URBAN SYSTEMS ASSOCIATES, INC.
PLANNIIW & TRAFFIC ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT

MEMO

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FROM:	***Andy Schlaefli PE TE***	***TOTAL PAGES*** ***(Including Cover):***	7 attachments
DATE:	***May 4, 2023***	***JOB NUMBER:***	
SUBJECT:	***PRJ 1059203 Merge 56 Amendment Access Analysis*** Confidential Communications		

The purpose of this memo is to demonstrate that the trips generated and proposed driveway changes under the PRJ 1059203 Merge 56 Amendment to PDP 1266871/SDP 1266883/CUP 1266881 and PDP 2570887 project are consistent with the transportation conclusions of the Merge 56 Environmental Impact Report (EIR, PTS #360009, SCH 2014071065, 12/29/2017).

Project Description (Opening Year 2028)

Land Use Square Footage Changes

The proposed project (PDP Amendment #2) will have the following land use and square footage changes compared to the Merge 56 Environmental Impact Report (Approved PDP 1266871) (please see the following page).

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Merge 56 Approved Uses/Square Footage Comparison Table

Land Use	Original Exhibit A (1266871)		SCR1 (615111)		SCR2 (672275)		SCR3 (689700)		PDP Amendment #1 (693290)		PDP Amendment #2 (1059203)	
	Units/SF	Lot #	Units/SF	Lot #	Units/SF	Lot #	Units/SF	Lot #	Units/SF	Lot #	Units/SF	Lot #
Unit 4												
Commercial/Retail (Shopkeeper)	-	-	-	-	9,183	Lots 1, 3, 4	9,183	Lots 1, 3, 4	4752[1]	Lots 1, 3, 4	5,552	Lots 1, 3, 4
Commercial/Retail	16,200	Lot 3	16,200	Lot 3	-	-	-	-	-	-	-	-
Office	55,760	Lot 1	55,760	Lot 1	-	-	-	-	-	-	-	-
Townhome Units	92	Lots 2-5	89	Lots 2-5	111	Lots 1-5	111	Lots 1-5	111	Lots 1-5	111	Lots 1-5
Unit 5 (No Changes)												
Single-Family Units	84	Lots 1-84	84	Lots 1-84	84	Lots 1-84	84	Lots 1-84	84	Lots 1-84	84	Lots 1-84
Unit 10												
Office	185,368	Lots 2-4	185,368	Lots 2-4	238,443	Lots 2-4	283,145	Lots 2-4, 6	120,000	Lot 6	-	-
Commercial/Retail	168,250	Lots 3-6	168,250	Lots 3-6	187,135	Lots 3-6	134,433	Lots 3-5	25,248	Lots 4, 5	21,448	Lots 4, 5
Quality Restaurant	-	-	-	-	-	-	-	-	-	-	15,000	Lot 4
Hotel	120 rooms	Lot 1	120 rooms	Lot 1	120 rooms	Lot 1	120 rooms	Lot 1	120 rooms	Lot 4	120 rooms	Lot 4
Child Care Center	-	-	-	-	-	-	8,000	Lot 8	8,000	Lot 8	8,000	Lot 8
Research & Development	-	-	-	-	-	-	-	-	313,000	Lots 1-3	610,000	Lots 1, 2, 6
Townhome Units	19	Lot 7	22	Lot 7	-	Lot 6	-	-	-	-	-	-
Affordable Units	47	Lot 6	47	Lot 6	47	Lot 7	47	Lot 7	47	Lot 7	47	Lot 7
Total (Residential)	242		242		242		242		242		242	
Total (Non-Residential)	479,578		479,578		479,578		479,588		525,000		791,031	
Total Non-Residential Entitled	525,000		525,000		525,000		525,000		525,000		Additional 266,031sf[2]	

[1] Shopkeeper square footage was reduced because outdoor space that does not count towards GFA for commercial development per SDMC 113.0234(b) and (c) was included in the original 9,183 sf number.

[2] The request includes an additional 77,031 sf for the hotel above the 54,000 sf originally approved for a total of 131,031 sf. This does not impact traffic generation as the number of hotel rooms remains the same. The increase corrects an error on the original Exhibit A and accounts for the proposed hotel being higher end with larger rooms. The remaining additional square footage accounts for an increase in R&D space.

Circulation and Access Changes
The proposed project will have the following circulation and access changes:

- There will be a proposed driveway along Camino Del Sur to access unit 10, Lot 1 Research and Development Building.
- Private Drive "R" has been removed and replaced with Fire Access Road.
- Private Drive "R' has been replaced with 26 foot driveway to Roundabout "F" (westerly).
- Private Drive "M" at Camino Del Sur westbound approach lane configuration has changed from one left, one shared-through-right, and one exclusive right to one shared left-through, and two exclusive right turn lanes consistent with approved Offsite Right-of-Way Traffic Signal Plans.

Trip Generation
Attachment 1 shows the trip generation analyzed in the approved Merge 56 EIR Appendix B Traffic Impact Analysis (TIA, LLG, January 2016). As shown in the table, the total approved project is expected to generate 19,468 daily trips with 1,192 AM peak hour and 2,095 PM peak hour trips.

Attachment 2 shows the trip generation for the proposed land uses changes under this amendment. The project is proposing to develop 610,000 sf of research and development, 15,000 sf quality restaurant, 27,000 sf strip commercial, 8,000 sf daycare, 120 room hotel, 84 units of single family residential, 47 units of affordable multi-family residential, 111 units of residential town homes. A mixed use reduction was applied to the project trip generation, a mixed use reduction is defined as the "practice of accommodating more than one type of function within a building, a set of buildings, or a specific area. These functions include residential, office, retail, and personal services, as well as parks and open space". The City of San Diego Municipal Code 131.0701 purpose and intent defines mixed-use zones to "provide housing and jobs near commercial centers".

As shown in the table in Attachment 2, the proposed project is expected to generate **11,070** average daily trips (ADT), **1,020** AM (**786** in / **234** out) and **1,031** PM (**315** in / **716** out) peak hour trips. The mixed use reductions used in the trip generation calculations were determined based on Tables 6-A and 6-P from the NCHRP 8-51 Internal Trip Capture Estimation Tool. The NCHRP worksheets are provided in **Attachment 2.**

A comparison of the total project trip generation as shown in Attachments 1 and 2 show that traffic is significantly reduced on an ADT basis and in the critical PM peak. There is also a decrease in total AM peak traffic and no impact results. Daily traffic is reduced from 19,468 to 11,070 AM peak traffic is slightly decreased from 1,192 to 1,020 and PM peak traffic is reduced from 2,095 to 1,031. The table below shows the changes in ADT, AM, and PM volumes.

	Volume ADT	AM Peak			PM Peak		
		Total	In	Out	Total	In	Out
Approved	19,468	1,192	806	386	2,095	929	1,166
Proposed	11,070	1,020	786	234	1,031	315	716
Net Change	-8398	-172	-20	-152	-1064	-614	-450

Notes
N.C. = No Change

As shown on the comparison table, the proposed changes for the project will result in a reduction in volumes for ADT, AM in and outs, and PM in and outs.

Based on the trip generation assessment above, the proposed amendment should not result in any additional traffic impacts or exacerbate any previously identified traffic impacts in the approved EIR. The following Access Analysis was completed to confirm that the proposed project will not result in any new impacts.

Access Analysis

To determine where intersection/roundabout operation analysis or roadway segment capacity analysis is necessary for the proposed circulation and access changes, project trip distribution from the approved TIA was revised according to the proposed land use, circulation, and access changes. The distribution was modified by 14% northwest (was 69% and is now 55%), and 9% to the south (was 6% and is now 15%), and 14% northeast (was 16% and is now 30%), due to the change in use from a regional shopping center to a scientific research use. No queuing issues are anticipated at the project parking garage access points as it is expected that during the AM peak hours, the parking garage access gates will be opened with onsite monitoring. This will allow free flow access into the garages which will avoid any queuing.

Attachments 3 shows the proposed Project Trip Distribution and the Approved Merge 56 EIR Project Trip Distribution. **Attachment 4** shows the proposed AM and PM peak hour trip assignment. The westerly and easterly onsite roundabouts were evaluated using Trafficware Synchro 11 software.

A segment ADT comparison figure is provided in **Attachment 5**. As shown in Attachment 5, project only ADTs were obtained from the approved Merge 56 EIR (see figure 8-2b) and compared to the proposed project ADT for this analysis. As shown in the figure, each studied road segment the proposed project ADT is lower than the previously approved Merge 56 EIR ADTs. An intersection AM and PM peak hour volume comparison figure is also provided in Attachment 5 to compare the approved (figure 8-2b) Merge 56 EIR and the proposed project volumes.

