

MEMORANDUM

To:	Bill Hofman Hofman Planning & Engineering	Date:	October 22, 2021
From:	Walter B. Musial, PE, RSP & Román Lopez, PTP LLG, Engineers	LLG Ref:	3-20-3282
Subject:	Site Access Review – Good Shepherd Cemetery		

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Linscott, Law & Greenspan, Engineers (LLG) has prepared this site access review for the proposed Good Shepherd Cemetery project (“Project”). The primary focus of this review is to assess the need for an inbound left turn lane at the Project’s access point at Keys Place. However, this memo will also address vehicle miles traveled (VMT) in determining the significance of transportation impacts under the California Environmental Quality Act (CEQA).

Project Description

The proposed Project will create a new cemetery on 14.49 acres located at 1505 Buena Vista Drive in the North County Metro Community Planning Area, within unincorporated San Diego County, adjacent to the jurisdictions of the cities of Oceanside and Vista. *Figure 1* shows the Project Vicinity.

The Project consists of a cemetery, including conversion of an existing house to an administration building, parking, a new internal road system, an entry gate with guard building, eight-foot fencing or solid wall around the perimeter of the site, and landscaping. The project also includes vacation of Keys Place, a County-maintained public road. The site is currently developed with an existing nursery with several buildings and structures that would be removed. *Figure 2* shows the Project site plan.

Access to the site will be via Keys Place, which currently serves as access for the existing nursery. The existing house is accessed via a separate driveway south of Keys Place, which the Project will close.

Existing Roadway Conditions

The following is a brief description of the roadways within the study area. *Figure 3* depicts existing transportation conditions.

Buena Vista Drive is classified within the unincorporated County as a Residential Collector. Buena Vista Drive is a two-lane north-south roadway with narrow shoulder and a paved width of approximately 24 to 28 feet. The posted speed limit is 30 mph. There are no sidewalks or bicycle facilities, and on-street parking is prohibited.

Buena Vista Drive continues to the south within the City of Vista where it remains a two-lane roadway, with on-street parking and sidewalks provided on both sides of the roadway.

Keys Place is an unclassified County-maintained public road. Keys Place is an east-west roadway extending approximately 500 feet west from Buena Vista Drive before terminating. Keys Place meets Buena Vista Drive at a T-intersection. There is no

existing traffic control. For analysis purposes in this report, Keys Place is assumed to be stop-controlled. The paved width is approximately 24 feet. No speed limit is posted. There are no sidewalks or bicycle facilities.

Existing Traffic Volumes

Existing daily traffic counts (ADT) and AM/PM peak hour turning movement counts were collected within the study area on Wednesday, October 7, 2020. The traffic count sheets are provided in *Attachment A*.

Due to the ongoing COVID-19 pandemic, which has reduced overall travel and traffic volumes, LLG compared the current traffic count data to historical ADT counts on Buena Vista Drive. Based on this comparison, all October 2020 traffic count volumes were increased by 25% to account for the effects of the pandemic. *Figure 4* depicts existing traffic volumes, including the above-mentioned adjustment.

Project Trip Generation, Distribution, and Assignment

Existing Land Uses

Approximately 9.4 acres of the overall site are currently occupied by one single-family detached residence and a nursery comprising several other existing structures which will be removed. Keys Place is the sole access for the nursery and only land use currently served by Keys Place. Therefore, the existing trip generation of the nursery was calculated directly via traffic counts. To be conservative, for the trip generation calculation only, these were not adjusted based on the effects of COVID-19 on traffic levels.

Access to the single-family detached residence is via separate driveway just south of Keys Place. Trip generation the residence was calculated using the Institute of Transportation Engineers *Trip Generation Manual* (10th Edition).

In total, the existing uses are calculated to generate 176 ADT with 9 AM peak hour trips (4 in/ 5 out) and 23 PM peak hour trips (2 in/21 out), as shown in *Table A*.

Proposed Land Use

Trip generation for the proposed 14.49-acre Project was calculated using the Institute of Transportation Engineers *Trip Generation Manual* (10th Edition). *Table A* also shows the gross trips for the Project, which are calculated at 138 ADT with 2 AM peak hour trips (2 in/0 out) and 4 PM peak hour trips (1 in/3 out).

Net Trip Generation

Given the site is currently generating traffic, on balance the Project is calculated to reduce trips. The net new trips with the Project, as shown in *Table A*, are -38 ADT with -7 AM peak hour trips (-2 in/-5 out) and -19 PM peak hour trips (-1 in/-18 out).

As the Project is not expected to increase traffic volumes, the existing traffic volumes, as shown in *Figure 4*, are the conditions considered for assessing Project access and the need for a left-turn lane at Buena Vista Drive / Keys Place.

Attachment B contains excerpts from the ITE Trip Generation Manual for the existing and proposed Project land uses.

