lane Prime Arterial. 6MA: 6 lane Major Arterial. 6PA: 6 lane Prime Arterial.

HORIZON YEAR TRAFFIC ANALYSIS AND IMPACTS

Significant traffic impacts due to volume changes associated with the Project were determined as described in Chapter 2. As can be seen in Table 4-5, significant segment impacts were found for Segment 11, Black Mountain Road south of Twin Trails Drive, and for Segment 13, Black Mountain Road north of Park Village Road-Adolphia Street. Segment 11 operates with a V/C ratio of 0.634 and an LOS C under the Without Project condition and with a V/C ratio of 0.939 and an LOS E under the With Project condition. In addition, Segment 13 operates with a V/C ratio of 0.732 and an LOS C under the Without Project condition and with a V/C ratio of 0.886 and an LOS E under

the With Project condition. These operating conditions are considered "significant impacts" according to the City's criteria.

As can be seen in Table 4-6, a significant intersection impact was identified during the AM peak hour at Intersection 37, Sundance Avenue and Twin Trails Drive. This intersection is an all-way stop-controlled intersection and operates with an average delay of 38.8 seconds and an LOS E under the Without Project condition and an average delay of 46.4 seconds and an LOS E under the With Project condition. This 7.6 second difference along with an LOS E qualifies as a significant impact.

Table 4-8 presents the results of the freeway mainline analysis conducted for horizon year conditions. The volumes, peak hour factors, directional factors, and truck percentages were obtained from Caltrans and compiled into Appendix I. One significant freeway mainline impacts was found within the study area during this analysis. The freeway mainline significant impact was found in the PM peak hour on eastbound SR-56 between Camino del Sur and Black Mountain Road.

It should be noted that some freeway mainline segments had V/C ratios that improved due to the project. This phenomenon occurs to changes in anticipated traffic patterns reflected in SANDAG's 2050 scenario models. Generally, the model runs prepared by SANDAG for the two scenarios show a slight shift of traffic in the future when Black Mountain Road is limited to four lanes in the future. With a lower capacity on Black Mountain Road in the future as the result of being held to four, rather than six, lanes traffic somewhat increases on two bypass routes. Those routes consist of portions of I-15 between Mercy Road and SR56 and SR56 between I-15 and Black Mountain Road. The initial future model volumes tend to have around 1,000 to 2,000 ADT more traffic on these two freeways within these limits, and beyond those limits the differences are minimal. Similarly, the portion of Penasquitos Blvd to the west of I-15 and northerly to SR56 also has about 1,000 more ADT on the four lane alternative for Black Mountain Road presumably due to bypass traffic that otherwise would have been using Black Mountain Road.

An on-ramp metering delay analysis was conducted for horizon year conditions. The results of this analysis are presented in Table 4-9. The most restrictive ramp metering rates in Appendix I were assumed for this analysis. One ramp metering delay impact was also found within the study area. In the AM peak hour, the Rancho Penasquitos Blvd – SR56 WB on ramp is anticipated to experience an increase in delay of 3 minutes from about 21 minutes to 24 minutes, resulting in a significant impact.

An ILV analysis of horizon year conditions was also performed for controlled interchanges. The calculation worksheets are included in Appendix N.

Figure 4-9 shows the locations where significant impacts occur and whether or not mitigations are provided.

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Table 4-3
Horizon Year Without Project (Black Mountain Rd as 6 Lanes)
Roadway Segment Conditions

	Lanes/	LOS E	W/O Project		
Segment Number and Name	Class	(Capacity)	ADT	V/C	LOS
1. Camino Del Sur s/o Carmel valley Road	6MA	50,000	25,903	0.518	В
2. Camino Del Sur s/o Wolverine Way - Fallhaven Road	6MA	50,000	30,260	0.605	С
3. Camino Del Sur n/o SR-56 Westbound Ramps	6MA	50,000	37,874	0.757	С
4. Camino Del Sur s/o SR-56 Eastbound Ramps	6MA	50,000	26,700	0.534	В
5. Carmel Valley Road w/o Black Mountain Road	4MA	40,000	17,223	0.431	В
6. Carmel Valley Road e/o Black Mountain Road	4MA	40,000	22,648	0.566	С
7. Black Mountain Road n/o Maler Road	4MA	40,000	18,262	0.457	В
8. Black Mountain Road s/o Oviedo Street	4MA	40,000	23,562	0.589	С
9. Black Mountain Road s/o Carmel Mountain Road	4MA	40,000	18,353	0.459	В
10. Black Mountain Road bet. Paseo Montalban & Twin Trails Drive	4MA	40,000	17,824	0.446	В
11. Black Mountain Road s/o Twin Trails Drive	6PA	60,000	38,028	0.634	С
12. Black Mountain Road bet. SR-56 Westbound & Eastbound Ramps	6PA	60,000	34,707	0.578	В
13. Black Mountain Road n/o Park Village Road - Adolphia Street	6PA	60,000	43,949	0.732	С
14. Black Mountain Road n/o Canyonside Park Drive	6PA	60,000	40,431	0.674	С
15. Black Mountain Road bet. Mercy Road & Babuta Road	6PA	60,000	38,411	0.640	С
16. Black Mountain Road s/o Westview Parkway	6PA	60,000	29,564	0.493	В
17. Westview Parkway e/o Black Mountain Road	4C	30,000	8,854	0.295	Α
18. Carmel Mountain Road bet. Paseo Aldabra & Sundevil Way	4MA	40,000	14,661	0.367	Α
19. Carmel Mountain Road bet. Paseo Montalban & SR-56 Westbound Ramps	4MA	40,000	22,696	0.567	С
20. Rancho Penasquitos Blvd bet. SR-56 EB Ramps - Azuaga St & Calle De Las Rosas	4MA	40,000	26,218	0.655	С
21. Rancho Penasquitos Boulevard bet. Calle De Las Rosas & Via Del Sud	4MA	40,000	26,867	0.672	С
22. Rancho Penasquitos Boulevard bet. Paseo Montril & I-15 Southbound Ramps	4MA	40,000	31,592	0.790	D
23. Poway Road e/o I-15 Northbound Ramps	6PA	60,000	53,230	0.887	D
24. Carmel Mountain Road s/o Sundance Avenue	4MA	40,000	9,784	0.245	Α
25. Carmel Mountain Road w/o Sparren Avenue	4MA	40,000	8,895	0.222	Α
26. Carmel Mountain Road w/o Black Mountain Road	4MA	40,000	10,400	0.260	Α
27. Sundance Avenue w/o War Bonnet Street*	-	-	2,500	-	-
28. Carmel Mountain Road e/o Freeport Road	4MA	40,000	14,425	0.361	Α
29. Carmel Mountain Road bet. Penasquitos Drive & Gerana Street	4MA	40,000	17,389	0.435	В
30. Carmel Mountain Road bet. I-15 Southbound Ramps & Penasquitos Drive	4MA	40,000	29,444	0.736	С
31. Carmel Mountain Road e/o I-15 Northbound Ramps	6PA	60,000	52,794	0.880	D
32. Camino Del Sur n/o Park Village Road	4MA	40,000	10,700	0.268	Α
33. Park Village Road e/o Camino Del Sur	4MA	40,000	12,600	0.315	Α
34. Park Village Road w/o Black Mountain Road	4MA	40,000	17,757	0.444	В
35. Mercy Road bet. Chabola Road & Branicole Ln	4MA	40,000	18,662	0.467	В
36. Mercy Road n/o Alemania Road	4MA	40,000	23,662	0.592	С
37. Scripps Poway Parkway e/o I-15 Northbound Ramps	6PA	60,000	63,408	1.057	F

^{*} Capacity for local residential street not specified in San Diego Traffic Impact Study Manual, July 2008.

Abbreviations: 4C: 4 lane Collector. 4MA: 4 lane Major Arterial. 6MA: 6 lane Major Arterial. 6PA: 6 lane Prime Arterial.

Table 4-4
Horizon Year With Project (Black Mountain Rd as 4 Lanes)
Roadway Segment Conditions

	Lanes/	LOS E	W/ Project		
Segment Number and Name	Class	(Capacity)	ADT	V/C	LOS
1. Camino Del Sur s/o Carmel valley Road	6MA	50,000	25,250	0.505	В
2. Camino Del Sur s/o Wolverine Way - Fallhaven Road	6MA	50,000	29,497	0.590	С
3. Camino Del Sur n/o SR-56 Westbound Ramps	6MA	50,000	36,919	0.738	С
4. Camino Del Sur s/o SR-56 Eastbound Ramps	6MA	50,000	27,400	0.548	В
5. Carmel Valley Road w/o Black Mountain Road	4MA	40,000	17,349	0.434	В
6. Carmel Valley Road e/o Black Mountain Road	4MA	40,000	22,814	0.570	С
7. Black Mountain Road n/o Maler Road	4MA	40,000	19,204	0.480	В
8. Black Mountain Road s/o Oviedo Street	4MA	40,000	23,472	0.587	С
9. Black Mountain Road s/o Carmel Mountain Road	4MA	40,000	17,709	0.443	В
10. Black Mountain Road bet. Paseo Montalban & Twin Trails Drive	4MA	40,000	17,198	0.430	В
11. Black Mountain Road s/o Twin Trails Drive	4MA	40,000	37,540	0.939	Е
12. Black Mountain Road bet. SR-56 Westbound & Eastbound Ramps	4MA	40,000	34,261	0.857	D
13. Black Mountain Road n/o Park Village Road - Adolphia Street	4MA	40,000	35,500	0.888	Е
14. Black Mountain Road n/o Canyonside Park Drive	4MA	40,000	34,677	0.867	D
15. Black Mountain Road bet. Mercy Road & Babuta Road	6PA	60,000	32,944	0.549	В
16. Black Mountain Road s/o Westview Parkway	6PA	60,000	25,356	0.423	В
17. Westview Parkway e/o Black Mountain Road	4C	30,000	7,197	0.240	Α
18. Carmel Mountain Road bet. Paseo Aldabra & Sundevil Way	4MA	40,000	14,819	0.370	Α
19. Carmel Mountain Road bet. Paseo Montalban & SR-56 Westbound Ramps	4MA	40,000	22,940	0.574	С
20. Rancho Penasquitos Blvd bet. SR-56 EB Ramps - Azuaga St & Calle De Las Rosas	4MA	40,000	27,500	0.688	С
21. Rancho Penasquitos Boulevard bet. Calle De Las Rosas & Via Del Sud	4MA	40,000	28,200	0.705	С
22. Rancho Penasquitos Boulevard bet. Paseo Montril & I-15 Southbound Ramps	4MA	40,000	33,100	0.828	D
23. Poway Road e/o I-15 Northbound Ramps	6PA	60,000	53,230	0.887	D
24. Carmel Mountain Road s/o Sundance Avenue	4MA	40,000	9,980	0.250	Α
25. Carmel Mountain Road w/o Sparren Avenue	4MA	40,000	9,312	0.233	Α
26. Carmel Mountain Road w/o Black Mountain Road	4MA	40,000	10,600	0.265	Α
27. Sundance Avenue w/o War Bonnet Street*	-	-	2,600	-	-
28. Carmel Mountain Road e/o Freeport Road	4MA	40,000	14,396	0.360	Α
29. Carmel Mountain Road bet. Penasquitos Drive & Gerana Street	4MA	40,000	17,354	0.434	В
30. Carmel Mountain Road bet. I-15 Southbound Ramps & Penasquitos Drive	4MA	40,000	29,337	0.733	С
31. Carmel Mountain Road e/o I-15 Northbound Ramps	6PA	60,000	52,601	0.877	D
32. Camino Del Sur n/o Park Village Road	4MA	40,000	10,200	0.255	Α
33. Park Village Road e/o Camino Del Sur	4MA	40,000	11,700	0.293	Α
34. Park Village Road w/o Black Mountain Road	4MA	40,000	17,600	0.440	В
35. Mercy Road bet. Chabola Road & Branicole Ln	4MA	40,000	17,420	0.436	В
36. Mercy Road n/o Alemania Road	4MA	40,000	22,420	0.561	С
37. Scripps Poway Parkway e/o I-15 Northbound Ramps	6PA	60,000	62,005	1.033	F

^{*} Capacity for local residential street not specified in San Diego Traffic Impact Study Manual, July 2008.

Abbreviations: 4C: 4 lane Collector. 4MA: 4 lane Major Arterial. 6MA: 6 lane Major Arterial. 6PA: 6 lane Prime Arterial.