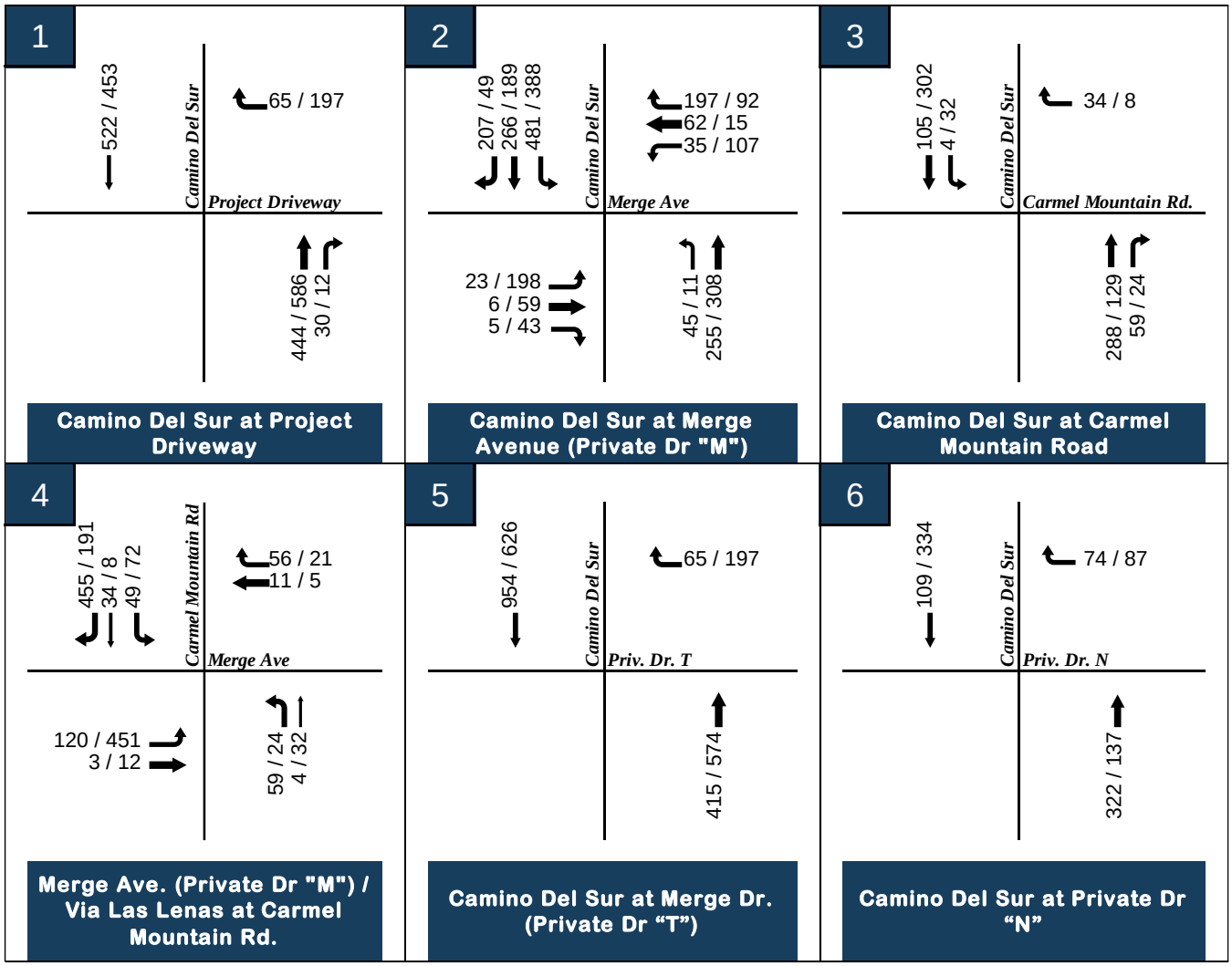
Intersections that experienced an addition of project traffic to a turning movement for the proposed amendment were analyzed for Level of Service in the Opening Year Plus Project AM and PM scenarios.

The following intersections were studied in the Opening Year plus Project conditions due to the proposed amendment traffic having a net addition of project traffic to an intersection turn movement. Additionally, the intersections of Merge Avenue at Camino Del Sur were analyzed due to the change in lane configurations for the westbound approach, and the intersection of Project Driveway at Camino Del Sur was analyzed due to it being new driveway.

- Camino Del Sur at Project Driveway
- Camino Del Sur at Merge Avenue (Private Dr "M")
- Camino Del Sur at Carmel Mountain Road
- Merge Ave. (Private Dr "M") / Via Las Lenas at Carmel Mountain Rd.
- Camino Del Sur at Merge Ave. (Private Dr. “T”)
- Camino Del Sur at Merge Ave. (Private Dr. “N”)

Year 2017 Opening Year Volumes were obtained from Figure 14-4 and Figure 8-2b from the approved Merge 56 2015 report. Project Traffic (Figure 8-2b) was subtracted from the Opening Year volumes from Figure 14-4 to establish the 2017 Opening Year base line volumes, the figures are provided in **Attachment 8**.. To determine the Opening Year 2028 volumes, an 91% total growth factor was calculated and applied to the Year 2017 volumes. The growth factor calculations were determined based on the Sandag TFIC ABM2+2021 Year 2016 and Year 2035 volumes for the segments of Camino Del Sur and Carmel Mountain Road. The growth factor calculations are provided in **Attachment 8**.

The figure below shows the Opening Year plus Project AM and PM peak hour volumes at the studied intersections.



XX / XX = AM / PM Peak hour volumes

The Opening Year plus Project intersection analysis is shown on the table below.

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Camino Del Sur at Project Driveway	OWSC	10.4	B	12.9	B
2	Camino Del Sur at Merge Avenue (Private Dr "M")	Signal	42.5	D	33.4	C
3	Camino Del Sur at Carmel Mountain Road	Signal	5.1	A	4	A
4	Merge Ave. (Private Dr "M") / Via Las Lenas at Carmel Mountain Rd.	Roundabout	6.5	A	6	A
5	Camino Del Sur at Merge Dr. (Private Dr "T")	OWSC	11.1	B	14.7	B
6	Camino Del Sur at Private Dr "N"	OWSC	9.8	B	9.1	A

Notes:

LOS = Level of Service

As shown on the table above, the studied intersections are all expected to operate at an acceptable LOS in the Opening Year 2028 Plus project conditions.

The Synchro reports for the intersection analysis are provided in **Attachment 7.**

Lastly, we converted the highest peak hour accumulation of traffic along each of the street segments and converted the peaks to average daily traffic volumes (ADTs). The ADTs were then compared to city street standard segment volumes to determine if any of the street segments exceeded capacity or operated at an unacceptable level of service. We found that all onsite streets are expected to operate at acceptable levels of service, see **Attachment 6.**

Based on this access analysis we concluded that the proposed site plan land use and circulation proposals are expected to operate at acceptable levels of service.

Please let us know if you have any questions or if you need additional information.

Attachment 1
Trip Generation Table (EIR Traffic Study)

Please see the following page

TABLE 8–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT [a]	In:Out Split [a]	Volume In	Volume Out	Volume Total	% of ADT [a]	In:Out Split [a]	Volume In	Volume Out	Volume Total
Retail – Drug Store	15,000 SF	90/KSF [b]	1,350	4%	6:4	32	22	54	10%	5:5	68	67	135
Retail – Unnamed	9,000 SF	100/KSF	900	19%	5:5	86	85	171	18%	5:5	81	81	162
Retail – Cinema	45,453 SF	80/KSF	3,636	0.3%	9:1	10	1	11	8%	7:3	204	87	291
Hotel [c]	120 rooms	8/room	960	5%	6:4	29	19	48	7%	6:4	40	27	67
Retail – Community Shopping Center													
Fitness	21,885 SF	—	—	—	—	—	—	—	—	—	—	—	—
Grocery	29,573 SF	—	—	—	—	—	—	—	—	—	—	—	—
Market Hall	10,564 SF	—	—	—	—	—	—	—	—	—	—	—	—
Other Retail	39,262 SF	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal Community Shopping Center	*101,284 SF*	*70/KSF*	*7,090*	*3%*	*6:4*	*128*	*85*	*213*	*10%*	*5:5*	*355*	*354*	*709*
Subtotal Retail + Hotel	***161,737 SF***	— —	***13,936***	—	—	***285***	***212***	***272***	—	—	***748***	***616***	***1,364***
Office	296,263 SF	[d]	3,838	15%	9:1	518	58	576	15%	1:9	58	518	576
Mixed Use Reduction (3% ADT, 5% AM, 4% PM)			(115)	—	—	(26)	(3)	(29)	—	—	(2)	(21)	(23)
Subtotal Office (with Mixed Use Reduction)			***3,722***	—	—	***492***	***55***	***547***	—	—	***56***	***497***	***553***
Residential													
Single Family	84 DU [e]	10/DU	840	8%	2:8	13	54	67	10%	7:3	59	25	84
Affordable Units	47 DU	6/DU	282	8%	2:8	5	18	23	9%	7:3	18	7	25
Townhomes	111 DU	8/DU	888	8%	2:8	14	57	71	10%	7:3	62	27	89
Subtotal Residential	*242 DU*	— —	*2,010*	—	—	*32*	*129*	161	—	—	*139*	*59*	*198*
Mixed Use Reduction (10% ADT, 8% AM, 10% PM)			(201)	—	—	(3)	(10)	(13)	—	—	(14)	(6)	(20)
Subtotal Residential (with Mixed Use Reduction)			***1,809***	—	—	***29***	***119***	***148***	—	—	***125***	***53***	***178***
Total Project			**19,468**	—	—	**806**	**386**	**1,192**	—	—	**929**	**1,166**	**2,095**

Footnotes:

a. Rates are based on City of San Diego's Trip Generation Rate Summary Table.
b. KSF – 1,000 Square Feet
c. Proposed Hotel to be 54,000 square feet
d. $Ln(T) = 0.756\ Ln(x) + 3.95$; where x is the Gross Floor Area in KSF
e. DU – Dwelling Unit

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Attachment 2
Trip Generation Table