**TABLE A
 PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour					
		Rate ^a	Volume	% of ADT	In:Out		Volume		% of ADT	In:Out		Volume	
					Split	In	Out	Split		In	Out		
Proposed Project													
Cemetery	14.49 acres	^b	138	^c	80:20	2	0	^d	31:69	1	3		
Existing (to be replaced)													
Nursery	9.41 acres	^e	167	—	—	4	4	—	—	1	21		
Single Family Detached	1 DU	9.44 /DU	9	0.74	25:75	0	1	0.99	63:37	1	0		
<i>Subtotal Existing</i>			<i>176</i>			<i>4</i>	<i>5</i>			<i>2</i>	<i>21</i>		
Net Trips		—	(38)	—	—	(2)	(5)	—	—	(1)	(18)		

Footnotes:

- a. Rates from Institute of Transportation Engineers *Trip Generation Manual* (10th ed.), except as noted.
- b. Fitted curve equation: $T = 4.65X + 70.83$
- c. Fitted curve equation: $T = 0.18X - 0.49$
- d. Fitted curve equation: $T = 0.51X - 3.18$
- e. Trip generation from traffic counts conducted at nursery access during October 2020.

Operational Analysis

This section presents an analysis of existing study area locations. Because the Project will consolidate access points and reduce the number of trips generated, this analysis represents worst-case conditions for typical weekday operations following the development of the Project.

Analysis in this section was completed consistent with the methodology for Local Mobility Analysis (LMA) provided in the County of San Diego *Transportation Study Guidelines*. The Project does not require a full LMA and this evaluation is limited to a review of the Project access and need for a northbound left turn lane.

Intersection Analysis

Table B summarizes the AM/PM peak hour delay at Buena Vista Drive / Keys Place for both the northbound left-turn from Buena Vista Drive and the typically reported minor street turn delay from Keys Place, which is the eastbound left.

As shown in *Table B*, the northbound left operates at LOS A during both peak hours, the eastbound left operates at LOS B or better during peak hours.

Attachment C contains the Existing AM/PM peak hour intersection analysis worksheets.

**TABLE B
 EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Approach	Existing	
				Delay ^a	LOS ^b
Buena Vista Drive / Keys Place	TWSC ^c	AM	NBL	7.7	A
			EBL	10.4	B
		PM	NBL	7.5	A
			EBL	9.3	A

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.

UNSIGNALIZED	
DELAY/LOS THRESHOLDS	
Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

Roadway Segment Analysis

Table C shows the daily street segment operations on Buena Vista Drive. While only indirectly related to evaluation of the northbound left-turn, **Table C** shows the Buena Vista Drive operates within its capacity.

**TABLE C
 EXISTING STREET SEGMENT OPERATIONS**

Street Segment	Functional Classification	Capacity (LOS C) ^a	ADT ^b	LOS ^c	V/C ^d
Buena Vista Drive Keys Place to Melrose Drive	Residential Collector	4,500	4,180	C+	N/A

Footnotes:

- a. Capacities based on County of San Diego Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Levels of Service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. "C+" indicates the roadway operates within the LOS C capacity provided.
- d. Volume to Capacity not applicable to residential streets.

Volume Warrants

The County of San Diego *Transportation Study Guidelines* provides volume thresholds for the provision of exclusive turn lanes at signalized intersections. For completeness, these were reviewed with respect to the unsignalized intersection of Buena Vista Drive / Keys Place. The volume thresholds are as follows:

- If the left turn volume exceeds 100 vehicles per hour, an exclusive left turn lane is recommended.
- If the left turn volume exceeds 150 vehicles per hour and the posted speed is 45 mph or greater, a protected left turn signal phase is recommended.
- If the left turn volume exceeds 300 vehicles per hour, a second left turn lane is recommended.
- If the right turn volume exceeds 150 vehicles per hour, a dedicated right turn lane is recommended.

Based on the traffic volumes, as shown in *Figure 5*, no turn lanes are recommended per these criteria.

Summary of Operational Analysis

Based on the analysis presented in this section, Buena Vista Drive overall is shown to operate well within its capacity. The intersection of Buena Vista Drive / Keys Place operates at LOS A and the northbound left turn operates with minimal delay. Based on County guidelines, no improvements are required or recommended.

Collision History

LLG obtained the past five years of collision history in the vicinity of the Keys Place / Buena Vista Drive intersection from the Statewide Integrated Traffic Records System (SWITRS). Based on these records, one (1) collision was identified in the intersection influence area, which is approximately 250 feet in each direction from the center of the intersection.

The collision identified was a rear end collision of two northbound vehicles with the advance vehicle being stopped. **Attachment D** contains the collision diagram obtained from SWITRS.