Table 4-5
Horizon Year Comparison of Roadway Segment Conditions

		O Project	-	/ Project		
		6 Lanes)	•	4 Lanes)	5.00	
Segment Number and Name	V/C	LOS	V/C	LOS	Difference	Impact
1. Camino Del Sur s/o Carmel valley Road	0.518	В	0.505	В	-0.01	No
2. Camino Del Sur s/o Wolverine Way - Fallhaven Road	0.605	С	0.590	С	-0.02	No
3. Camino Del Sur n/o SR-56 Westbound Ramps	0.757	С	0.738	C	-0.02	No
4. Camino Del Sur s/o SR-56 Eastbound Ramps	0.534	В	0.548	В	0.01	No
5. Carmel Valley Road w/o Black Mountain Road	0.431	В	0.434	В	0.00	No
6. Carmel Valley Road e/o Black Mountain Road	0.566	С	0.570	С	0.00	No
7. Black Mountain Road n/o Maler Road	0.457	В	0.480	В	0.02	No
8. Black Mountain Road s/o Oviedo Street	0.589	С	0.587	С	0.00	No
9. Black Mountain Road s/o Carmel Mountain Road	0.459	В	0.443	В	-0.02	No
10. Black Mountain Road bet. Paseo Montalban & Twin Trails Drive	0.446	В	0.430	В	-0.02	No
11. Black Mountain Road s/o Twin Trails Drive	0.634	С	0.939	E	0.31	Yes
12. Black Mountain Road bet. SR-56 Westbound & Eastbound Ramps	0.578	В	0.857	D	0.28	No
13. Black Mountain Road n/o Park Village Road - Adolphia Street	0.732	С	0.888	E	0.16	Yes
14. Black Mountain Road n/o Canyonside Park Drive	0.674	С	0.867	D	0.19	No
15. Black Mountain Road bet. Mercy Road & Babuta Road	0.640	С	0.549	В	-0.09	No
16. Black Mountain Road s/o Westview Parkway	0.493	В	0.423	В	-0.07	No
17. Westview Parkway e/o Black Mountain Road	0.295	Α	0.240	Α	-0.06	No
18. Carmel Mountain Road bet. Paseo Aldabra & Sundevil Way	0.367	Α	0.370	Α	0.00	No
19. Carmel Mountain Road bet. Paseo Montalban & SR-56 Westbound Ramps	0.567	С	0.574	С	0.01	No
20. Rancho Penasquitos Blvd bet. SR-56 EB Ramps - Azuaga St & Calle De Las Rosas	0.655	С	0.688	С	0.03	No
21. Rancho Penasquitos Boulevard bet. Calle De Las Rosas & Via Del Sud	0.672	С	0.705	С	0.03	No
22. Rancho Penasquitos Boulevard bet. Paseo Montril & I-15 Southbound Ramps	0.790	D	0.828	D	0.04	No
23. Poway Road e/o I-15 Northbound Ramps	0.887	D	0.887	D	0.00	No
24. Carmel Mountain Road s/o Sundance Avenue	0.245	Α	0.250	Α	0.01	No
25. Carmel Mountain Road w/o Sparren Avenue	0.222	Α	0.233	Α	0.01	No
26. Carmel Mountain Road w/o Black Mountain Road	0.260	Α	0.265	Α	0.01	No
27. Sundance Avenue w/o War Bonnet Street*	-	-	-	-	-	-
28. Carmel Mountain Road e/o Freeport Road	0.361	Α	0.360	Α	0.00	No
29. Carmel Mountain Road bet. Penasquitos Drive & Gerana Street	0.435	В	0.434	В	0.00	No
30. Carmel Mountain Road bet. I-15 Southbound Ramps & Penasquitos Drive	0.736	С	0.733	С	0.00	No
31. Carmel Mountain Road e/o I-15 Northbound Ramps	0.880	D	0.877	D	0.00	No
32. Camino Del Sur n/o Park Village Road	0.268	A	0.255	A	-0.01	No
33. Park Village Road e/o Camino Del Sur	0.315	A	0.293	A	-0.02	No
34. Park Village Road w/o Black Mountain Road	0.444	В	0.440	В	0.00	No
35. Mercy Road bet. Chabola Road & Branicole Ln	0.467	В	0.436	В	-0.03	No
36. Mercy Road n/o Alemania Road	0.592	С	0.561	C	-0.03	No
37. Scripps Poway Parkway e/o I-15 Northbound Ramps	1.057	F	1.033	F	-0.03	No

^{*} Capacity for local residential street not specified in San Diego Traffic Impact Study Manual, July 2008.

Table 4-6 Horizon Year AM Peak Hour Intersection Conditions

Intersection Number and Name		2050 W/	O Project	2050 W/	/ Project		
1. Camino Del Sur/Camel Nalley Road 2. Camino Del Sur/Walson Ranch Road 3. Camino Del Sur/Walson Ranch Road 3. Camino Del Sur/Walson Ranch Road 4. Camino Del Sur/Walson Ranch Road 4. Camino Del Sur/Walson Ranch Road 4. Camino Del Sur/Walson Ranch Road 5. Camino Del Sur/Forey Meadows Drive 5. Camino Del Sur/Forey Meadows Drive 6. Camino Del Sur/Forey Meadows Drive 7. Camino Del Sur/Sa-So Westbound Ramps 10. Ranch Road 7. Camino Del Sur/Sa-So Westbound Ramps 10. Ranch Road 8. Ranch Road 8		(BMR as	6 Lanes)	(BMR as	4 Lanes)	Comp	arison
2. Camino Del Sur/Mayson Ranch Road 22.2	Intersection Number and Name	Delay	LOS	Delay	LOS	∆ _{Delay}	Impact
3. Camino Del Sur/Torrey Macodows Drive 1.5.5 B 1.6.7 B 0.7 C 2.1.8 No. 5. Camino Del Sur/Fisphands Village Place 1.5.4 B 1.6.7 B 1.6.7 B 0.0.2 No. 5. Camino Del Sur/Fisphands Village Place 1.5.4 B 1.5.7 B 1.7.8 B 1.7.8 B 0.0.5 No. 6. Camino Del Sur/SR-56 Edestbound Ramps 1.0.4 B 1.0.2 B 1.0.2 No. 8. Camino Del Sur/SR-56 Edestbound Ramps 1.0.4 B 1.0.2 B -0.2 No. 8. Camino Del Sur/Torrey Santa Fe Road 1.0.4 B 1.0.2 B -0.2 No. 8. Camino Del Sur/Torrey Santa Fe Road 1.0.4 B 1.0.2 B -0.2 No. 8. Camino Del Sur/Torrey Santa Fe Road 1.0.4 B 1.0.2 B -0.2 No. 8. Camino Del Sur/Torrey Santa Fe Road 1.0.4 B 1.0.2 B -0.2 No. 9. Black Mountain Road/Camine Valley Road 2.2.3 C 2.5 C 0.2 No. 10. Black Mountain Road/Camine Valley Road 1.1.8 Black Mountain Road/Camine Mountain Road 1.1.1 No. 11. Black Mountain Road/Camine Mountain Road 1.1.1 No. 12. Black Mountain Road/Camine Mountain Road 1.1.1 No. 13. Black Mountain Road/Santa Mountain Road 1.1.1 No. 14. Black Mountain Road/Santa Mountain Road 1.1.1 No. 15. Black Mountain Road/Santa Mountain Road/Santa No. 16. Black Mountain Road/Santa Mountain Road 1.1.1 No. 17. Black Mountain Road/Santa Mountain Road 1.1.1 No. 18. Black Mountain Road/Santa No. 18. Black Mountain Road/Santa Mountain Road 1.1.1 No. 19. Black Mountain Road/Santa Mountain Road 1.1.1 No. 19. Black Mountain Road/Santa Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road/Park Village Road - Adolphia Street 1.1.1 No. 19. Black Mountain Road No. 19.	Camino Del Sur/Carmel Valley Road	56.7	E	56.0	E	-0.7	No
4. Camino Del Sur/Tirrey Meadows Drive 5. Camino Del Sur/Rish and Village Place 15.4 B 14.9 B 0.2 No. 6. Camino Del Sur/SR-56 Westbound Ramps 17.5 B 17.8 B 0.3 No. 7. Camino Del Sur/SR-56 Westbound Ramps 10.4 B 10.2 B 0.3 No. 7. Camino Del Sur/SR-56 Westbound Ramps 10.4 B 10.2 B 0.3 No. 8. Camino Del Sur/Sr-56 Eastbound Ramps 10.4 B 10.2 B 0.0 No. 9. Black Mountain Road/Carmel Valley Road 17.8 A 8.0 A 0.2 No. 10. Black Mountain Road/Carmel Valley Road 17.8 A 8.0 A 0.2 No. 11. Black Mountain Road/Stergaze Avenue 11.7 B 13.4 B 13.4 B 13.3 B 0.1 No. 12. Black Mountain Road/Stergaze Avenue 11.7 D 8 26.3 C 0.3 No. 13. Black Mountain Road/Stergaze Avenue 11.7 D 8 26.3 C 0.3 No. 13. Black Mountain Road/Stergaze Avenue 11.7 D 8 26.3 C 0.3 No. 13. Black Mountain Road/Stergaze Normue 13. Black Mountain Road/Stergaze Normue 14.7 B 13.4 B 13.4 B 1.3 No. 15. Black Mountain Road/Stergaze Montalban 12.4 B 12.8 B 0.4 No. 15. Black Mountain Road/Sterge Montalban 12.4 B 12.8 B 0.4 No. 15. Black Mountain Road/Twin Trails Drive 15. Black Mountain Road/Twin Trails Drive 15. Black Mountain Road/Fish Ste Stebtound Ramps 17. Black Mountain Road/Sters Ste Westbound Ramps 17. Black Mountain Road/Sters Ste Stebtound Ramps 17. Black Mountain Road/Sters Ste Stebtound Ramps 18. Black Mountain Road/Sters Ste Stebtound Ramps 19. Black Mountain Road/Sters Ste Stebtound Ramps 19. Black Mountain Road/Sters Stept Stept Stere St	2. Camino Del Sur/Watson Ranch Road	8.4	Α	8.3	Α	-0.1	No
5. Camino Del Sur/Highlands Village Place 15.4 8 1.95 8 -0.5 No 6. Camino Del Sur/SR- Seb Estbound Ramps 11.75 8 17.8 8 -0.2 No 8. Camino Del Sur/Torrey Santa Fe Road 13.4 8 13.3 8 -0.1 No 9. Black Mountain Road/Camel Volley Road 22.3 C 22.5 C 0.2 No 10. Black Mount Road/Maler Road 7.8 A 8.0 A 0.2 No 11. Black Mountain Road/Gragae Avenue 14.7 8 13.4 8 1.3 No 12. Black Mountain Road/Gragae Montalban 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Fase Montalban 12.4 8 12.8 8 0.4 No 16. Black Mountain Road/Fase Montalban 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Seb Se Eastbound Ramps 24.7 D 45.0 D -2.3 No 17. Black Mountain Road/Seb Se	3. Camino Del Sur/Wolverine Way - Fallhaven Road	22.2	С	20.4	С	-1.8	No
6. Camino Del Sur/Sh-56-Westbound Ramps 7. Camino Del Sur/Sh-56-Stabbound Ramps 10.4 B 10.2 B 0.2 No 8. Camino Del Sur/Trorrey Santa Fe Road 13.4 B 13.3 B 0.2 No 8. Camino Del Sur/Trorrey Santa Fe Road 13.4 B 13.3 B 0.2 No 9. Black Mountain Road/Carmel Valley Road 7.8 A 8 8.0 A 0.2 No 10. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B 13.4 B 1.3 No 11. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B 1.3 No 11. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B 1.3 No 13. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B 1.3 No 13. Black Mountain Road/Carmel Mountain Road 14.0 D 47.9 D 3.9 No 13. Black Mountain Road/Carmel Mountain Road 14.0 D 47.9 D 3.9 No 15. Black Mountain Road/Starge Montalban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Starge Montalban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Starge Montalban 17. Black Mountain Road/Starge Montalban 18. Black Mountain Road/Starge Montalban 19. Black Mountain Road/Starge Montalban 19. Black Mountain Road/Starge Montalban 19. Black Mountain Road/Starge Starge Montalban 19. Black Mountain Road/Starge Starge Montalban 19. Black Mountain Road/Starge Starge Montalban 19. Black Mountain Road/Starge Not No 19. Black Mountain Road/Starge Road 19. Black Mountain Road/Starge Not No 19. Black Mountain Road/Starge Road 19. Black Mountain Road/Starge Not No 19. Black Mountain Road/Starge No	4. Camino Del Sur/Torrey Meadows Drive	16.5	В	16.7	В	0.2	No
7. Camino Del Sur/ISN-56Eastbound Ramps 10.4 B 10.2 B -0.2 No 8. Camino Del Sur/Torrey Santa Fe Road 13.4 B 13.3 B -0.1 No 9. Biack Mountain Road/Carmel Valley Road 22.3 C 22.5 C 0.2 No 10. Biack Mountain Road/Sargaze Avenue 11.47 B 13.4 B -1.3 No 11. Black Mountain Road/Carled Mountain Road 44.0 D 47.9 D 3.9 No 12. Black Mountain Road/Pase Montalban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Fase Montalban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Fase Seatbound Ramps 47.3 D 45.0 D 1.5 No 16. Black Mountain Road/Fase Seatbound Ramps 22.4 C 23.1 C 0.7 No 18. Black Mountain Road/Fase Seatbound Ramps 22.4 C 23.1 C 0.7 No 28. Black	5. Camino Del Sur/Highlands Village Place	15.4	В	14.9	В	-0.5	No
8. Camino Del Sur/Torrey Santa Fe Road 9. Black Mountain Road/Carmel Valley Road 22.3 C 22.5 C 0.2 No 10. Black Mountain Road/Maler Road 7.8 A 8.0 A 0.2 No 11. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B -1.3 No 11. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B -1.3 No 13. Black Mountain Road/Stargaze Avenue 14.7 B 13.4 B -1.3 No 13. Black Mountain Road/Carmel Mountain Road 44.0 D 47.9 D 3.9 No 13. Black Mountain Road/Carmel Mountain Road 44.0 D 47.9 D 3.9 No 15. Black Mountain Road/Stargaze Avenue 52.9 D 54.4 D 1.5 No 15. Black Mountain Road/Stargaze Montalban 12.4 B 12.8 B 12.8 B 0.4 No 15. Black Mountain Road/Stargaze Montalban 15. Black Mountain Road/Stargaze Avenue 15. Black Mountain Road/Stargaze Montalban 17. Black Mountain Road/Stargaze Montalban 18. Black Mountain Road/Stargaze Avenue 19. Black Mountain Road/Stargaze Montalban 19. Black Mountain Road/Sta	6. Camino Del Sur/SR-56 Westbound Ramps	17.5	В	17.8	В	0.3	No
9. Black Mountain Road/Carmel Valley Road	7. Camino Del Sur/SR-56 Eastbound Ramps	10.4	В		В	-0.2	No
10. Black Mount Road/Nater Road	·	13.4		13.3		-0.1	No
11. Black Mountain Road/Carried Mountain Road 17.0 8 13.4 8 1.3 No 13. Black Mountain Road/Carried Mountain Road 44.0 D 47.9 D 3.9 No 14. Black Mountain Road/Paseo Montaiban 12.4 B 12.8 B 0.4 No 14. Black Mountain Road/Paseo Montaiban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Seso Montaiban 12.4 B 12.8 B 0.4 No 15. Black Mountain Road/Seso Montaiban 17.0 D 54.4 D 1.5 No 16. Black Mountain Road/Ses 6 Westbound Ramps 47.3 D 45.0 D 2.3 No 16. Black Mountain Road/Ses 6 Seatbound Ramps 47.3 D 45.0 D 2.3 No 17. Black Mountain Road/Ses 6 Seatbound Ramps 22.4 C 23.1 C 0.7 No 18. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 37.3 D 3.4 No 19. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 27.4 C 3.0 No 19. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 27.4 C 3.0 No 19. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 27.4 C 3.0 No 21. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 27.4 C 3.0 No 21. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 27.4 C 3.0 No 21. Black Mountain Road/Parkey Road 24.4 C 27.4 C 3.0 No 22. Carmel Mountain Road/Paseo Montalban 24.0 C 23.8 C 0.2 No 23. Carmel Mountain Road/Paseo Montalban 24.0 C 23.8 C 0.2 No 23. Carmel Mountain Road/Seso Montalban 24.0 C 23.8 C 0.2 No 25. Rancho Penasquitos Boulevard/Seso Botabound Ramps - Azuaga Street 24.8 C 24.2 C 0.6 No 26. Rancho Penasquitos Boulevard/Vis-15 estabound Gramps - Azuaga Street 24.8 C 24.2 C 0.6 No 26. Rancho Penasquitos Boulevard/Vis-15 estabound Gramps 25.0 Road Street 27.6 Road Street 27.8 Road	9. Black Mountain Road/Carmel Valley Road	22.3	С	22.5	С		No
12. Black Mountain Road/Carnel Mountain Road 44.0	10. Black Mount Road/Maler Road	7.8	Α		Α		No
13.8 Black Mountain Road/Carmel Mountain Road 12.4 8 12.8 8 0.4 No 14. Black Mountain Road/Paseo Montalban 12.4 8 12.8 8 0.4 No 15. Black Mountain Road/Twin Trails Drive 52.9 D 54.4 D 1.5 No 16. Black Mountain Road/SR-56 Westbound Ramps 47.3 D 45.0 D 2.3 No 17. Black Mountain Road/SR-56 Westbound Ramps 22.4 C 23.1 C 0.7 No 18. Black Mountain Road/SR-56 Westbound Ramps 22.4 C 23.1 C 0.7 No 18. Black Mountain Road/Park Village Road - Adolphia Street 33.9 C 37.3 D 3.4 No 19. Black Mountain Road/Park Village Road - Adolphia Street 25.5 A 5.2 A 2.7 No 19. Black Mountain Road/Mercy Road 24.4 C 27.4 C 3.0 No 19. Black Mountain Road/Werty Road 24.4 C 27.4 C 3.0 No 20. Black Mountain Road/Westview Parkway 16.3 B 14.5 B 1.8 No 21. Black Mountain Road/Sundevil Way 16.0 B 15.6 B 0.4 No 22. Carmel Mountain Road/Sundevil Way 16.0 B 15.6 B 0.4 No 23. Carmel Mountain Road/Paseo Montalban 24.0 C 23.8 C 0.2 No 24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard 45.7 D 46.0 D 0.3 No 25. Rancho Penasquitos Boulevard/Fase Batsbound Ramps - Azuaga Street 24.8 C 24.2 C 0.6 No 26. Rancho Penasquitos Boulevard/Fase Bothound Ramps - Azuaga Street 24.8 C 24.2 C 0.6 No 27. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 28. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. Rancho Penasquitos Boulevard/Faseo Montril 13.6 B 13.6 B 0.0 No 29. R							No
14.6 Black Mountain Road/Paseo Montalban 12.4 B 12.8 B 0.4 No	12. Black Mountain Road/Oviedo Street				С		No
15. Black Mountain Road/Fwin Trails Drive							
16. Black Mountain Road/SR-56 Westbound Ramps							
17. Black Mountain Road/SR-56 Eastbound Ramps							
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51. Camino Del Sur/Park Village Road 51.6 D 45.6 D -6.0 No 52. Rumex Lane/Park Village Road 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 7.8 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No	·						
52. Rumex Lane/Park Village Road 7.8 A 7.9 A 0.1 No 53. Ragweed Street/Park Village Road 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 7.8 A 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No							
53. Ragweed Street/Park Village Road 16.0 B 16.4 B 0.4 No 54. Mercy Road/Kika Court 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No	, 0						
54. Mercy Road/Kika Court 7.8 A 7.8 A 0.0 No 55. Alemania Road/Mercy Road 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No							
55. Alemania Road/Mercy Road 9.8 A 9.9 A 0.1 No 56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No							
56. I-15 Southbound Ramps/Mercy Road 35.5 D 34.8 C -0.7 No							
	. ,						
	57. I-15 Northbound Ramps/Mercy Road - Scripps Poway Parkway	77.0	E	70.1	E	-6.9	No