Land Use	Size S.F.	Rate KSF	Volume ADT	AM Peak			PM Peak		
				Total	In	Out	Total	In	Out
					16% (9:1)			14% (1:9)	
Research and Development	610 KSF	8 / KSF	4,880	781	703	78	683	68	615
Mixed Use Reduction (3% In, 10% Out) for AM (6% In, 2% Out) for PM,					(21)	(8)		(4)	(12)
Subtotal				752	682	70	667	64	603
					1% (6:4)			8% (7:3)	
Quality Resturant	15 KSF	100 / KSF	1,500	15	9	6	120	84	36
Mixed Use Reduction (78% In, 50% Out) for AM (38% In, 69% Out) for PM,					(7)	(3)		(32)	(25)
Subtotal				5	2	3	63	52	11
					3% (6:4)			9% (5:5)	
Strip Commercial	21.448 KSF	40 / KSF	858	26	15	10	77	39	39
					3% (6:4)			9% (5:5)	
Shopkeeper	5.552 KSF	40 / KSF	222	7	4	3	20	10	10
Mixed Use Reduction (47% In, 54% Out) for AM (51% In, 61% Out) for PM,					(9)	(7)		(25)	(30)
Subtotal				16	10	6	43	24	19
					19% (5:5)			18% (5:5)	
Daycare	8 KSF	80 / KSF	640	122	61	61	115	58	58
Mixed Use Reduction (47% In, 54% Out) for AM (51% In, 61% Out) for PM,					(29)	(33)		(29)	(35)
Subtotal				60	32	28	51	28	22
					5% (6:4)			7% (6:4)	
Hotel	120 Rooms	8 / Room	960	48	29	19	67	40	27
Mixed Use Reduction (0% In, 84% Out) for AM (18% In, 19% Out) for PM,					(0)	(16)		(7)	(5)
Subtotal				32	29	3	55	33	22
					8% (2:8)			10% (7:3)	
Residential Single Family	84 DU	10 / DU	840	67	13	54	84	59	25
					8% (2:8)			9% (7:3)	
Residential Affordable	47 DU	6 / DU	282	23	5	18	25	18	8
					8% (2:8)			10% (7:3)	
Residential Town Home	111 DU	8 / DU	888	71	14	57	89	62	27
Mixed Use Reduction (3% In, 4% Out) for AM (18% In, 35% Out) for PM,					(1)	(5)		(25)	(21)
Subtotal				155	31	123	152	114	39
Total			11,070	1,020	786	234	1,031	315	716

Notes
KSF = Thousand Square Feet
DU = Dwelling Unit

Attachment 2
NCHRP worksheets

Please see the following page

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merge 56	**Organization:**	Urban Systems Associates Inc
Project Location:		**Performed By:**	Urban Systems Associates Inc
Scenario Description:		**Date:**	3/1/2023
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				781	703	78
Retail				32	19	13
Restaurant				15	9	6
Cinema/Entertainment				0	0	0
Residential				155	32	123
Hotel				48	29	19
All Other Land Uses[2]				122	61	61
Total				1153	853	300

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	2	0	0	0
Retail	4		2	0	1	0
Restaurant	2	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	2	0		0
Hotel	14	1	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,153	853	300
Internal Capture Percentage	7%	5%	13%
External Vehicle-Trips[3]	1,075	814	261
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	3%	10%
Retail	47%	54%
Restaurant	78%	50%
Cinema/Entertainment	N/A	N/A
Residential	3%	4%
Hotel	0%	84%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Merge 56		**Organization:**	Urban Systems Associates Inc	
Project Location:			**Performed By:**	Urban Systems Associates Inc	
Scenario Description:			**Date:**	3/1/2023	
Analysis Year:			**Checked By:**		
Analysis Period:	**PM Street Peak Hour**		**Date:**		

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				683	68	615
Retail				98	49	49
Restaurant				120	84	36
Cinema/Entertainment				0	0	0
Residential				199	139	60
Hotel				67	40	27
All Other Land Uses[2]				116	58	58
Total				1283	438	845

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	2	0	6	0
Retail	1		14	0	13	2
Restaurant	1	15		0	6	3
Cinema/Entertainment	0	0	0		0	0
Residential	2	5	12	0		2
Hotel	0	1	4	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,283	438	845
Internal Capture Percentage	14%	21%	11%
External Vehicle-Trips[3]	1,097	345	752
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	6%	2%
Retail	51%	61%
Restaurant	38%	69%
Cinema/Entertainment	N/A	N/A
Residential	18%	35%
Hotel	18%	19%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

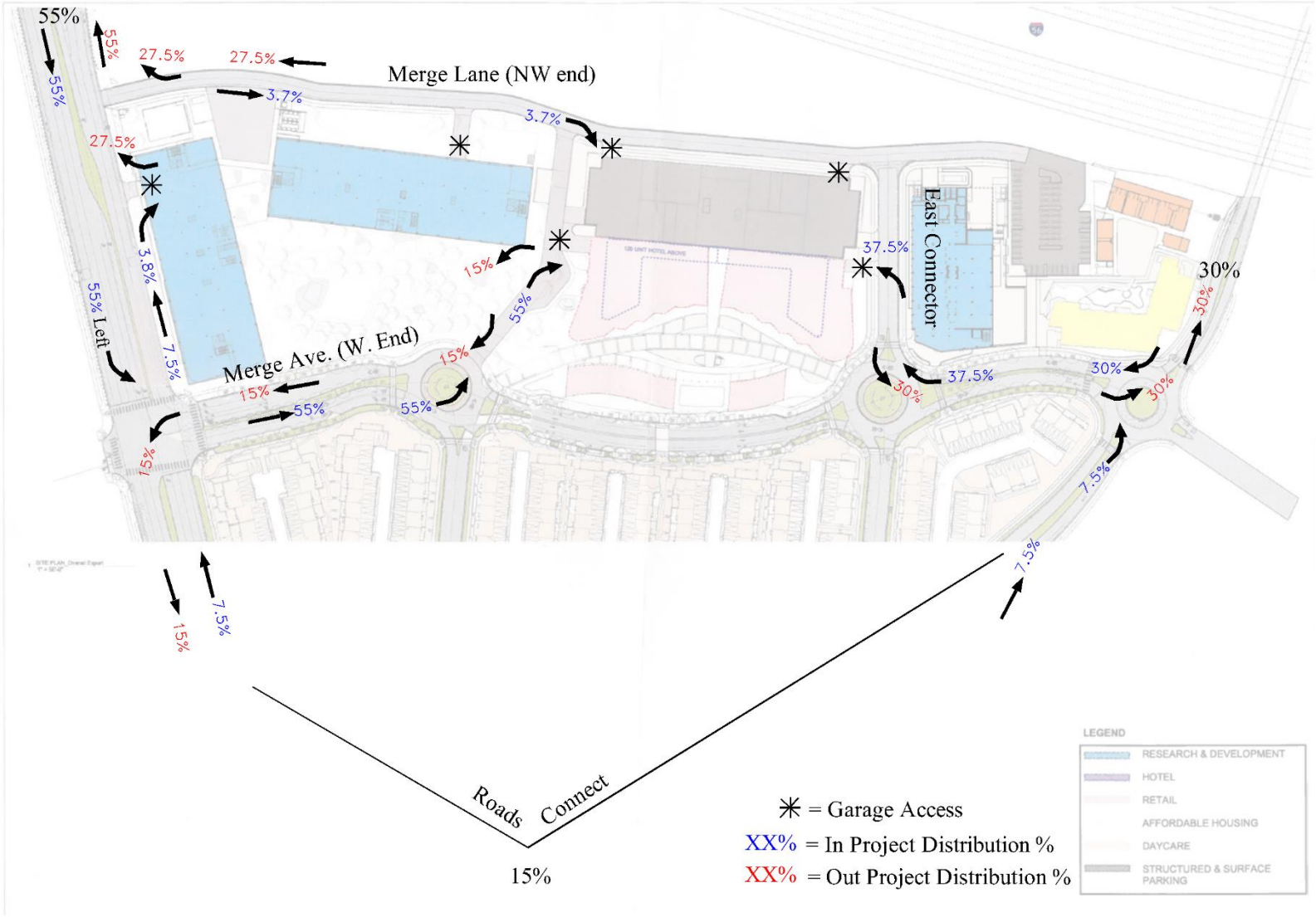
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

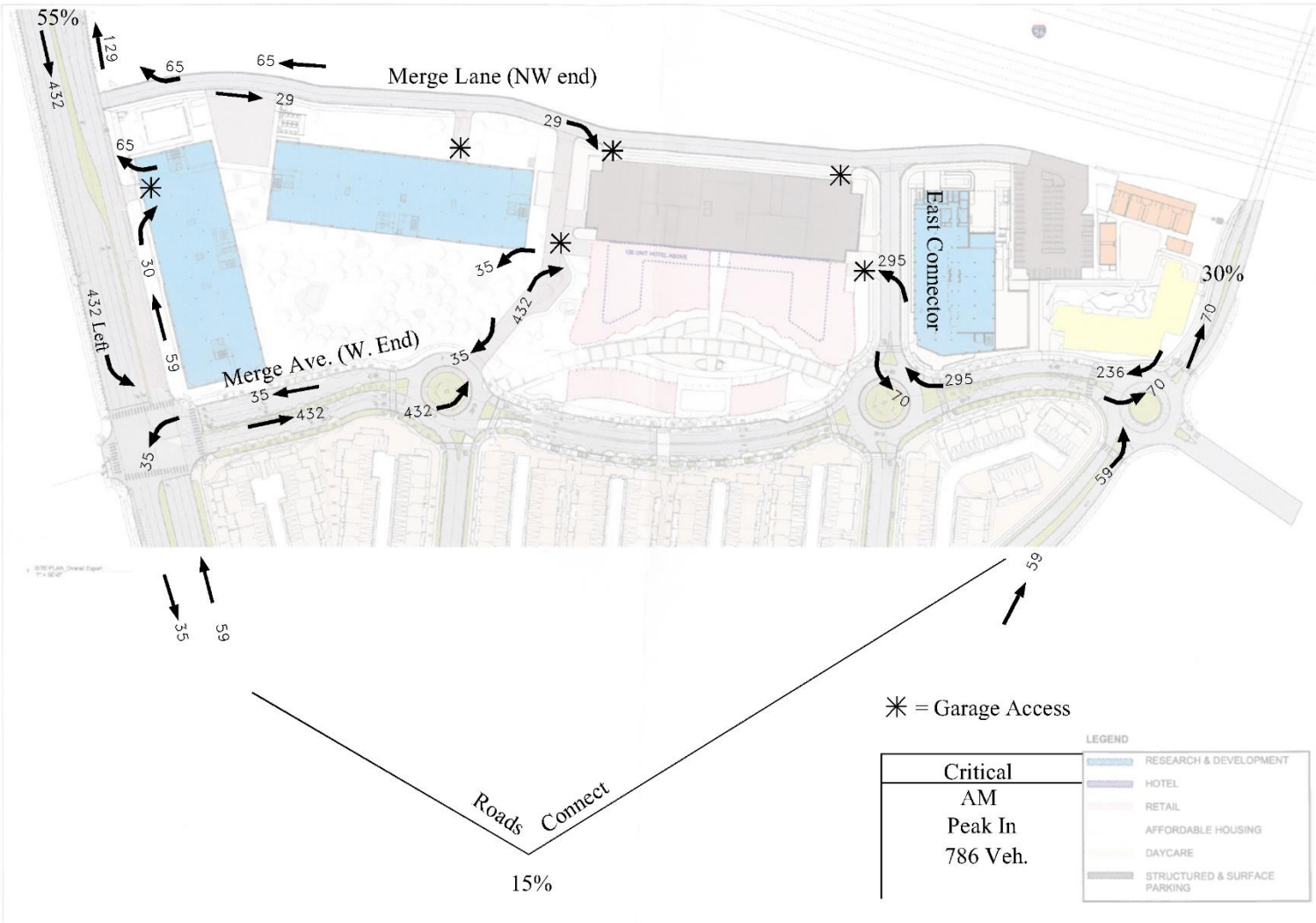
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

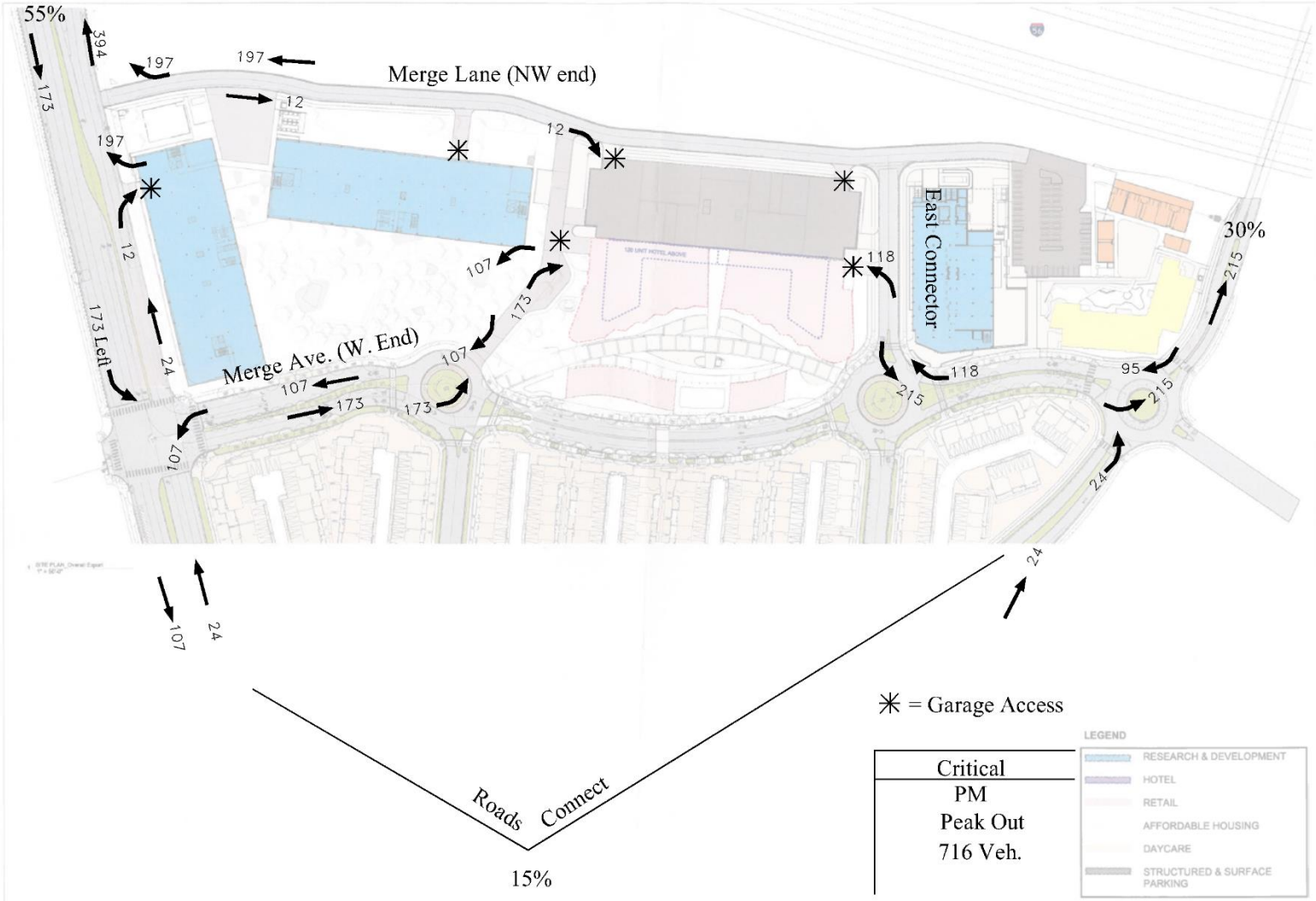
Attachment 3
Project Trip Distribution



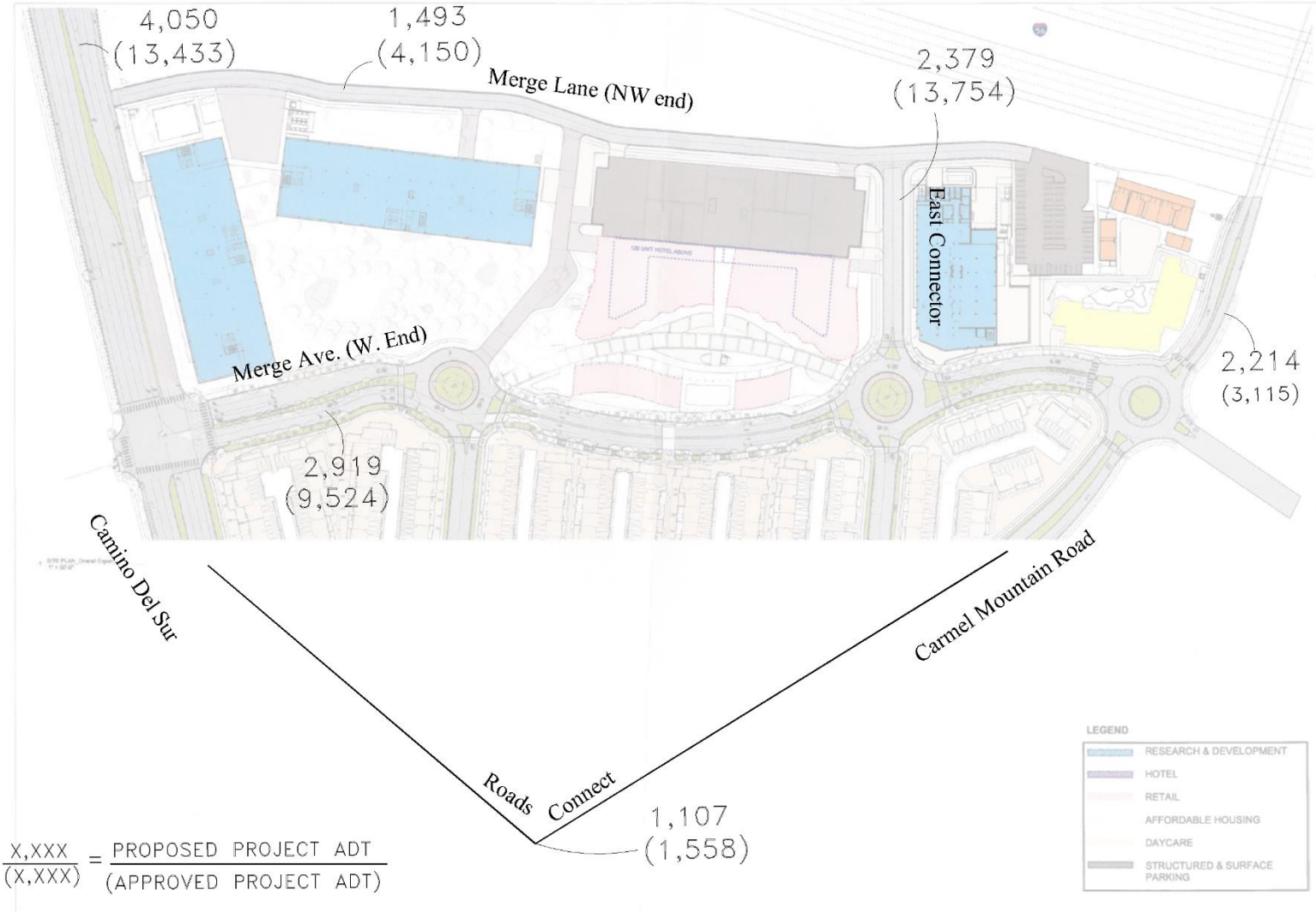
Attachment 4A
Project Trip Distribution AM Assignment