^{*} Assumes a signalization upgrade in 2050 scenarios.

 $[\]ensuremath{^{**}}$ Worst case control delay and LOS shown.

Table 4-7 Horizon Year PM Peak Hour Intersection Conditions

	2050 W/	O Project	2050 W	Project		
		6 Lanes)		-	Diffe	rence
Intersection Number and Name	Delay	LOS	Delay	LOS	Delay	Impact
Camino Del Sur/Carmel Valley Road	45.9	D	45.4	D	-0.5	No
2. Camino Del Sur/Watson Ranch Road	6.7	Α	5.6	Α	-1.1	No
3. Camino Del Sur/Wolverine Way - Fallhaven Road	20.2	С	18.3	В	-1.9	No
4. Camino Del Sur/Torrey Meadows Drive	13.7	В	14.0	В	0.3	No
5. Camino Del Sur/Highlands Village Place	16.6	В	16.8	В	0.2	No
6. Camino Del Sur/SR-56 Westbound Ramps	19.7	В	20.2	С	0.5	No
7. Camino Del Sur/SR-56 Eastbound Ramps	16.8	В	16.8	В	0.0	No
8. Camino Del Sur/Torrey Santa Fe Road	19.2	В	19.7	В	0.5	No
9. Black Mountain Road/Carmel Valley Road	47.9	D	48.8	D	0.9	No
10. Black Mount Road/Maler Road	7.5	A	7.6	A	0.1	No
11. Black Mountain Road/Stargaze Avenue	14.0	В	14.8	В	0.8	No
12. Black Mountain Road/Oviedo Street	17.6	В	26.0	С	8.4	No
13. Black Mountain Road/Carmel Mountain Road	28.5	С	28.3	С	-0.2	No
14. Black Mountain Road/Paseo Montalban	14.8	В	15.1	В	0.3	No
15. Black Mountain Road/Twin Trails Drive	40.5	D	32.0	С	-8.5	No
16. Black Mountain Road/SR-56 Westbound Ramps	34.4	С	34.7	С	0.3	No
17. Black Mountain Road/SR-56 Eastbound Ramps	26.1	С	26.2	С	0.1	No
18. Black Mountain Road/Park Village Road - Adolphia Street	29.7	C	29.4	C	-0.3	No
19. Black Mountain Road/Canyonside Park Drive	4.8	A	6.8	A	2.0	No
20. Black Mountain Road/Mercy Road	37.2	D	31.8	С	-5.4	No
21. Black Mountain Road/Westview Parkway	22.7	С	20.5	С	-2.2	No
22. Carmel Mountain Road/Sundevil Way	14.6	В	14.6	В	0.0	No
23. Carmel Mountain Road/Paseo Montalban	23.3	С	23.1	С	-0.2	No
24. Carmel Mountain Road/SR-56 WB Ramps - Rancho Penasquitos Boulevard	35.6	D	35.3	D	-0.3	No
25. Rancho Penasquitos Boulevard/SR-56 Eastbound Ramps - Azuaga Street	70.7	E	69.4	E	-1.3	No
26. Rancho Penasquitos Boulevard/Calle De Las Rosas	9.5	A	10.0	A	0.5	No
27. Rancho Penasquitos Boulevard/Via Del Sud	3.9	A	4.5	A	0.6	No
28. Rancho Penasquitos Boulevard/Paseo Montril	14.5 9.7	B A	14.5 9.7	B A	0.0	No No
29. Rancho Penasquitos Boulevard/I-15 Southbound Off-Ramp	19.4	В	20.6	C	1.2	No
Rancho Penasquitos Boulevard/I-15 Northbound Off-Ramp Carmel Mountain Road/(West) Sundance Avenue	16.0	В	16.5	В	0.5	No
32. Carmel Mountain Road/Sedorus Street (All-way stop control)*	5.2	A	5.1	A	-0.1	No
33. Carmel Mountain Road/Sectorus Street (An-way stop control)	12.6	В	12.5	В	-0.1	No
34. Sparren Avenue/Carmel Mountain Road	20.1	С	20.2	С	0.1	No
35. Oviedo Street/Carmel Mountain Road	20.1	С	19.6	В	-0.5	No
36. (East) Sundance Avenue/Carmel Mountain Road (Two-way stop control)**	10.3	В	10.3	В	0.0	No
37. Sundance Avenue/Twin Trails Drive (All-way stop control)	23.8	С	27.5	D	3.7	No
38. Penasquitos Post Office Driveway/Twin Trails Drive	26.6	C	26.1	C	-0.5	No
39. Twin Trails Drive/Fairgrove Lane (All-way stop control)	9.1	A	9.2	A	0.1	No
40. Twin Trails Drive/Paseo Montalban	12.9	В	13.0	В	0.1	No
41. Salmon River Road/Paseo Montalban	15.1	В	11.9	В	-3.2	No
42. Salmon River Road/Fairgrove Lane (All-way stop control)	8.8	Α	8.9	Α	0.1	No
43. Salmon River Road/Adolphia Street - Limar Way (All-way stop control)	7.9	Α	7.9	A	0.0	No
44. Paseo Cardiel/Carmel Mountain Road	25.1	С	27.3	С	2.2	No
45. Freeport Road/Carmel Mountain Road	5.1	Α	7.5	Α	2.4	No
46. Stoney Creek Road/Carmel Mountain Road	4.2	Α	3.7	Α	-0.5	No
47. Cuca Street - Caminata Deluz/Carmel Mountain Road	10.9	В	10.8	В	-0.1	No
48. Penasquitos Drive/Carmel Mountain Road	30.9	С	30.8	С	-0.1	No
49. I-15 Southbound Ramps/Carmel Mountain Road	35.4	D	35.5	D	0.1	No
50. I-15 Northbound Ramps/Carmel Mountain Road	50.5	D	51.4	D	0.9	No
51. Camino Del Sur/Park Village Road	23.7	С	23.8	С	0.1	No
52. Rumex Lane/Park Village Road	6.9	Α	7.0	Α	0.1	No
53. Ragweed Street/Park Village Road	16.1	В	16.6	В	0.5	No
54. Mercy Road/Kika Court	8.3	Α	7.5	Α	-0.8	No
55. Alemania Road/Mercy Road	10.6	В	10.3	В	-0.3	No
56. I-15 Southbound Ramps/Mercy Road	40.5	D	37.6	D	-2.9	No
57. I-15 Northbound Ramps/Mercy Road - Scripps Poway Parkway	61.7	E	52.9	D	-8.8	No
* Assumes a signalization upgrade in 2050 scenarios.						
** Worst case control delay and LOS shown.						