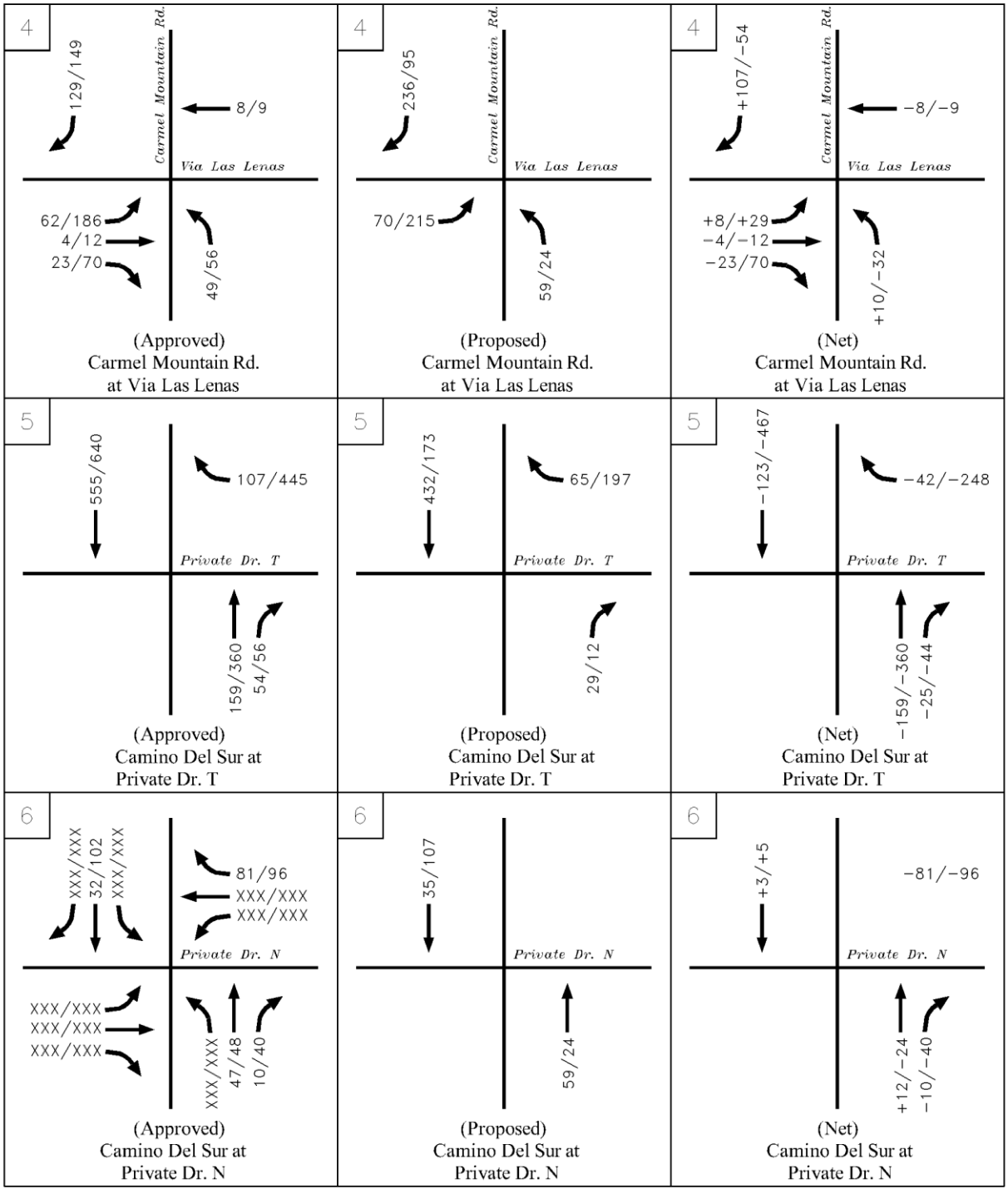
Attachment 4B
Project Trip Distribution PM Assignment



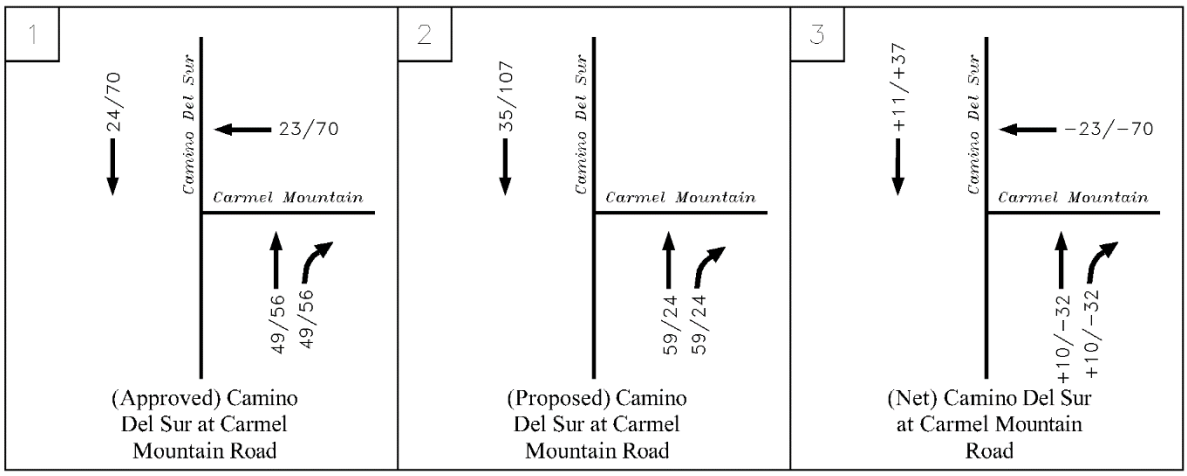
Attachment 5
Segment ADT Comparisons



Attachment 5
Intersection Volume Comparisons



Attachment 5



Attachment 6

Calculation of Segment ADT

From Attachment 3 & 4

Merge Lane (NW End)	AM V Max = 114
(Northerly E/W Street)	PM V Max = 209
Merge Avenue (W. End)	AM V Max = 467
(Southerly E/W Street)	PM V Max = 280
East Connector	AM V Max = 365
	PM V Max = 333
Camino Del Sur (north of Merge Lane)	AM V Max = 561
	PM V Max = 567
Carmel Mountain Road (north of Merge Ave.)	AM V Max = 306
	PM V Max = 310
Camino Del Sur (south of Carmel Mountain Road)	AM V Max = 153
	PM V Max = 155

Segment	AM Max	AM Peak 16%	ADT	Capacity LOS E	Adequate
Merge Lane	114	÷ 0.16	713	5,000	Yes
Merge Avenue	467	÷ 0.16	2,919	5,000	Yes
East Connector	365	÷ 0.16	2,281	5,000	Yes
Camino Del Sur (north of Merge Lane)	561	÷ 0.16	3,506	40,000	Yes
Carmel Mountain Road (north of Merge Ave.)	306	÷ 0.16	1,913	10,000	Yes
Camino Del Sur (south of Carmel Mountain Road	153	÷ 0.16	956	10,000	Yes
	PM Max	PM Peak 14%	ADT	Capacity LOS E	Adequate
Merge Lane	209	÷ 0.14	1,493	5,000	Yes
Merge Avenue	280	÷ 0.14	2,000	5,000	Yes
East Connector	333	÷ 0.14	2,379	5,000	Yes
Camino Del Sur (north of Merge Lane)	567	÷ 0.14	4,050	40,000	Yes
Carmel Mountain Road (north of Merge Ave.)	310	÷ 0.14	2,214	10,000	Yes
Camino Del Sur (south of Carmel Mountain Road	155	÷ 0.14	1,107	10,000	Yes

Attachment 7
Synchro Reports

Please see the following page

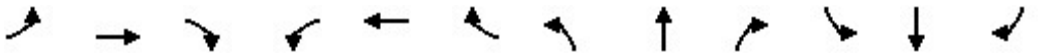
Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	65	444	30	0	522
Future Vol, veh/h	0	65	444	30	0	522
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	483	33	0	567

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	258	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	741	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	741	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	741	-
HCM Lane V/C Ratio	-	-	0.095	-
HCM Control Delay (s)	-	-	10.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	6	5	35	62	197	45	255	0	481	266	207
Future Volume (veh/h)	23	6	5	35	62	197	45	255	0	481	266	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	7	5	38	67	214	49	277	0	523	289	225
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	80	57	85	150	356	85	1187	0	468	1498	668
Arrive On Green	0.08	0.08	0.08	0.13	0.13	0.13	0.05	0.33	0.00	0.14	0.42	0.42
Sat Flow, veh/h	1781	1015	725	665	1172	2790	1781	3647	0	3456	3554	1585
Grp Volume(v), veh/h	25	0	12	105	0	214	49	277	0	523	289	225
Grp Sat Flow(s),veh/h/ln	1781	0	1740	1837	0	1395	1781	1777	0	1728	1777	1585
Q Serve(g_s), s	0.7	0.0	0.4	2.9	0.0	4.0	1.5	3.1	0.0	7.5	2.8	5.3
Cycle Q Clear(g_c), s	0.7	0.0	0.4	2.9	0.0	4.0	1.5	3.1	0.0	7.5	2.8	5.3
Prop In Lane	1.00		0.42	0.36		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	0	136	234	0	356	85	1187	0	468	1498	668
V/C Ratio(X)	0.18	0.00	0.09	0.45	0.00	0.60	0.58	0.23	0.00	1.12	0.19	0.34
Avail Cap(c_a), veh/h	579	0	565	597	0	906	203	1187	0	468	1498	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	23.7	22.4	0.0	22.8	25.8	13.3	0.0	24.0	10.1	10.8
Incr Delay (d2), s/veh	0.6	0.0	0.3	1.3	0.0	1.6	6.0	0.5	0.0	78.0	0.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	1.3	0.0	1.3	0.7	1.2	0.0	7.9	1.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	24.0	23.7	0.0	24.5	31.8	13.8	0.0	101.9	10.4	12.2
LnGrp LOS	C	A	C	C	A	C	C	B	A	F	B	B
Approach Vol, veh/h		37			319			326			1037	
Approach Delay, s/veh		24.3			24.2			16.5			56.9	
Approach LOS		C			C			B			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	23.0		8.8	7.1	27.9		11.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	18.5		18.0	6.3	19.7		18.0				
Max Q Clear Time (g_c+I1), s	9.5	5.1		2.7	3.5	7.3		6.0				
Green Ext Time (p_c), s	0.0	1.4		0.1	0.0	2.1		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	34	288	59	4	105
Future Volume (veh/h)	0	34	288	59	4	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	37	313	64	4	114
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	76	67	1776	358	10	2575
Arrive On Green	0.00	0.04	0.60	0.60	0.01	0.72
Sat Flow, veh/h	1781	1585	3039	595	1781	3647
Grp Volume(v), veh/h	0	37	187	190	4	114
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1763	1781	1777
Q Serve(g_s), s	0.0	0.9	1.8	1.9	0.1	0.4
Cycle Q Clear(g_c), s	0.0	0.9	1.8	1.9	0.1	0.4
Prop In Lane	1.00	1.00		0.34	1.00	
Lane Grp Cap(c), veh/h	76	67	1071	1063	10	2575
V/C Ratio(X)	0.00	0.55	0.17	0.18	0.41	0.04
Avail Cap(c_a), veh/h	830	738	1071	1063	231	2575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.1	3.4	3.4	19.2	1.5
Incr Delay (d2), s/veh	0.0	6.9	0.4	0.4	25.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.4	0.4	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	25.0	3.8	3.8	44.9	1.5
LnGrp LOS	A	C	A	A	D	A
Approach Vol, veh/h	37		377			118
Approach Delay, s/veh	25.0		3.8			3.0
Approach LOS	C		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	4.7	27.8			32.5	6.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5			28.0	18.0
Max Q Clear Time (g_c+I1), s	2.1	3.9			2.4	2.9
Green Ext Time (p_c), s	0.0	1.9			0.6	0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	6.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	133	73	68	585
Demand Flow Rate, veh/h	136	74	69	597
Vehicles Circulating, veh/h	92	202	190	77
Vehicles Exiting, veh/h	582	57	38	199
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.8	3.8	3.7	7.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	136	74	69	597
Cap Entry Lane, veh/h	1256	1123	1137	1276
Entry HV Adj Factor	0.978	0.983	0.984	0.980
Flow Entry, veh/h	133	73	68	585
Cap Entry, veh/h	1228	1104	1119	1251
V/C Ratio	0.108	0.066	0.061	0.468
Control Delay, s/veh	3.8	3.8	3.7	7.7
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	3