KOA Corporation 35 May 2016

Table 4-8A
Horizon Year Freeway Mainline Analysis
SR-56 Westbound and Eastbound

Freeway Segment	AM/PM	LOS E	Long Term W	ithout Project (BMR 6-Lanes)	Long Term Wi	th Project (BMI	R 4-Lanes)	Comparison		
Freeway Segment	Alvi/Fivi	Capacity	PHV	V/C	LOS	PHV	V/C	LOS	ΔV/C	Significant?	
SR-56 Westbound	÷			-			-	-			
West of Camino del Sur	AM	7,050	7,984	1.132	F	8,011	1.136	F	0.004	No	
West of Carrillo del Sul	PM	7,050	2,937	0.417	В	2,947	0.418	В	0.001	No	
Camino del Sur to Black Mountain Rd	AM	7,050	7,888	1.119	F	7,925	1.124	F	0.005	No	
Carrillo del Sul To Black Mountain Ru	PM	7,050	2,902	0.412	В	2,916	0.414	В	0.002	No	
Plack Mountain Road to Pancha Panagauitas Plud	AM	8,850	7,147	0.808	D	7,062	0.798	С	-0.010*	No	
Black Mountain Road to Rancho Penasquitos Blvd	PM	8,850	2,629	0.297	А	2,598	0.294	Α	-0.003*	No	
B	AM	7,050	7,026	0.997	E	6,928	0.983	E	-0.014*	No	
Rancho Penasquitos Blvd to I-15 Interchange	PM	7,050	2,585	0.367	Α	2,549	0.362	Α	-0.005*	No	
SR-56 Eastbound											
West of Camino del Sur	AM	7,050	3,060	0.434	В	3,071	0.436	В	0.002	No	
West of Carrillo del Sui	PM	7,050	7,838	1.112	F	7,864	1.115	F	0.003	No	
Camino del Sur to Black Mountain Rd	AM	7,050	3,024	0.429	В	3,038	0.431	В	0.002	No	
Camino dei Sur to Biack Mountain Ru	PM	7,050	7,744	1.098	F	7,780	1.104	F	0.006	Yes	
	AM	7,050	2,739	0.389	Α	2,707	0.384	Α	-0.005*	No	
Black Mountain Road to Rancho Penasquitos Blvd	PM	7,050	7,016	0.995	E	6,933	0.983	E	-0.012*	No	
Rancho Penasquitos Blvd to I-15 Interchange	AM	7,050	2,693	0.382	А	2,656	0.377	А	-0.005*	No	
National Feliasquilos bivo to 1-13 interchange	PM	7,050	6,897	0.978	Е	6,802	0.965	Е	-0.013*	No	

Peak Hour Volume = (ADT)(K)(D)/(Truck Factor))

V/C = Peak Hour Volume / Capacity

Truck Source: 2013 Annual Average Daily Truck Traffic on the California State Highway System

ADT Source: SANDAG Modeling (Appendix E)

K/D Source: 2013 K and D Factors on the California State Highway System

Hourly Capacity Assumptions

Mainline - 2350 vph; Auxiliary - 1800 vph; Managed - 1680 vph; HOV - 1600 vph

=ootnote:

^{*} These locations see decrease in V/C due to decreased in Total ADT per Model Runs See Appendix E for SANDAG models. See description in Freeway Mainline portion of Chapter 4 for discussion.

Table 4-8B
Horizon Year Freeway Mainline Analysis
I-15 Northbound and Southbound

Freeway Segment	AM/PM	LOS E Hourly	Long Term Wit	hout Project (BM	IR 6-Lanes)		With Project (Bl Lanes)	MR 4-	Comparison		
		Capacity	PHV	V/C	LOS	PHV	V/C	LOS	ΔV/C	Significant?	
I-15 Northbound				-			-	_		-	
0 11 (11 5 1	AM	16,910	21,045	1.245	F	20,952	1.239	F	-0.006*	No	
South of Mercy Road	PM	16,910	15,511	0.917	D	15,442	0.913	D	-0.004*	No	
Mercy Road to Rancho Penasquitos Blvd	AM	16,910	20,460	1.210	F	20,211	1.195	F	-0.015*	No	
Mercy Road to Rancho Penasquitos Bivd	PM	16,910	15,080	0.892	D	14,896	0.881	D	-0.011*	No	
Rancho Penasquitos Blvd to Ted Williams Pkwy	AM	15,110	18,824	1.246	F	18,612	1.232	F	-0.014*	No	
Transitor enasquitos biva to rea williams r kwy	PM	15,110	13,874	0.918	D	13,717	0.908	D	-0.010*	No	
Tod Williams Dkyny to Cormel Mountain Bd	AM	16,910	18,503	1.094	F	18,501	1.094	F	0.000	No	
Ted Williams Pkwy to Carmel Mountain Rd	PM	16,910	13,638	0.807	D	13,636	0.806	D	-0.001*	No	
N # 60 IM 1: B1	AM	16,910	19,356	1.145	F	19,374	1.146	F	0.001	No	
North of Carmel Mountain Rd	PM	16,910	11,821	0.699	С	11,832	0.700	С	0.001	No	
I-15 Southbound											
South of Mercy Road	AM	16,910	15,447	0.913	D	15,379	0.909	D	-0.004*	No	
South of Mercy Road	PM	16,910	20,797	1.230	F	20,705	1.224	F	-0.006*	No	
Mercy Road to Rancho Penasquitos Blvd	AM	16,910	15,018	0.888	D	14,835	0.877	D	-0.011*	No	
intercy reducto realisadultos bivu	PM	16,910	20,219	1.196	F	19,973	1.181	F	-0.015*	No	
Danaha Danasawitas Dhud ta Tad Williams Dlaus	AM	16,910	13,817	0.817	D	13,661	0.808	D	-0.009*	No	
Rancho Penasquitos Blvd to Ted Williams Pkwy	PM	16,910	18,602	1.100	F	18,393	1.088	F	-0.012*	No	
Tod Williams Dkywyto Cormol Mountain Bd	AM	16,910	13,582	0.803	D	13,580	0.803	D	0.000	No	
Ted Williams Pkwy to Carmel Mountain Rd	PM	16,910	18,286	1.081	F	18,283	1.081	F	0.000	No	
North of Carmel Mountain Rd	AM	15,110	8,454	0.559	В	8,462	0.560	В	0.001	No	
Part Harris Control Mountain No	PM	15,110	19,329	1.279	F	19,347	1.280	F	0.001	No	

Peak Hour Volume = (ADT)(K)(D)/(Truck Factor))

V/C = Peak Hour Volume / Capacity

Truck Source: 2013 Annual Average Daily Truck Traffic on the California State Highway System

ADT Source: SANDAG Modeling (Appendix E)

K/D Source: 2013 K and D Factors on the California State Highway System

Hourly Capacity Assumptions

Mainline - 2350 vph; Auxiliary - 1800 vph; Managed - 1680 vph; HOV - 1600 vph

Footnote:

^{*} These locations see decrease in V/C due to decreased in Total ADT per Model Runs See Appendix E for SANDAG models. See description in Freeway Mainline portion of Chapter 4 for discussion.

> Table 4-9 Horizon Year Freeway Interchange On-Ramp Metering Delay

		Meter Without Project							With Pro	oject		Comparison		
Location	# of Lanes	Rate (veh/hr/ lane)	Rate (veh/hr)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	Demand (veh/hr)	Excess Demand (veh/hr)	Delay (min)	Queue (ft)	Δ Delay	Sign- ificant	
AM Peak Hour														
Camino del Sur - SR56 WB Ramp	2	435	870	718	0	0	0	702	0	0	0	0	No	
Camino del Sur - SR56 WB Ramp (HOV)	1	435	435	80	0	0	0	78	0	0	0	0	No	
Black Mountain Road - SR56 WB Ramp	2	520	1,040	1,524	484	28	14,027	1,503	463	27	13,427	-1	No	
Black Mountain Road - SR56 WB Ramp (HOV)	1	520	520	169	0	0	0	167	0	0	0	0	No	
Rancho Penasquitos - SR56 WB Ramp	1	600	600	811	211	21	6,119	835	235	24	6,815	3	Yes	
Carmel Mountain Road - I15 SB Ramp	2	367	734	909	175	14	5,075	905	171	14	4,971	0	No	
Carmel Mountain Road - I15 SB Ramp (HOV)	1	367	367	101	0	0	0	101	0	0	0	0	No	
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	492	984	1,733	749	46	21,721	1,737	753	46	21,837	0	No	
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	492	984	797	0	0	0	801	0	0	0	0	No	
Mercy Road - I15 SB Ramp	2	420	840	1,294	454	32	13,172	1,227	387	28	11,214	-4	No	
Mercy Road - I15 SB Ramp (HOV)	1	420	420	144	0	0	0	136	0	0	0	0	No	
PM Peak Hour														
Camino del Sur - SR56 EB Ramp	2	480	960	1,212	252	16	7,317	1,176	216	14	6,273	-2	No	
Camino del Sur - SR56 EB Ramp (HOV)	1	480	480	135	0	0	0	131	0	0	0	0	No	
Black Mountain Road - SR56 EB Ramp	2	600	1,200	773	0	0	0	717	0	0	0	0	No	
Black Mountain Road - SR56 EB Ramp (HOV)	1	600	600	86	0	0	0	80	0	0	0	0	No	
Rancho Penasquitos - SR56 EB Ramp	2	300	600	198	0	0	0	201	0	0	0	0	No	
Carmel Mountain Road - I15 SB Ramp	2	473	946	1,215	269	17	7,801	1,211	265	17	7,671	0	No	
Carmel Mountain Road - I15 SB Ramp (HOV)	1	473	473	135	0	0	0	135	0	0	0	0	No	
Carmel Mountain Road - I15 NB Ramp	2	463	926	849	0	0	0	846	0	0	0	0	No	
Carmel Mountain Road - I15 NB Ramp (HOV)	1	463	463	94	0	0	0	94	0	0	0	0	No	
Rancho Penasquitos - I15 SB Ramp - Loop WB->SB	2	576	1,152	1,001	0	0	0	1,003	0	0	0	0	No	
Rancho Penasquitos - I15 SB Ramp - EB->SB	2	576	1,152	791	0	0	0	795	0	0	0	0	No	
Rancho Penasquitos - I15 NB Ramp - WB->NB	1	335	335	507	172	31	4,988	508	173	31	5,017	0	No	
Rancho Penasquitos - I15 NB Ramp - Loop EB->NB	1	335	335	153	0	0	0	154	0	0	0	0	No	
Mercy Road - I15 SB Ramp	2	406	812	1,403	591	44	17,142	1,330	518	38	15,028	-6	No	
Mercy Road - I15 SB Ramp (HOV)	1	406	406	156	0	0	0	148	0	0	0	0	No	
Mercy Road - I15 NB Ramp	2	270	540	1,141	601	67	17,435	1,116	576	64	16,704	-3	No	

Source: Caltrans January 2015

Meter rate is based on the most restrictive meter rate provided by Caltrans, see Appendix C

Combined Meter Rate = (Meter Rate per Lane) * (# of Lanes)

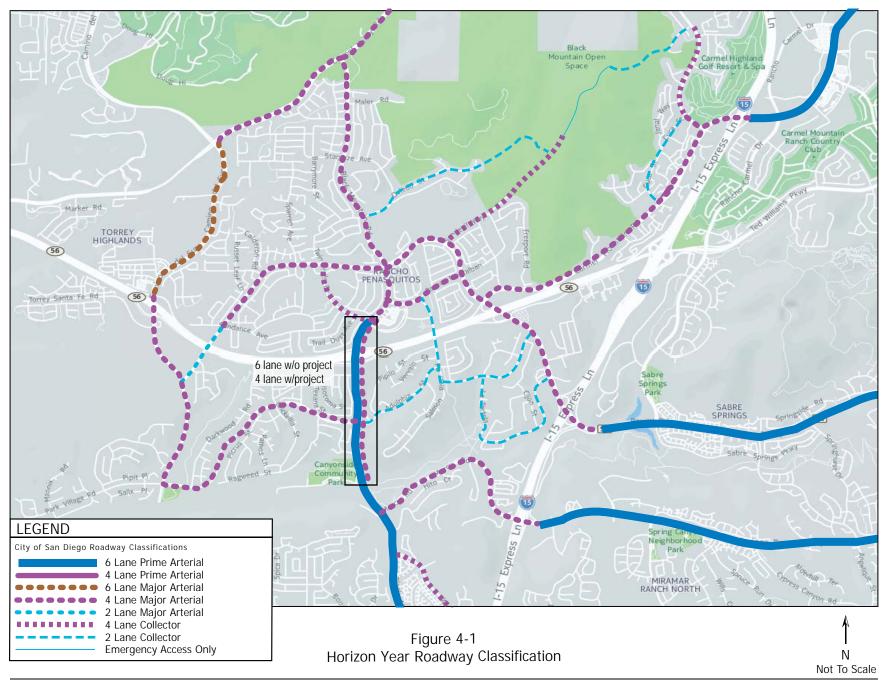
Excess Demand = (Demand * # of lanes) - (Combined Meter Rate); if Excess Demand < 0, then Excess Demand = 0

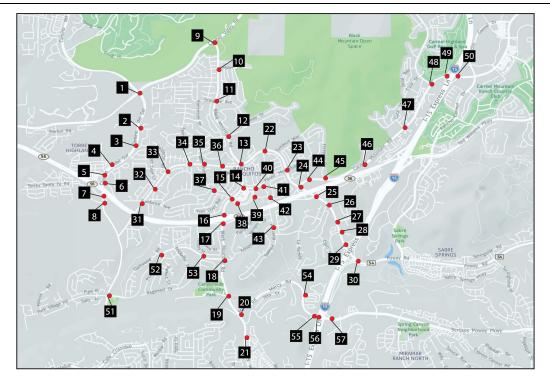
Delay = Excess Demand / Combined Meter Rate;

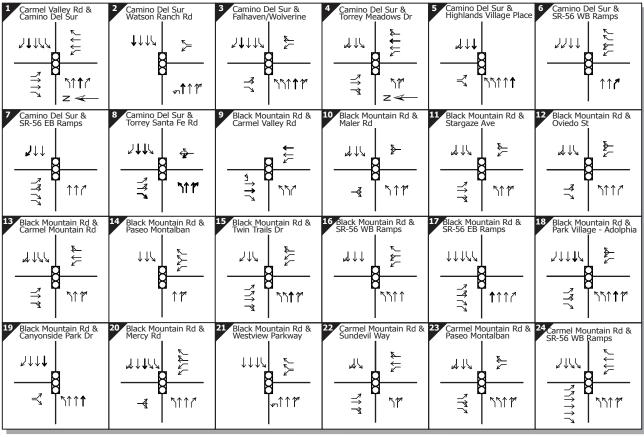
Queue = Excess Demand * 29 ft/vehicle

HOV demand is equal to 10% of Total Demand

Total Demand onto all lanes of each Freeway Ramp is found in the vehicle turning movements in Figures 4-4 and 4-5







8

Geometric Configuration

Traffic Signal / Stop Sign Assumed Improvements

Over Existing

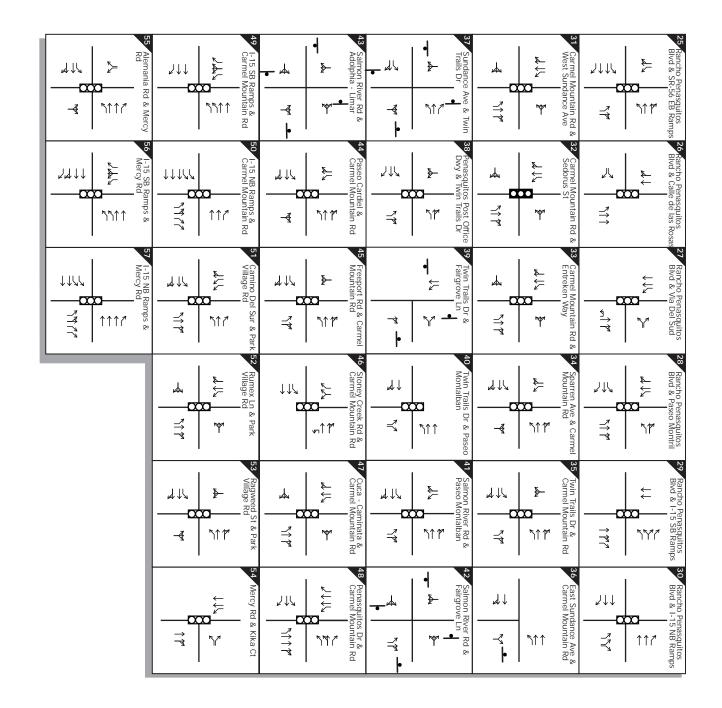


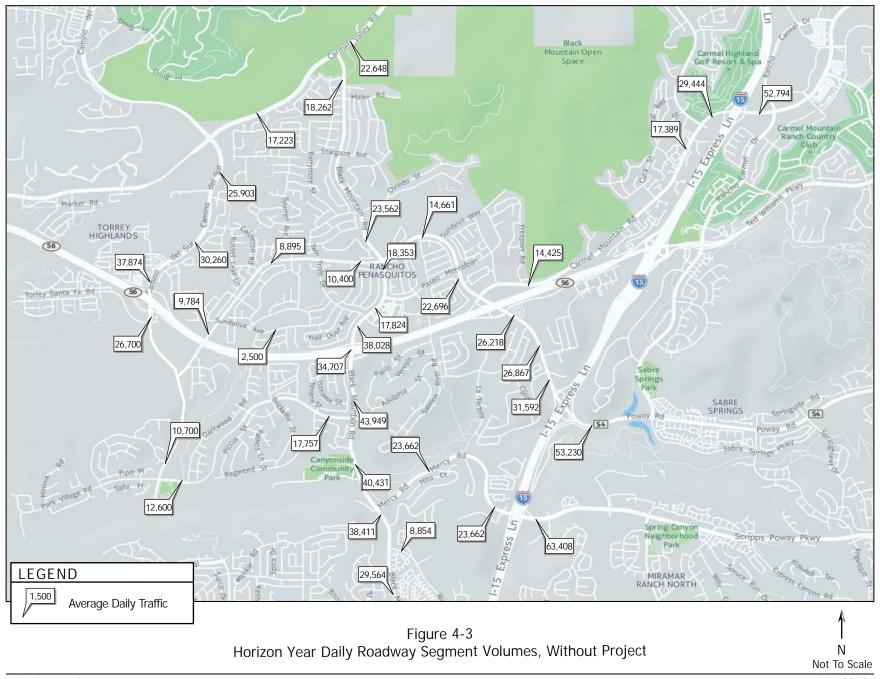
Figure 4-2 cont.

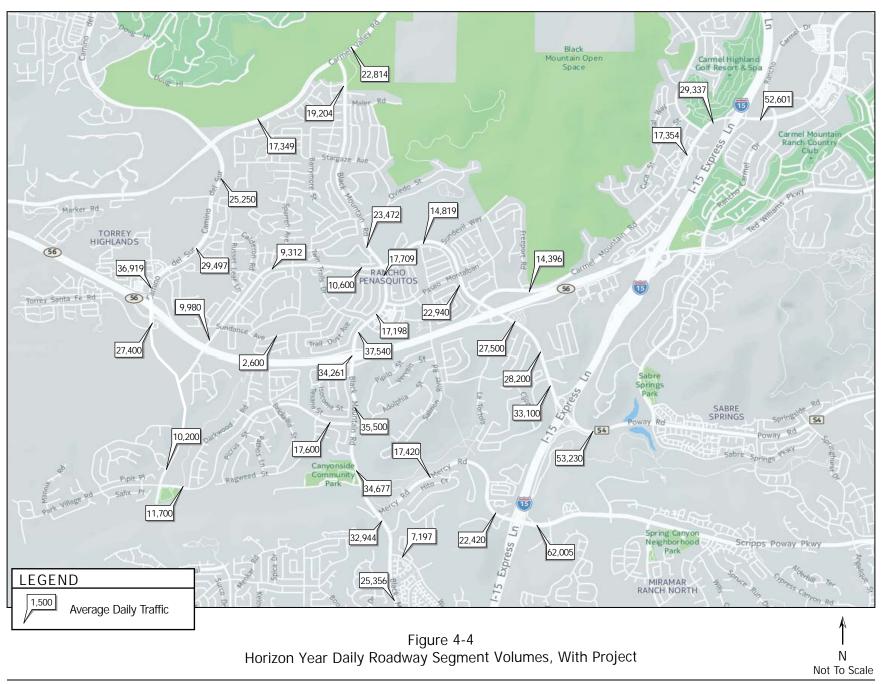
Horizon Year Circulation Network

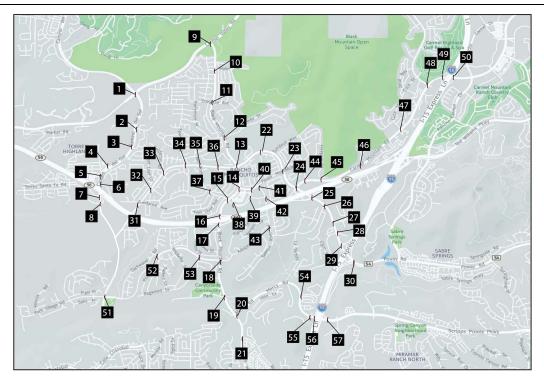
LEGEND

 ∞

Assumed Improvements Over Existing Traffic Signal / Stop Sign Geometric Configuration







1 Carmel Valley Camino Del S	Rd & 2 Camino Watson	Del Sur Ranch Rd	r	el Sur & Wolverine	4 Camino D Torrey Me	el Sur & eadows Dr	5 Camino D Highlands	el Sur & S Village Place	6 Camino D SR-56 WE	el Sur & 3 Ramps
7.272 681 257 7.77	_294 _841 _609	≥26 ≥27	——————————————————————————————————————	17 ←2 ≥86	692	18 ←1190 ∠35			₹_579 ←1087	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
182_7 291→ 9 133 ¥ F	1 1 1 1 1 1 1 1 1	102 <u>4</u> 989 8 2	14_₹ 0→ 53 ¾	300 1075→ 18~	65_л 1310→ 68 ¬	29 2	117= ⁷ 258	276. 7 1396.→		730→ 219⊃∡
7 Camino Del S SR-56 EB Rar	Sur & 8 Camino mps Torrey	Del Sur & Santa Fe Rd	9 Black Mou Carmel Va	untain Rd & alley Rd	10 Black Mor Maler Rd	untain Rd &	11 Black Mou Stargaze	untain Rd & Ave I	12 Black Mou Oviedo St	
720 ←719	7, 675 ←468	20 € 79 € 13 € 20		—916 ⊭ 315	←5 ←423 ←12	€40 ←1 ∠21	7 16 7 436	√32	€7 €692 €13	€22 ←4 €82
250_л 0→ 382 \	298_ 6.5 75	138 √ 567 → 21 ✓	3∳ 345→ 126¬¾	347 ~ 386	39_∄ 1→ 6¬¾	489 127 127	81_₹ 1→ 109¬₃	31 527 17 ≥	33_₹ 12→ 102	42.7 537.→ 46.≥
13 Black Mounta Carmel Moun	in Rd & 14 Black N tain Rd Paseo	lountain Rd & Jontalban	15 Black Mou Twin Trail	untain Rd & s Dr I	16 Black Mou SR-56 WB	ntain Rd & Ramps	17 Black Mou SR-56 EB	ntain Rd & Ramps I	18 Black Mou Park Villag	ıntain Rd & ge - Adolphia
69 4-820 497	_417 =265 144	209 97	729 ←102 54	₹_33	7.924 ←1122	328 ←29 2556	←1313		₹248 ₹1771 ₹130	101 ←34 ∠145
171_₹ 387→ 317 \	\$\$. \$\$\$.	549→ 84~\	329_7 520→ 97 ¬₄	358 124 16 \		740_ 7 757—→	217_7 0→ 449 ¬₃	1358→ 415¬	640_₹ 65→ 288	80 854 50 50
19 Black Mounta Canyonside P	nin Rd & 20 Black Mercy	lountain Rd & Rd	21 Black Mou Westview	untain Rd & Parkway I	22 Carmel M Sundevil	ountain Rd & Way	23 Carmel M Paseo Mo	ountain Rd & ntalban 	24 Carmel Mod SR-56 WB	untain Rd & Ramps
₹.33 ←2573	- 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12	319 ← 0 ← 460	←2238 € 425	253 245	2005	159 ←732 ∠13	- 6894 - 50	12.44 ←55 22.85	7 332 ←332 € 329	1204 ←519 2409
6=\frac{7}{7} \alpha		23 7 701 → 374 ~		33 12 17 17	229_₹ 846→ 20 ´	38 √25 √5 √5	54_ π 56→ 354 ¬	157_3 844_→ 23_\	393_л 810→ 70 ´	262 / 113 / 49 /

LEGEND

10 **J** AM Peak Hour Traffic

Figure 4-5
Horizon Year AM Peak Hour Intersection Volumes, Without Project

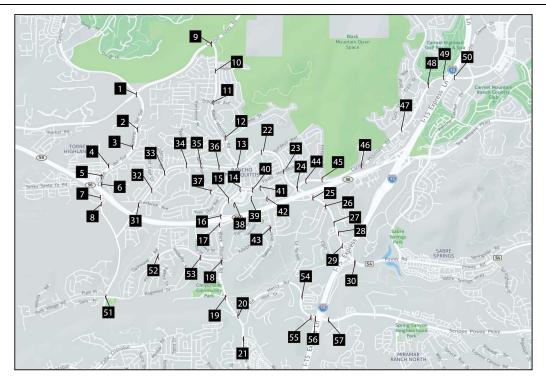
25 Rancho Pe Blvd & SR-	nasquitos 56 EB Ramps	26 Rancho Pe Blvd & Call	nasquitos e de las Rosas	Rancho P Blvd & Via	enasquitos a Del Sud	28 Rancho P Blvd & Pa	enasquitos aseo Montril	29 Rancho P Blvd & I-	enasquitos 15 SB Ramps	30 Rancho P Blvd & I-1	enasquitos 15 NB Ramps
₹—120 ₹—48 ₹—71	13 ←890 250	£33 ←1147		←1221 ✓ 48	∑=56 ∑=47	744 1036 46	€_20	+580	≥87 ≥269		1 511 ←2247
47_ <i>π</i> 817→ 328 ´	125 7 23 7 420 7	141=\frac{7}{120}	43.7 818→		134 7834 20~	77_ <i>л</i> 10→ 201 ´	65 7 546 7 13 3		848→ 1733→	916→ 120 ´	477
31 Carmel M West Sun	ountain Rd & dance Ave	32 Carmel M Sedorus S	ountain Rd & St	33 Carmel M Entreken	ountain Rd & Way	34 Sparren A Mountain	Ave & Carmel Rd	35 Twin Trail Carmel M	s Dr & ountain Rd	36 East Sund Carmel M	dance Ave & ountain Rd
77 622 623	1 37	7 ←73 ←73	<u>1</u> 20 <u>1</u> 20 ∠ 0	7.440 ←275 €	111 ←26 ∠2	736 511	€ 95	446 7 446	€20 €520 £88		← 593 ← 19
8_7 18→ 1 \	116→36~3	49_7 2→ 1 \	3.7 146→ 0 ✓	396_л 13→ 38 ´	25 <u>7</u> 0 <u>7</u>	16_∄ 734→ 12 ¾	12 Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	14_∄ 1054→ 350 ¾	247 284 1047	958→ 25 ¾	28 75
37 Sundance Trails Dr	Ave & Twin	38 Penasquito Dwy & Tw	os Post Office in Trails Dr	39 Twin Trail Fairgrove		40 Twin Trail Montalba		41 Salmon R Paseo Mo		42 Salmon R Fairgrove	iver Rd & Ln
75 62 62	€_26 ←_404 ∠_81		11 ←164 ⊬ 25	**************************************	∑-68 ∑-98		← 137 ← 101	25	14 ←182 ∠67	-16 -16	12 ←19 2
19_₹ 5555→ 8 ¬\	45_7 17_>	54_₹ 105→ 24 →	112 23 26 \triangle 26		68→ 727	92→ 35 3	335	15_₹ 152→ 26 ´	38 4 4 √ 10 10 10 10 10 10 10 10 10 10	31_л 31→ 33 ¬\	105 × 73 → 5 × 5 × 5 × 5 × 5 × 5 × 5 × 5 × 5 × 5
43 Salmon R Adolphia	iver Rd & - Limar 	44 Paseo Car Carmel M	rdiel & ountain Rd 	45 Freeport Mountain	Rd & Carmel Rd	46 Stoney Co Carmel M	reek Rd & lountain Rd l	47 Cuca - Ca Carmel M	minata & ountain Rd 	48 Penasquit Carmel M	os Dr & ountain Rd
₹34 111	€_0 €_50 £_26	7.74 ←16 ←55	10 € 37 ← 484 2 10		€_7 ←_481 ∠_4	64	~_41 ←_411 ∮0	7 50 F 370	√7 ↓0 ∠3	~	102 ←15 ∠28
12_₹ 53→ 13 ¬	13_7 7	78_л 375→ 38 ¬³	103 200 15 \	42 ⅓ 351→ 21 ¾	557	75_ <i>₁</i> 315→		46_₹ 1→ 59´	360→	575_⊅ 60→ 80¬¬	47_4 493_ \ 29_\
49 I-15 SB R Carmel M	amps & ountain Rd I	50 I-15 NB R Carmel M	amps & ountain Rd	51 Camino D Village Ro	el Sur & Park I	72 Rumex Lr Village Ro	n & Park d I	Ragweed Village Ro	St & Park I	54 Mercy Rd	& Kika Ct
7 212 ←0 € 263	←336 € 515		1 301 ←694		189 ←72 ∠27	7 28 7 240 22 22	1 97 ←0 ∠3		€8	←926 17	69 88
627→ 495 ¬3		297_⁄a 579→	175_7	162_₹ 303→ 11 ¬3	2 <u>5</u> C	112_₹ 1→ 4 \	535	1_∄ 735→ 3 ¬3	40 ° €		718→ 27 →
55 Alemania Rd	Rd & Mercy	56 I-15 SB R Mercy Rd		57 I-15 NB R Mercy Rd	amps &						
——————————————————————————————————————	72 ←895 2 0	193	← 799 ⊭ 1051		~ _784 ←1448						
47_∄ 1044→ 0´	560	700→ 387 ¾		299_ <i>л</i> 929→	165 7 1586 7						