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	65	415	0	0	954
Future Vol, veh/h	0	65	415	0	0	954
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	451	0	0	1037

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	226	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	662	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	662	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	662	-
HCM Lane V/C Ratio	-	-	0.107	-
HCM Control Delay (s)	-	-	11.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	74	322	0	0	109
Future Vol, veh/h	0	74	322	0	0	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	80	350	0	0	118

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	175	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	838	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	838	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	838	-
HCM Lane V/C Ratio	-	-	0.096	-
HCM Control Delay (s)	-	-	9.8	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.3	-

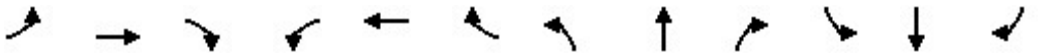
Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	197	586	12	0	453
Future Vol, veh/h	0	197	586	12	0	453
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	637	13	0	492

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	325	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	671	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	671	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	671	-
HCM Lane V/C Ratio	-	-	0.319	-
HCM Control Delay (s)	-	-	12.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	1.4	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	59	43	107	15	92	11	308	0	388	189	49
Future Volume (veh/h)	198	59	43	107	15	92	11	308	0	388	189	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	215	64	47	116	16	100	12	335	0	422	205	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	164	120	180	25	319	27	1079	0	425	1463	652
Arrive On Green	0.16	0.16	0.16	0.11	0.11	0.11	0.02	0.30	0.00	0.12	0.41	0.41
Sat Flow, veh/h	1781	1002	736	1574	217	2790	1781	3647	0	3456	3554	1585
Grp Volume(v), veh/h	215	0	111	132	0	100	12	335	0	422	205	53
Grp Sat Flow(s),veh/h/ln	1781	0	1738	1792	0	1395	1781	1777	0	1728	1777	1585
Q Serve(g_s), s	7.0	0.0	3.5	4.3	0.0	2.0	0.4	4.4	0.0	7.4	2.2	1.2
Cycle Q Clear(g_c), s	7.0	0.0	3.5	4.3	0.0	2.0	0.4	4.4	0.0	7.4	2.2	1.2
Prop In Lane	1.00		0.42	0.88		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	284	205	0	319	27	1079	0	425	1463	652
V/C Ratio(X)	0.74	0.00	0.39	0.64	0.00	0.31	0.45	0.31	0.00	0.99	0.14	0.08
Avail Cap(c_a), veh/h	526	0	513	529	0	824	146	1079	0	425	1463	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	22.8	25.8	0.0	24.8	29.8	16.3	0.0	26.7	11.2	10.9
Incr Delay (d2), s/veh	3.7	0.0	0.9	3.4	0.0	0.6	11.2	0.7	0.0	41.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.4	1.9	0.0	0.7	0.3	1.8	0.0	5.3	0.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	0.0	23.6	29.2	0.0	25.3	40.9	17.1	0.0	68.1	11.4	11.2
LnGrp LOS	C	A	C	C	A	C	D	B	A	E	B	B
Approach Vol, veh/h		326			232			347			680	
Approach Delay, s/veh		26.5			27.5			17.9			46.6	
Approach LOS		C			C			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	23.0		14.5	5.4	29.6		11.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	18.5		18.0	5.0	21.0		18.0				
Max Q Clear Time (g_c+I1), s	9.4	6.4		9.0	2.4	4.2		6.3				
Green Ext Time (p_c), s	0.0	1.6		0.8	0.0	1.3		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		33.4	
HCM 6th LOS		C	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	8	129	24	32	302
Future Volume (veh/h)	0	8	129	24	32	302
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	9	140	26	35	328
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	21	19	1762	320	73	2657
Arrive On Green	0.00	0.01	0.59	0.59	0.04	0.75
Sat Flow, veh/h	1781	1585	3097	546	1781	3647
Grp Volume(v), veh/h	0	9	82	84	35	328
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1772	1781	1777
Q Serve(g_s), s	0.0	0.2	0.7	0.8	0.7	1.0
Cycle Q Clear(g_c), s	0.0	0.2	0.7	0.8	0.7	1.0
Prop In Lane	1.00	1.00		0.31	1.00	
Lane Grp Cap(c), veh/h	21	19	1043	1040	73	2657
V/C Ratio(X)	0.00	0.48	0.08	0.08	0.48	0.12
Avail Cap(c_a), veh/h	856	762	1043	1040	252	2657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	3.4	3.4	17.6	1.3
Incr Delay (d2), s/veh	0.0	17.4	0.1	0.2	4.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.2	0.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	35.8	3.5	3.5	22.5	1.4
LnGrp LOS	A	D	A	A	C	A
Approach Vol, veh/h	9		166			363
Approach Delay, s/veh	35.8		3.5			3.4
Approach LOS	D		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.0	26.5			32.5	4.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.3	18.2			28.0	18.0
Max Q Clear Time (g_c+I1), s	2.7	2.8			3.0	2.2
Green Ext Time (p_c), s	0.0	0.7			2.2	0.0

Intersection Summary			
HCM 6th Ctrl Delay		4.0	
HCM 6th LOS		A	

Intersection	
Intersection Delay, s/veh	6.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	503	28	61	295
Demand Flow Rate, veh/h	513	28	63	301
Vehicles Circulating, veh/h	89	563	593	32
Vehicles Exiting, veh/h	244	93	9	559
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	5.0	5.8	4.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	513	28	63	301
Cap Entry Lane, veh/h	1260	777	754	1336
Entry HV Adj Factor	0.980	0.996	0.973	0.979
Flow Entry, veh/h	503	28	61	295
Cap Entry, veh/h	1235	774	733	1308
V/C Ratio	0.407	0.036	0.084	0.225
Control Delay, s/veh	6.9	5.0	5.8	4.7
LOS	A	A	A	A
95th %tile Queue, veh	2	0	0	1

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	197	574	0	0	626
Future Vol, veh/h	0	197	574	0	0	626
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	214	624	0	0	680

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	312	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	583	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	583	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	583	-
HCM Lane V/C Ratio	-	-	0.367	-
HCM Control Delay (s)	-	-	14.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	1.7	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	87	137	0	0	334
Future Vol, veh/h	0	87	137	0	0	334
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	95	149	0	0	363

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	75	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	971	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	971	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	971	-
HCM Lane V/C Ratio	-	-	0.097	-
HCM Control Delay (s)	-	-	9.1	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Attachment 8
Growth Factor Calculations
And
Figure 14-4 and Figure 8-2B from Merge 56 2015 Report
And
Opening Year Base Volume Figure