LEGEND

10 AM Peak Hour Traffic

Figure 4-5 cont.

Horizon Year AM Peak Hour Intersection Volumes, Without Project



Carmel Va Camino D	alley Rd & el Sur	2 Camino E Watson R	Del Sur Ranch Rd	3 Camino D Falhaven/	el Sur & Wolverine	4 Camino D Torrey Me	el Sur & eadows Dr	5 Camino D Highlands	el Sur & Village Place	6 Camino D SR-56 WE	el Sur & 3 Ramps
7_102 ←697 € 203	189 ←227 ∠138	←993 1 20	∑-11 ∑-16	7.28 ←922 ←42	~6 ←0 ∠13	7 48 49 49	1050 1050 47	7€119 ←1068		7.228 ←1034	188 € 188
353_∄ 655→ 225¬₃	169 7 760→ 351 2		\$09 \$00 \$00 \$00 \$00	33_₹ 1→ 40¬₄	152_7 1417—>	93_∄ 1652→ 97 ¾	22 → 1	163= 7 211	308 7 1746→		1221→ 297→
7 Camino D SR-56 EB	el Sur & Ramps	8 Camino D Torrey Sa	Del Sur & Inta Fe Rd	9 Black Mou Carmel Va	untain Rd & alley Rd	10 Black Mou Maler Rd	untain Rd &	11 Black Moi Stargaze	untain Rd & Ave	12 Black Mor Oviedo St	untain Rd &
7.756 ←818		739 163	134 ←17 ⊬33		← 355 ← 355		18 ←0 26		© 21	7.37 ←714 €32	16 ←8 ⊬77
844_⊅ 0→ 283 ¬₄	674 ~ 591~	495_₹ 35→ 124´	59 636→ 31	3 § 1028→ 126¬₄	406 182	24_₹ 1→ 5→	317 317	39_л 4→ 81 [¬] ¾	06 10 10 10 10 10 10 10 10 10 10	17_∄ 6→ 52¬¾	105 7 840 → 160 →
13 Black Mou		14 Black Mou		45 6		1/ 51 1 14		17 Alaak Mau	atala Dal 0	18 Black Mou	
Carmel M	untain Rd & ountain Rd I	Paseo Mo	untain Rd & ontalban I	15 Black Mou Twin Trail	untain Rd & s Dr I	16 Black Mou SR-56 WB	ntain Rd & Ramps I	17 Black Mou SR-56 EB	Ramps Ramps		untain Rd & ge - Adolphia I
Carmel W	untain Rd & ountain Rd Calculation Rd Calculation Rd Calculation Rd & ountain R	Black Mol Paseo Mo	untain Rd & ontaiban	Black Mou	untain Rd & s Dr S 37 ←484 47	SR-56 WB	ntain Rd & Ramps 5555 1 721	SK-29 EB	Ramps		untain Rd & ge - Adolphia
Carmel M	1		400	Twin Trail	s Dr 		№ _555	ſ	1716 4554 √ 2554	Park Villa	ge - Adolphia
70 7 179 74 19 Black Moi	₹_331 ₹_262 ₹_104	←383 ←210	103 2103 103 103 103 103	Twin Trail 98 98 88 88 88 88 88 88 88 88 88 88 88 8	s Dr	 √327 ←939	ountain Rd &	357 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0716 455 455 √ 455 √ 465 √	Park Villar 25 → 25 → 343 ↑ 9 → 125 ↑	ge - Adolphia
70 7 179 74 19 Black Moi	1331	88 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	103 2103 103 103 103 103	1 Slack Mol	s Dr	22 ∕Carmel M	ountain Rd &	357_7 0 → 540 ¬2	0716 455 455 √ 455 √ 465 √	Park Villar	ge - Adolphia

LEGEND

10 J PM Peak Hour Traffic

Figure 4-6
Horizon Year PM Peak Hour Intersection Volumes, Without Project

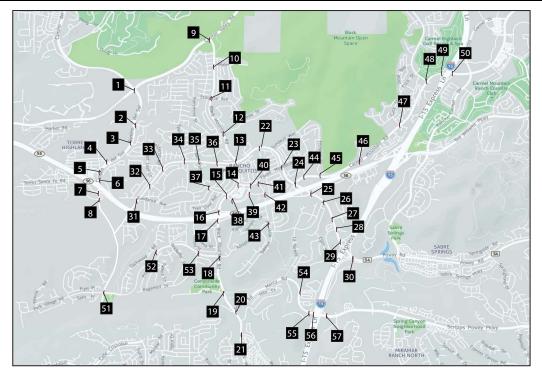
25 Rancho Pe Blvd & SR-	nasquitos 56 EB Ramps	26 Rancho Per Blvd & Call	nasquitos le de las Rosas	Rancho P Blvd & Via	enasquitos a Del Sud	28 Rancho P Blvd & Pa	Penasquitos aseo Montril	29 Rancho P Blvd & I-	enasquitos 15 SB Ramps	30 Rancho P Blvd & I-	enasquitos 15 NB Ramps
7 23 7 23 7 38	55 ←1172 ∠23	₹148 ←1147		←1212 1248	27 249	€65 €65	14 ←8 ∠53	699	∑-328		1 507 ←1627
86_л 677→ 152 ¬	486 7 63 → 765 - 2	69=7 95	118 7 1148 →		1215	90_7 9→ 100 ´	181 √ 1020 → 31 ~		1351 1001	1045→ 153 ¾	976~
31 Carmel M West Sun	ountain Rd & dance Ave	32 Carmel M Sedorus S	ountain Rd & St 	33 Carmel M Entreken	ountain Rd & Way	34 Sparren A Mountain	Ave & Carmel Rd	Twin Trail Carmel M	s Dr & lountain Rd	36 East Sund Carmel M	dance Ave & ountain Rd
747 752 752	133 ←20 240	7 34 191 191	<u></u> 111	7168	<u></u> 111	2 1 163 163	€216 €391 €58	2554	38 ←284 ⊬ 22		←455 61
6_₹ 11⇒ 0¬³	0 57 <u>→</u> 34~>	25_7 2→ 4→	508 108 108 108 108 108 108 108 108 108 1	145_ <i>1</i> 5→ 6 ¬	<u>}</u>	2_1 267→ 0 ¬4	25 72 25 72	1_ <i>1</i> 236→ 246 →	305 4 49 4 20 1	294 	₹ ₀ 4
37 Sundance Trails Dr	Ave & Twin	38 Penasquito Dwy & Tw	os Post Office in Trails Dr	39 Twin Trail Fairgrove	s Dr & Ln	40 Twin Trail Montalba		41 Salmon R Paseo Mo	iver Rd & ntalban	42 Salmon R Fairgrove	iver Rd & Ln
7 te	107 ←581 ∠258	₹327 ₹27 16	158 ∠33 ∠34	√ 83	∑ ⁷⁰ ∑118		←108 ⊬ 205	712	€ 27	787	12 ←19 2
5_7 308→ 2 \	17.7 ✓7 ✓521	100_л 177→ 32¬¬	168 747 85~		86→ 14 <i>7</i> >	249→ 46 ¾	61	29_л 351→ 65¬₃	24 8 105	55_⊿ 35→ 115 ¾	102_7 73_7 9_
43 Salmon R Adolphia	iver Rd & - Limar 	44 Paseo Car Carmel M	rdiel & ountain Rd 	45 Freeport Mountain	Rd & Carmel Rd	46 Stoney C Carmel N	reek Rd & lountain Rd	47 Cuca - Ca Carmel M	minata & ountain Rd 	48 Penasquit Carmel M	os Dr & ountain Rd
75g	V_0	7 44 7 82	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	705	15 ←546 ∠8	78	√_13 ←550 50	7 25 7 11 11	№ 7 € 1 € 4	7552 ←723 ←723	155 ←88 ∠ 70
40_∄ 89→ 25 \	23.7 12.7 27.3	186_ <i>π</i> 839→ 74 ¬4	242_/ 31_→ 38_\	108_7 831→ 40 ¾	28000	25_∄ 809→		31_₹ 0→ 56 4	49 7 740→ 3 3 3	301_⊿ 71→ 36 ¥	163 651 64 V
49 I-15 SB R Carmel M	amps & ountain Rd	50 I-15 NB R Carmel M	Ramps & ountain Rd	51 Camino D Village Ro	el Sur & Park I	Rumex Li Village Ro	n & Park d 	53 Ragweed Village Ro	St & Park d	54 Mercy Rd	& Kika Ct
7_383 ←0 541	←1111 ∠ 1067		№ _685 ← 1675	——————————————————————————————————————	1288 ←274 257	266 1000	∑50 ←1 ∠6		€ 26 ← 725 € 104	—891 —891	∑-54 ∑-54
798→ 283 ´		258_л 1064→	1010	44_7 130→ 2 ¬4	227	59_л 2→ 0 ¬ ₄	289.7 9.0	2_7 392→ 8´	-0g		1033→
55 Alemania Rd	Rd & Mercy	56 I-15 SB R Mercy Rd	amps &	57 I-15 NB R Mercy Rd	amps &					•	
115	№_99 ←1188 ∠0		←994 ⊬ 1323		№ _916 ←1893						
41_7 913→ 0 ¬3	512	876→ 236 ¾		347 <i>_л</i> 1327→	447.74 5→ 1209~						

LEGEND

10 J PM Peak Hour Traffic

Figure 4-6 cont.

Horizon Year PM Peak Hour Intersection Volumes, Without Project



1 Carmel Va Camino D	alley Rd & Del Sur	2 Camino D Watson R	el Sur anch Rd	3 Camino D Falhaven/	el Sur & Wolverine	4 Camino D Torrey Me	el Sur & eadows Dr	5 Camino D Highlands	el Sur & Village Place	6 Camino D SR-56 WE	el Sur & 3 Ramps
7 265 ← 664 € 251	296 ←847 614	←1243 €27	∑=26 ≥=27	721 ←1026 √48	17	£83	18 ←1158 ∠35	17 ← 1260		7 564 ←1060	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
184_∄ 293→ 134´	135 698 108		1024 961→ 8 ×	14_₹ 0→ 53´	300 1041 18	65_∄ 1274→ 68 ¾	29.7	117= ⁷ 258	276. 7 1355.→		769→ 216¬
7 Camino D SR-56 EB	el Sur & Ramps	8 Camino D Torrey Sa	el Sur & nta Fe Rd	9 Black Mou Carmel Va	untain Rd & alley Rd	10 Black Mor Maler Rd	untain Rd &	11 Black Mou Stargaze	untain Rd & Ave	12 Black Mou Oviedo St	untain Rd &
K_699 ←748		7 675 ← 497 108	13 ∠20		← 923 ∠ 318		€40 €1 €21	~16 ←434 √7	₹_32	7 ←689 13	© 22 ← 4 ½ 82
250_7 0→ 382¬₄	735→ 238¬	298_л 15→ 75¬ч	138 7 596→ 21 2	3 § 347→ 127¬₄	363	39_₹ 1→ 6¬\	4 716 7 12 12 12 12 12 12 12 12 12 12 12 12 12	81_∄ 1→ 109 ¬	31_7 525_ 7	33_₹ 12→ 102 ¥	42 535 46 √
13 Black Mou Carmel M	untain Rd & ountain Rd I	14 Black Mor Paseo Mo	untain Rd & ntalban I	15 Black Mou Twin Trail	untain Rd & s Dr I	16 Black Mou SR-56 WB	ntain Rd & Ramps	17 Black Mou SR-56 EB I	ntain Rd & Ramps	18 Black Mou Park Villag	ıntain Rd & ge - Adolphia
7_69 ←815 € 497	€_417 ←_265 ∠_144	←887 ←308	217 2101	7.760 4.760 5.66	₹_34 ←_859 ∠_45		105 ←27 27 2517	—————————————————————————————————————		₹254 ←1428 130	101 ←34 ∠145
174_₹ 387→ 323 ´	241 636 38		530→ 88 >	343_₹ 513→ 101¬₃	373_7 129→ 17		731_ 7	193_₹ 0→ 399¯¾	1189→ 364~	656_∄ 67→ 295 →	82 733→ 50
19 Black Mou Canyonsid	untain Rd & de Park Dr I	20 Black Mor Mercy Rd	untain Rd &	21 Black Mou Westview	untain Rd & Parkway	22 Carmel M Sundevil	ountain Rd & Way I	23 Carmel M Paseo Mo	ountain Rd & ntalban	24 Carmel Mod SR-56 WB	untain Rd & Ramps
1 × 33 ← 2202			10 ± 303 2 ± 436	←1920 ✓346	∑=37 205	2005	159 ←742 13	7 8 ←904 ←50	€44 €55 85	€ 332 € 328 € 328	€215 ←548 €432
6 ≓ 7	883 → 1	0_₹ 0→ 0→	\$23 385 385 385 385 385 385 385 385 385 38		28 662 √4 √4	229_л 858→ 20 ¬	36 7 42 7 45 7	54_∄ 56→ 354 ¬	157 → 855 → 23 →	397_π 819→ 71 ´	244 105→ 45 \

LEGEND

10

AM Peak Hour Traffic

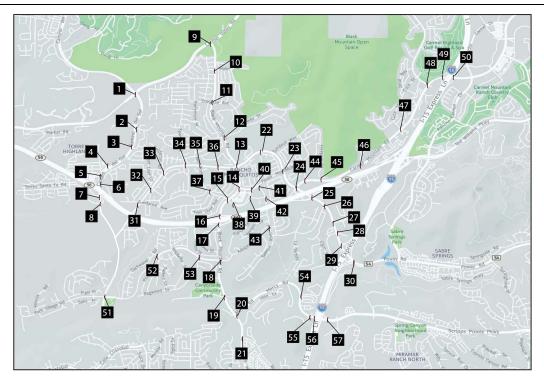
Figure 4-7
Horizon Year AM Peak Hour Intersection Volumes, With Project

						159_ <i>7</i> 5	₹ 262 606		₹_∠9£ ←£99		€686 €27
					- 1	9141→ 767_7		966_л 191→	↑ ↑ 723	848 €_72 0_4	
				ı		% sdms	F7 I-15 NB R Mercy Rd	& sqme	26 I-15 SB Ra Mercy Rd	Ва & Мегсу	55 Alemania Rd
679→ 2773		97	₹ 1 ₩ 627 8	501→ 7	₹_2!! ←! *_4	700	581 €08 €11	177	₹_862 ₹_862		₹_86 † ←9 79
88=7 69	∠ 876	7 8 √ 4 30 × 8 × 8	√ ₂ 5	E_7 0→ 26 ⊿	↑ 28 ↑ 210 2210	72 ₹ 72 ₹ 72 ₹	₹_53 ₹_18 ₹_1099	300€_7			1 215 ← 0 ← 266
& Kika Ct	54 Mercy Rd	St & Park	53 Ragweed Village Rd	& Park	22 Rumex Ln Village Rd	el Sur & Park	O onima) ra Village Rd	amps & untain Rd	50 I-15 NB R Carmel Mo	& sqms bA nistnuo	49 I-15 SB R Carmel M
47 492 29 29	₹ 373 ₹ 08	27 / 359 →	€69 ←↓ ∠ 9ħ		←71£ ⊬_37	700	42 √ 350→ 12	103 20 15	₹_87 ₹_47£ ₹_86	13 7 23 23	12.7 53 €1
~ 28 ← 18 ← 105	~_147 ←246 €83	—————————————————————————————————————	↑20 ↑369	014→ 004	∑ ₃₈	08t→ 7_1	↑↑↑ 1004	75_7 684⇒ 01_1	↑16 55	~	<u></u>
os Dr & bA nistnuc	48 Penasquito M lamiso M	& stenim bA nistnuc	e2 - Guca M ləmre2	eek Rd & ountain Rd	75 yənot2 84 M İəmisə İ	7d & Carmel Rd	45 Freeport R Mountain	diel & bA nisinuc	A4 Paseo Car Carmel Mo	iver Rd & - Limar	A nomle2 £4 sinqlobA
107 75 5	21 ↑ 18	39 4 93 2	€ 91 € 351 € 72	33	%_9£ 6+→	70→ 74→		115 24 27 27	€ 33 € 701 € 32	47	7_02 ←978 √8
~ 5 ~ 50 ~ 13	√_17 ←56 √17	69_₹ ∠81→ 91´	√23 √5 26			001=7 02	^54 39	~	<u>↑</u> 8	75_7 614→ 48_4	
ver Rd &	42 Salmon Ri Fairgrove	ver Rd & rtalban	IS nom Salmon Right IoM oəse9	s Dr & Paseo	elisiT niwT Of nedletnoM	S Dr & Ln	99 Twin Trails Fairgrove	s Post Office n Trails Dr	88 Penasquito iwT & ywD	niwT & 9vA	37 Sundance Trails Dr
28 75	7 <u>°</u> 27 ←926	244 26 104	₹_098 ←7401 ∠71	12_7 27→ 57→	₹_21 ₩_21 ¥_897	250 250 0	%_86 ←81 €86	153	₹ 67	121 39 39	8 × × × × × × × × × × × × × × × × × × ×
61_7 709→		√20 √20 √20	↑4 ↑46 24	91_7 98∠→ 96¬₄	1 236 1 26 1 511	~_5 ←59 11	↑ 440 ↑ 288	7 0 1 √ 1 0 1 0	16 16 16 17 16 17 16 17 18 18 18 18 18 18 18 18		
& evA eans bA nistnuc	36 East Sund Carmel Mo	s Dr & Suntain Rd	35 Twin Trail: Carmel M	.ve & Carmel Rd	A nerren As nistruoM	& b9 nitainuc Way	S3 Carmel M Entreken	& b9 nistnuc t	Sedorus Secorus S	& bA nistnuo 9vA 9onsb	31 Carmel M West Sun
488 779	€816 121	896→ 1737→		65_7 581	77 105 ✓ 102	828 20 20		43_ <i>A</i> 866→	150 141={	116_ <i>7</i> 21→ 390→	747 ₩_268 ₩_288
2525 ✓_512		99Z=₹	←612	7—7 7—7 111 ³	↑44 ↑1098		←1291 ←48		<u></u>	ZS_7 ←6336 †!	~_120 ←48 ~71
soniupsens 5 NB Ramps	30 Rancho Pe	soniupsene S SB Ramps	Pancho Pa Blvd & I-1	sotiupsene IntroM ose	Rancho Pa Blvd & Pag	sotiupsene Bud Sud	Rancho Pa Blvd & Vis	sasquitos e de las Rosas	26 Rancho Per Blvd & Calld	nasquitos 56 EB Ramps	25 Rancho Pe Blvd & SR-

10 → AM Peak Hour Traffic

Figure 4-7 cont.

Horizon Year AM Peak Hour Intersection Volumes, With Project



1 Carmel Va Camino D	alley Rd & Del Sur	2 Camino E Watson R	el Sur anch Rd	3 Camino D Falhaven/	el Sur & Wolverine	4 Camino D Torrey Me	el Sur & eadows Dr	5 Camino D Highlands	el Sur & Village Place	6 Camino D SR-56 WE	el Sur & 3 Ramps
7-100 +679 198	190 ←228 ∠139	←967 ✓20	∑-11 ∑-16	7 28 ←897 ←42	€6 €0 €13	24 4 4 4 6 4 6 4 6 4 6 6 4 6 6 6 6 6 6 6	₹_42 ←1022 ∠ 47	₹_119 ←1039		7.222 ←1008	1941 ←0 190
356_∄ 660→ 227 ¾	165 7 741 → 342 →		60 <u>5</u> 934→ 20 ✓	33_₹ 1→ 40´	152 7 1378 7	93_∄ 1606→ 97¬¾	25 1 1 1 1 1 1 1 1 1 1	163= ⁷ 211	308 7		1272→ 292³
7 Camino D SR-56 EB	el Sur & Ramps	8 Camino E Torrey Sa	el Sur & nta Fe Rd I	9 Black Mou Carmel Va	untain Rd & alley Rd	10 Black Mor Maler Rd	untain Rd &	11 Black Mou Stargaze	untain Rd & Ave	12 Black Mou Oviedo St	untain Rd &
		768 163	134 ←17 ∠33		← 357 ← 542	——————————————————————————————————————	18 ←0 ∠26		©21		16 ←8 277
844_7 0→ 283 ´	720→ 574→	495_ <i>₁</i> 35→ 124 \	59 31 31 31	3 § 1035→ 453¬₃	425 ~	24_π 1→ 5 ¬\	317 317	39_₹ 4→ 81´	2007 √017 √07	17_7 6→ 52 ¬₄	105_7 837_→ 160_3
13 Black Mod Carmel M	untain Rd & ountain Rd I	14 Black Mor Paseo Mo	untain Rd & ntalban I	15 Black Mou Twin Trail	untain Rd & s Dr I	16 Black Mou SR-56 WB	ntain Rd & Ramps	17 Black Mou SR-56 EB I	ntain Rd & Ramps I	18 Black Mou Park Villag	untain Rd & ge - Adolphia
7.64 + 544 - 587	104 € 331 104	€370 €218	107 107	7.365 7.365 7.81	15.39 ←467 26.49	7.323 ←927	516 ←1 670	←1194 €_399		7.540 ← 987 85	€44 €22 € 59
71_π 179→ 75¬3	115.7 751.4 55.7		854→ 136→	642_∄ 945→ 200 ¬₄	373_ 7 161→ 42⊃		421_ 3 1472→	318_₹ 0→ 481 ͡¾	1503→	351_₹ 9→ 128 \	465 ₹ 1389 ₹ 136 ₹
19 Black Mor Canyonsid	untain Rd & de Park Dr I	20 Black Mo Mercy Rd	untain Rd &	21 Black Mou Westview	untain Rd & Parkway	22 Carmel M Sundevil	lountain Rd & Way I	23 Carmel M Paseo Mo	ountain Rd & ntalban	Carmel Mou SR-56 WB F	untain Rd & Ramps
 ←1163		7 0 ←769 €343	506 ←1 ∠404	←1137 ∠294	∑-308 ∑-28		€_96 ←_669 €_22	7.25 7.25 7.40	€25 €71 €59	7.297 ←283 €379	320 ←602 2 310
89= 7	.56.√ 1765.→	1_7 1→ 0 \	19—7 1311—7 488—3		25 27 →	157_₹ 437→ 10 ¾	21 ± 13 ± 13 ± 13 ± 13 ± 13 ± 13 ± 13 ±	34_⊅ 75→ 329 ¬	357 / 766→ 74 ~	259_₹ 517→ 25 ¥	228 J 191→ 115 J