Please see the following page

Figure 14-4

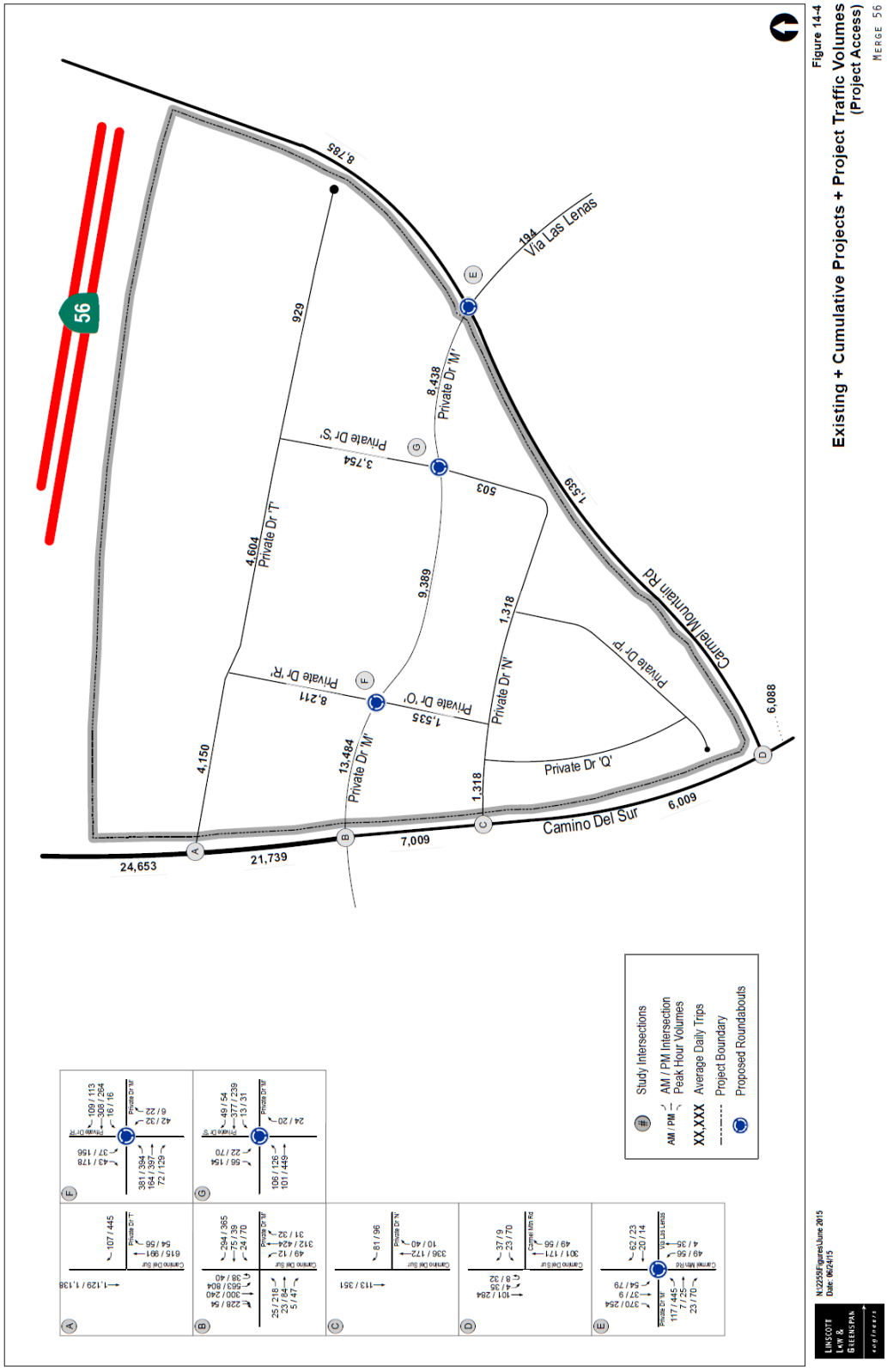


Figure 14-4
Existing + Cumulative Projects + Project Traffic Volumes
(Project Access)
MERGE 56
56
Via Las Lenas
Camino Del Sur
Carmel Mountain Rd
Private Dr 'M'
Private Dr 'T'
Private Dr 'S'
Private Dr 'R'
Private Dr 'O'
Private Dr 'N'
Private Dr 'P'
Private Dr 'Q'
8,785
929
8,438
3,754
503
1,539
4,604
9,389
1,318
8,211
1,535
4,150
13,484
1,318
6,088
24,653
21,739
7,009
6,009
Study Intersections
AM / PM Intersection Peak Hour Volumes
XX,XXX Average Daily Trips
Project Boundary
Proposed Roundabouts
N:\2255\Figures\June 2015
Date: 06/24/15
LINSCOTT LAW & GREENSPAN engineers

Figure 8-2B

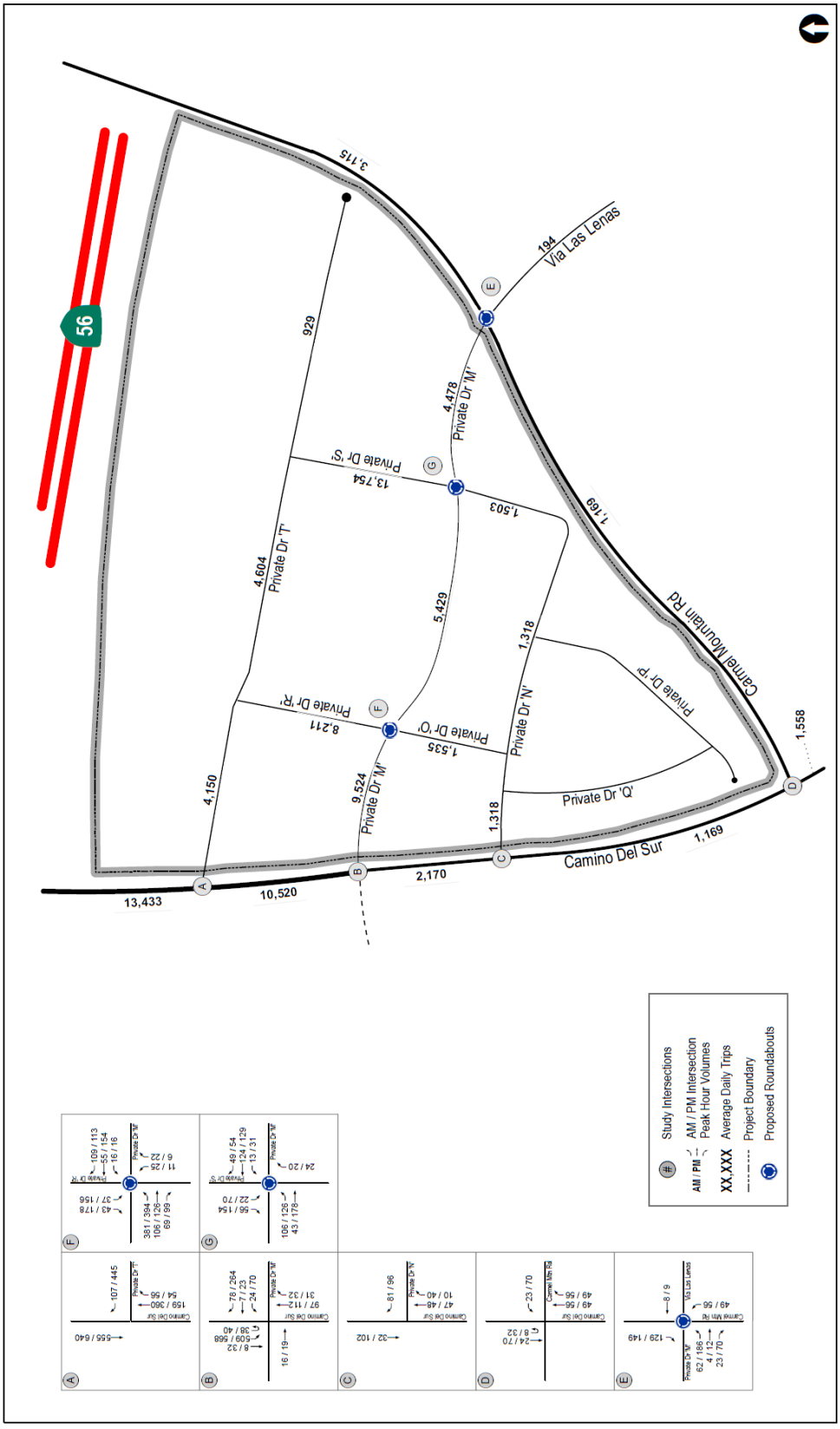
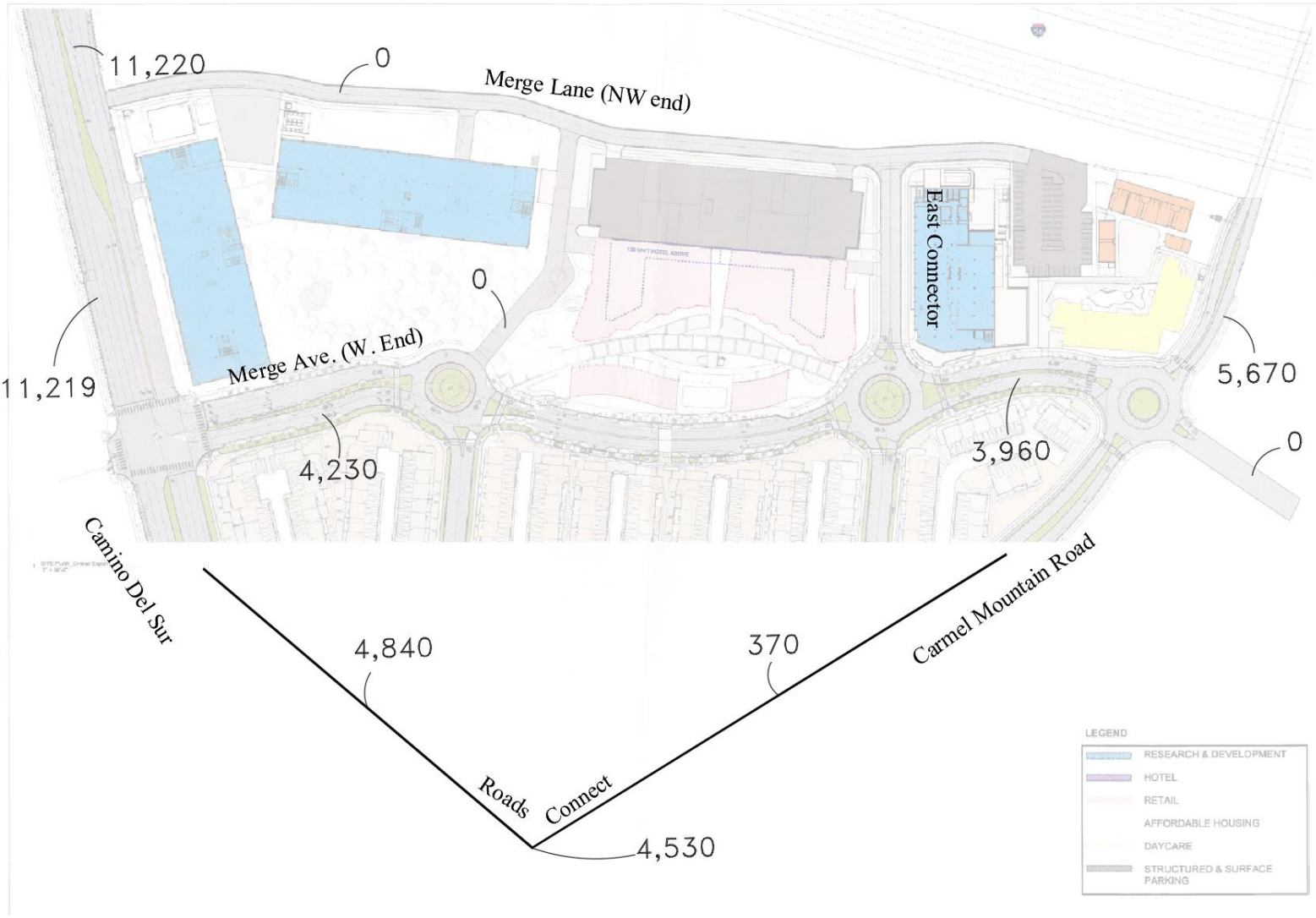
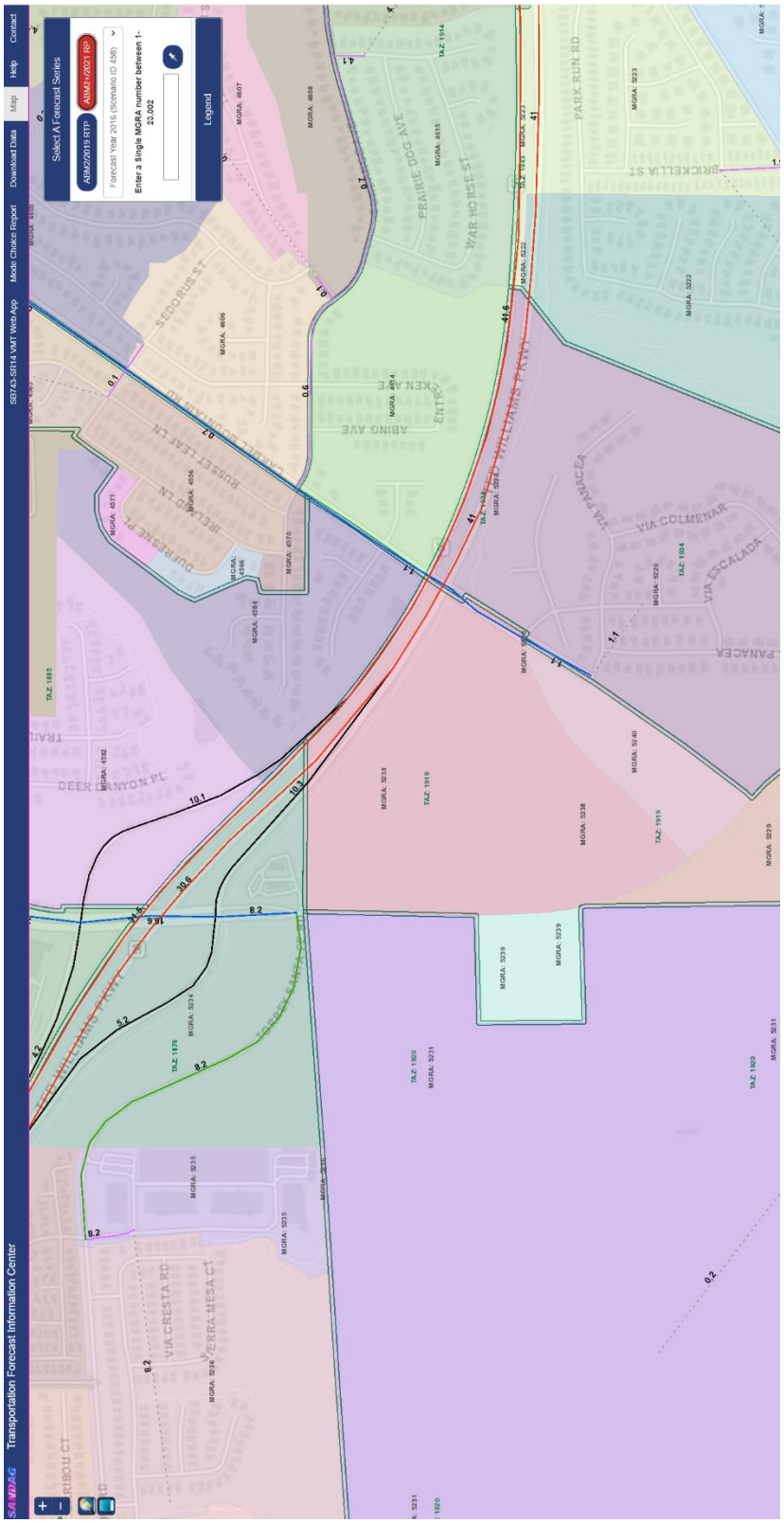