10 J PM Peak Hour Traffic

Figure 4-8
Horizon Year PM Peak Hour Intersection Volumes, With Project

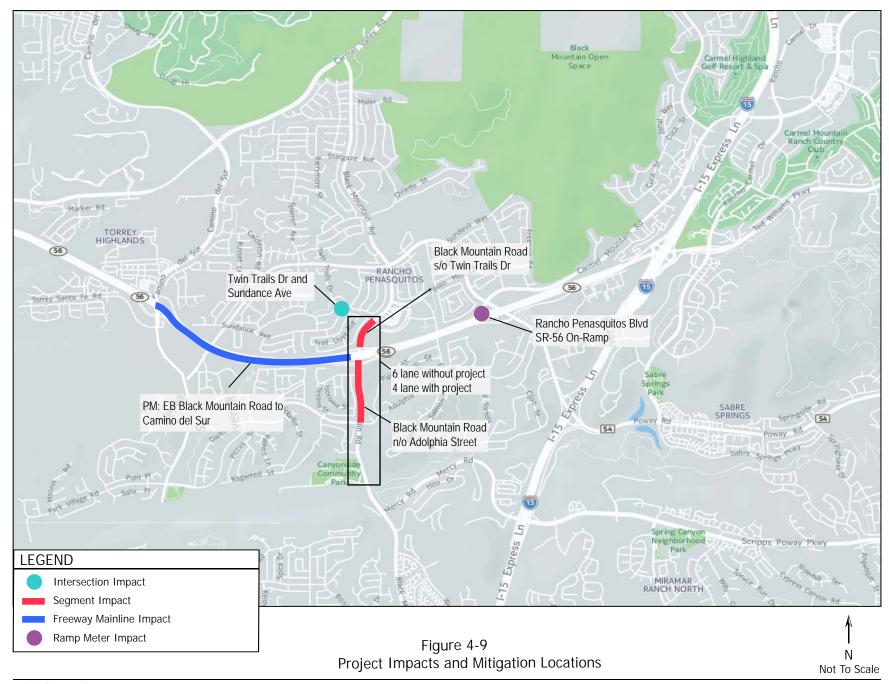
25 Rancho Pe Blvd & SR-	nasquitos 56 EB Ramps	26 Rancho Per Blvd & Call	nasquitos e de las Rosas	Rancho Po Blvd & Via	enasquitos a Del Sud	28 Rancho P Blvd & Pa	enasquitos iseo Montril	29 Rancho P Blvd & I-	enasquitos 15 SB Ramps	30 Rancho P Blvd & I-1	enasquitos 15 NB Ramps
7.52 7.52 7.38	1238 1238 24	₹148 ←1219		←1282 ✓ 48	∑-27 ∑-49	€65 65	14 ←8 €53	90∠→	155 325		№ _508 ←1631
87_л 684→ 154¬3	451 √ 59 √ 711 √	69=7 95	118_7 1218—>		1287 647 647	90_₹ 9→ 100 ¬	181 1088 31		1426→ 1003 →	1047→ 153 ¬	999—
31 Carmel M West Sun	ountain Rd & dance Ave	32 Carmel M Sedorus S	ountain Rd & St	33 Carmel M Entreken	ountain Rd & Way	34 Sparren A Mountain	Ave & Carmel Rd	35 Twin Trail Carmel M	s Dr & ountain Rd	36 East Sund Carmel M	dance Ave & ountain Rd
714 765 724	1 37 ← 20 2 44	₹34 ←200 £29	<u></u> 11	1717	<u></u> 111 <u>←</u> 1 <u>←</u> 0	7 163	10 € 216	7 52 7 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	138 ←289 22		← 464 ⊭ 61
6_₹ 11→ 0 ¬	0 €09 3778	25_∄ 2→ 4 \	0 1 1 1 1 1	145_ <i>∄</i> 5→ 6 \	103	2_∄ 280→ 0 ¬¾	25	1_∄ 241→ 246 \	305 7 49 4 20 2	300→	\$4 04
37 Sundance Trails Dr	Ave & Twin	38 Penasquito Dwy & Tw	os Post Office in Trails Dr	39 Twin Trail: Fairgrove	s Dr & Ln	40 Twin Trail Montalba	s Dr & Paseo n	41 Salmon R Paseo Mo		42 Salmon R Fairgrove	iver Rd & Ln
63 63	111 ←603 ∠268	₹335 ₹28 17	∑33 ←162 234	686 €91	72 =121		←111 ⊬ 211	19	€ 28	£51 19	13
5_1 320→ 2	18 7	102_₹ 181→ 32 ¥	172.7 76.7 88		89 	255→ 47 ¾	172	30_⊿ 360→ 67 \	25.7 107	56_⊿ 35→ 118 ¬	104 775 9 2
43 Salmon R Adolphia	iver Rd & - Limar 	44 Paseo Car Carmel M	diel & ountain Rd	45 Freeport I Mountain		46 Stoney Cr Carmel M	reek Rd & lountain Rd	47 Cuca - Ca Carmel M	minata & ountain Rd	48 Penasquit Carmel M	os Dr & ountain Rd
75g	~_0 ←78 ⊬ 11		79 ←485 ∠36		15 ←545 ∠8		13 ←549 50		√7	€ 552 € 717 € 210	155 ←88 ∠70
40_∄ 89→ 25 \	23_7 12_ 	186_⊅ 837→ 74´	242_7 31_ 7 38_\	108_₹ 829→ 40¬₃	2005	25_∄ 807→		31_⊿ 0→ 56¯ч	49 7 88 7 38 4 3 2 4 9 7 8 8 7 8 8 9 7 8 8 9 9 9 9 9 9 9 9 9	301_₹ 71→ 36¬¾	163 649 64
49 I-15 SB R Carmel M	amps & ountain Rd	50 I-15 NB R Carmel M	amps & ountain Rd	51 Camino D Village Ro	el Sur & Park I	72 Rumex Lr Village Ro	n & Park d 	Ragweed Village Ro	St & Park I	54 Mercy Rd	& Kika Ct
7 388 ←0 € 548	←1107 ⊭ 1063		№ 682 ←1669	€ 33 ← 20 € 176	₹_236 ←_274 ∠_57	—————————————————————————————————————	√_50 ←1 ∠ 6	7 6 41	€26 €718 € 104	←841 € 58	22 54
795→ 282¬₄		258_л 1061→	492_7 00 1021_7	44_₹ 130→ 2 ¬	22 11 22 22	59_∄ 2→ 0¬₄	270 2	388 → 8 →	7-06g		973→
55 Alemania Rd	Rd & Mercy	56 I-15 SB R Mercy Rd	amps &	57 I-15 NB R Mercy Rd	amps &						
7537 000 115	1126 ∠0	₹303 ₹715	—942 ⊬ 1254		1896 ←1851						
41_∄ 865→ 0 ¬₄	567	830→ 224 ´		339_ <i>л</i> 1297→	431.7 5→ 1167.3						

LEGEND

10 J PM Peak Hour Traffic

Figure 4-8 cont.

Horizon Year PM Peak Hour Intersection Volumes, With Project



CHAPTER 5 TRANSIT, PEDESTRIAN AND BICYCLE FACILITIES

As aforementioned, the Project is the reclassification of Black Mountain Road to a 4-Lane Major from Twin Trails Drive to the southern community boundary of Rancho Peñasquitos. As the Project is not a conventional site-based development, an assessment of parking and on-site circulation conditions was not included.

TRANSIT FACILITIES

Transit service within the Rancho Peñasquitos community is limited to its eastern portion. Currently, the community is served by San Diego Metropolitan Transit System's Line 20 bus route. Line 20 runs from downtown San Diego, up I-15, and exits onto Rancho Peñasquitos Boulevard, where it travels northward to Carmel Mountain Road. Line 20 then turns right onto Carmel Mountain Road and continues to the northeast, beyond the Rancho Peñasquitos community boundary. Line 20 operates 7 days a week with modified schedules on Saturday and Sunday. The shortest headway is 30 minutes for Line 20. The longest headway observed for Line 20 is 60 minutes over Saturday and Sunday.

On the eastern periphery of the Rancho Peñasquitos community, Sabre Springs/Peñasquitos Transit Station is located near the I-I5/SR-56 junction and provides express bus service along the I-I5 corridor with connections to downtown San Diego and the City of Escondido. Express bus lines that stop at this station include Line 235, Line 290, and Line 944. Lines 235 and 944 have headways of 30 minutes. Line 290 has a headway of 10 minutes. Route information on routes 20, 235, 290 and 944 can be found in Appendix M.

No transit lines traverse the subject section of Black Mountain Road. The Rancho Peñasquitos Community Plan discusses a desire for future intra-community transit services but recognizes that funding for these services may not be available. The community plan does not indicate any particular routes or destinations to be served. Therefore, implementation of the Project poses no impact to transit services.

PEDESTRIAN FACILITIES

Sidewalks are provided throughout the Rancho Peñasquitos community along nearly all local, collector and major roadways. Black Mountain Road, including the subject segment between Twin Trails Drive and the southern community boundary, provides sidewalks and pedestrian links between neighborhoods and commercial areas. Should Black Mountain Road be widened pedestrian facilities would be upgraded to current standards for non-contiguous sidewalks.

BICYCLE FACILITIES

Class I bike paths are present in multiple areas of the community and serve as both recreational facilities and routes between neighborhoods. Class II bike lanes are present along many of the Major and Primary roadways within the community, including Camino Del Sur, Black Mountain Road, Carmel Valley Road, Carmel Mountain Road, Paseo Montalban, and Mercy Road. For additional bicycle facility details, refer to Appendix L for the City of San Diego Existing Bikeways and Proposed Bikeways maps.

The Rancho Peñasquitos Community Plan recommends that all of its major streets have Class II bike lanes, with on-street parking prohibited where possible. Black Mountain Road, including the subject segment between Twin Trails Drive and the southern community boundary, is consistent in this regard, as it has Class II bike lanes in each direction and no on-street parking. Implementation of the Project would maintain the existing bike lanes along Black Mountain Road.

Black Mountain Road TIS Impacts and Mitigations

CHAPTER 6 IMPACTS AND MITIGATIONS

As discussed in Chapter 4, future significant traffic impacts due to volume changes associated with the Project, are projected for two street segments, one intersection, a freeway mainline segment and a metered freeway on-ramp.

SIGNIFICANT IMPACTS

One significant intersection impact was identified within the study area. To mitigate this significant impact during the AM peak hour at the intersection of Sundance Avenue and Twin Trails Drive, a traffic signal is recommended to replace the all-way stop control. See Table 6-I for the change in delay and LOS as a result of this mitigation strategy. See Appendices H and J for the LOS and signal warrant analysis for this intersection. This mitigation is not found in any PFFP or Regional Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to project T-11.I of the Pacific Highlands, project T-57 of the Black Mountain Ranch, and project T-2D of Rancho Penasquitos plans.

One significant freeway mainline impacts were found within the study area. The freeway mainline significant impact was found in the PM peak hour on eastbound SR-56 between Camino del Sur and Black Mountain Road. Mitigation can be achieved by constructing an additional lane between Camino del Sur and Black Mountain Road. The construction location for this mitigation improvement can be found in Appendix K. This mitigation is not found in any PFFP, Regional or Caltrans Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to the aforementioned plans.

One significant ramp metering delay impact was also found within the study area. In the AM peak hour, the Rancho Penasquitos Blvd – SR56 WB on-ramp experiences an increase in delay of 3 minutes from about 21 minutes to 24 minutes, resulting in a significant impact. Mitigation can be achieved by constructing an additional on-ramp lane at this location. See Appendix K for the construction location for this mitigation improvement. This mitigation is not found in any PFFP, Regional or Caltrans Plan. Partial mitigation may be provided by modifying the PFFPs of those communities currently providing funding for the widening of Black Mountain Road to substitute this mitigation for the widening project currently included in those PFFPs. See Appendix O for potential PFFP modifications to the aforementioned plans.

Table 6-1
Mitigation Summary

		,						
Impact	Location	Peak	2050 W/O Project (BMR as 6 Lanes)		2050 W/ (BMR as	•	2050 W/ Project (With Mitigation)	
Туре	Location	Hour	Delay or V/C	LOS	Delay or V/C	LOS	Delay or V/C	LOS
Intersection	Sundance Avenue/Twin Trails Drive (All-way stop control)	AM	38.8 s	E	46.4 s	E	7.8 s	A ¹
Freeway Mainline	Eastbound SR-56 from Camino del Sur to Black Mountain Rd	PM	1.098	Е	1.104	Е	0.879	D^2
Ramp Meter	SR-56 Westbound On-Ramp at Rancho Penasquitos Blvd	AM	21 min	N/A	24 min	N/A	No Delay	N/A³

¹ Mitigation achieved by installing traffic signal in place of All Way Stop. See Signal Warrant Analysis in Appendix J.

² Mitigation achieved by constructing freeway lane along the impacted segment. See construction location in Appendix K.

³ Mitigation achieved by constructing additional on-ramp lane. See construction location in Appendix K.

Black Mountain Road TIS Impacts and Mitigations

ADDITIONAL PROJECT EFFECTS

Significant segment impacts were identified at Black Mountain Road south of Twin Trails Drive and Black Mountain Road north of Park Village Road-Adolphia Street. If the Project was implemented, Black Mountain Road would maintain the classification of a 4-Lane Major and these segments would remain significantly impacted, operating at LOS E with volumes slightly less than its 40,000 ADT capacity. This is the nature of the project and as such, no mitigation is proposed.

Black Mountain Road TIS Recommendations

CHAPTER 7 RECOMMENDATIONS

In addition to the mitigation measures discussed in Chapter 6, there is one location that this traffic study recommends improvements that could benefit traffic flow through the community. This recommendation is not proposed as mitigation for any impacts and is simply a recommendation that could be further analyzed in the future for potential implementation.

Along Black Mountain Road, it is recommended that the segment between the SR-56 westbound and eastbound ramps be restriped. (See Table 7-I) Using the available excess width on the bridge, this segment can be restriped to provide side-by-side left-turn pockets. This would increase the storage capacity for the northbound-to-westbound left-turn and the southbound-to-eastbound left-turn movements. To accommodate the offsets from this restriping, the roadway will need to be widened for NB traffic north of the bridge to accommodate a transition taper. A conceptual drawing of this strategy can be found in Appendix K.

Table 7-1
Intersection Delay/LOS

Location	Peak Hour	2050 W/O Project (BMR as 6 Lanes)			/ Project 4 Lanes)	2050 W/Restriping		
	Tioui	Delay	LOS	Delay	LOS	Delay	LOS	
#16 Black Mountain Road / SR56 - WB Ramps	AM	47.3	D	45.0	D	45.0	D	
#10 Black Mountain Road / 3R30 - WB Ramps	PM	34.4	С	34.7	С	34.7	С	
#17 Black Mountain Road / SR56 - EB Ramps	AM	22.4	С	23.1	С	21.6	С	
#17 Black Woulltall Noau / SNSO - EB Kallips	PM	26.1	С	26.2	С	23.6	С	

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