Figure 8-2b
Project Traffic Volumes
(Project Access)
MERGE 56
56
Via Las Lenas
Camino Del Sur
Camino Mountain Rd
Private Dr 'M'
Private Dr 'N'
Private Dr 'O'
Private Dr 'P'
Private Dr 'Q'
Private Dr 'R'
Private Dr 'S'
Private Dr 'T'
3,115
929
4,478
194
1,503
13,754
1,169
4,604
5,429
1,318
1,558
8,211
1,535
4,150
9,524
1,318
2,170
1,169
10,520
13,433
Study Intersections
AM / PM Intersection Peak Hour Volumes
XX,XXX Average Daily Trips
Project Boundary
Proposed Roundabouts
N:\2259\Figures\June 2015
Date: 06/24/15
LIN SCOTT LAW & GREENSPAN engineers

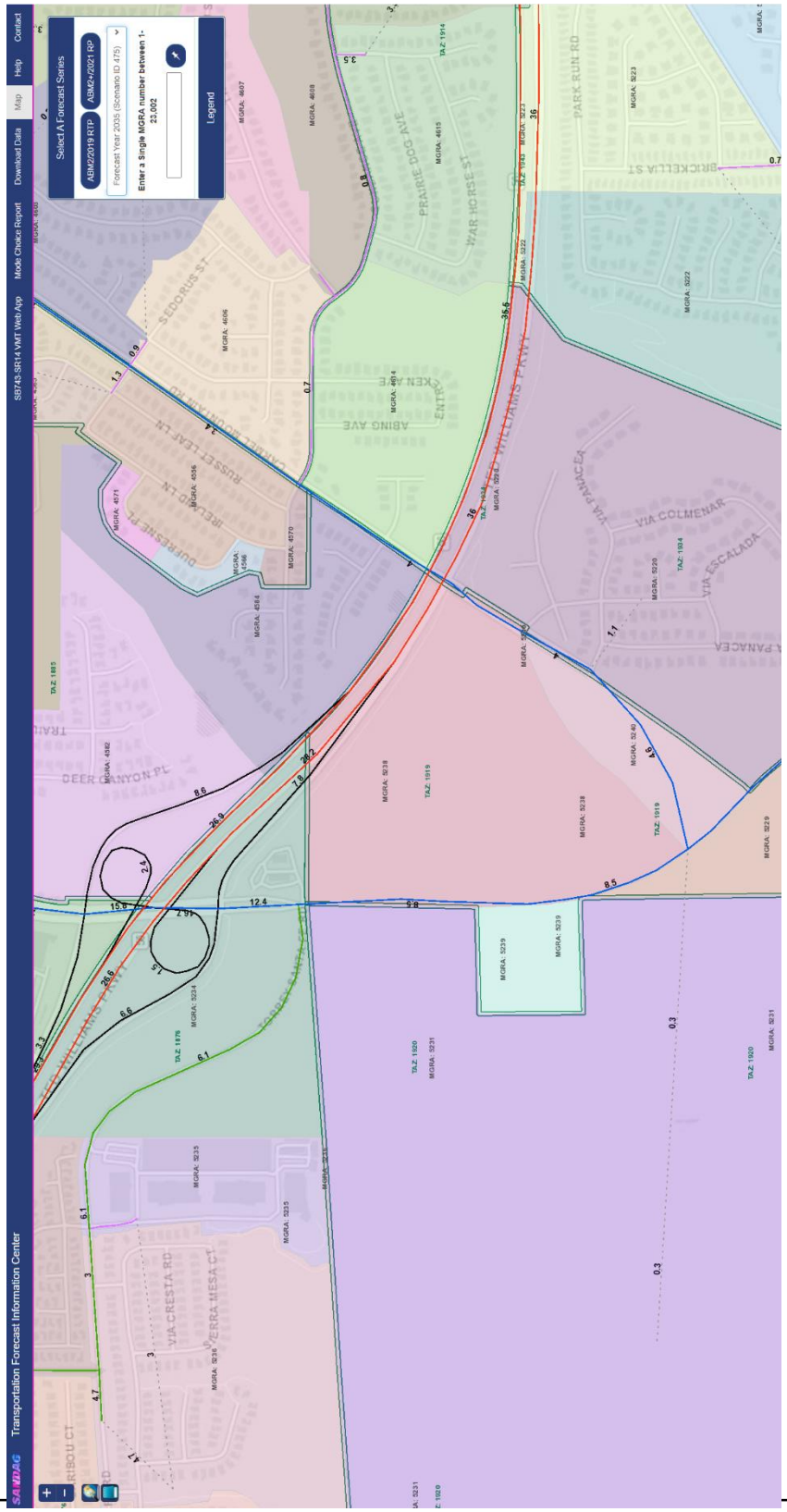
Opening Year 2017 Base Volume



Sandag TFIC ABM2+2021 Year 2016



Sandag TFIC ABM2+2021 Year 2035



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Road	Segment	abm2+2021 Year 2016	abm2+2021 Year 2035	2035-2016	% Growth	% Growth per year	Total % growth 2017 to 2028 (11 years)	
Camino Del Sur	Torrey Santa Fe Road to SR-56	8200	12400	4200	51.22%	2.70%	30%	
Carmel Mountain Road	South of SR-56	1100	4000	2900	263.64%	13.88%	153%	
							91%	avg