County Public Roads Standards

As noted previously, Buena Vista Drive is classified as a Residential Collector. The County of San Diego *Public Road Standards* (March 2012) for this classification are two 12-foot lanes with a roadway surfacing width of 40 feet including two 8-foot shoulders, and an overall right-of-way width of 60 feet. Table 2B of the County *Public Road Standards* is included in **Attachment E**.

The *Public Roads Standards* do not provide guidance on left turn lanes for this classification. Based on the traffic volumes, operations, roadway standards and context presented in this memo, a left turn lane is not recommended.

Keys Place is not a Mobility Element road, and a left turn lane is not recommended based on the traffic volumes, operations, roadway standards, and roadway context presented in this memo.

As discussed in the Existing Conditions section, Buena Vista Drive is currently built with a paved width between 24 to 28 feet in the vicinity of the Project. While it is not recommended that a left turn lane be provided, it is recommended that half-width improvements be planned to accommodate the ultimate roadway surfacing and right-of-way width per County standards.

Design Considerations

It is recommended that intersection sight distance be provided per applicable County standards.

It is also recommended that a STOP or YIELD sign be installed at the Keys Place approach to Buena Vista Drive to provide traffic control at this intersection. All-way stop control is not recommended.

Per guidance provided by the California *Manual on Uniform Traffic Control Devices* (MUTCD) Section 2B.04(2), engineering judgment should be used to establish intersection control, considering factors including:

- A. Vehicular, bicycle, and pedestrian traffic volumes on all approaches;
- B. Number and angle of approaches;
- C. Approach speeds;
- D. Sight distance available on each approach; and
- E. Reported crash experience

Section 2B.04(3) states that YIELD or STOP signs should be used at an intersection if one or more of the following conditions exist:

- A. An intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law;
- B. A street entering a designated through highway or street; and/or
- C. An unsignalized intersection in a signalized area.

Buena Vista Drive is a Residential Collector roadway carrying slightly more than 4,000 ADT, while Keys Place is a lesser roadway providing access to the adjacent parcels and carrying no through traffic. The normal right-of-way rule (see MUTCD 2B.04(1)), in which two vehicles approaching an intersection from different streets at approximately the same time would require the driver of the vehicle on the left to yield the right-of-way to the vehicle on the right, would not be expected to provide reasonable compliance. Southbound drivers on Buena Vista Drive will not normally be expecting to yield to vehicles at Keys Place or other minor cross-streets.

Summary of Site Access Review

Based on the information and analysis presented in this memo, neither the Project intersection operations, including peak hour delay and volume warrants for the northbound left turn lane, nor the collision history in the intersection area justify the need for a northbound left turn lane at Keys Place / Buena Vista Drive.

Buena Vista Drive is classified as a Residential Collector. Half width improvements should be planned to accommodate the ultimate roadway surfacing and right-of-way width per County standards.

It is recommended that a STOP or YIELD sign be installed on Keys Place at the intersection with Buena Vista Drive to provide traffic control. All-way stop control is not recommended.

Vehicle Miles Traveled Analysis

Background

Effective July 1, 2020, CEQA requires that jurisdictions use VMT and not Level of Service (LOS) in determining the significance of transportation impacts. As of the date of this memo the County does not have adopted VMT thresholds.

As such, VMT will be evaluated using the methodology and thresholds from the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) prepared by the Governor's Office of Planning and Research (OPR).

Methodology

The following thresholds are applicable based on the project type and existing conditions:

Redevelopment Projects

Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less than significant transportation impact. If the project leads to a net overall increase in VMT, the established thresholds based on the proposed project land use type would apply.

Project Analysis

As shown in *Table A*, the project replaces existing land uses and would reduce the total daily trip generation by 38 ADT. However, the proposed project may still lead to a net increase in VMT if the average trip length (ATL) of the proposed use substantially exceeds that of the existing uses to be replaced.

Average trip lengths by land use from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) were used to calculate total VMT for the proposed and existing land uses.

Table D shows the existing and proposed land uses, ADT, ATL and total VMT. As shown in *Table D*, the project is estimated to result in a net decrease of 84 VMT, consistent with its net decrease in daily trip generation.

The project's transportation impact is therefore determined to be less than significant.

**TABLE D
 PROJECT TOTAL VMT**

Land Use	Size	Daily Trip Ends (ADTs) ^a	Average Trip Length (ATL)	Total VMT
		Volume		
Proposed Project				
Cemetery	14.49 acres	138	5.1 ^b	704
Existing (to be replaced)				
Nursery	9.41 acres	167	4.3 ^c	717
Single Family Detached	1 DU	9	7.9 ^d	71
<i>Subtotal Existing</i>		<i>176</i>		<i>788</i>
Net Change		(38)		(84)

Footnotes:

- a. See Table A.
- b. Source: SANDAG “Church” trip length
- c. Source: SANDAG “Commercial Shops – Garden Nursery” trip length.
- d. Source: SANDAG “Residential” trip length.

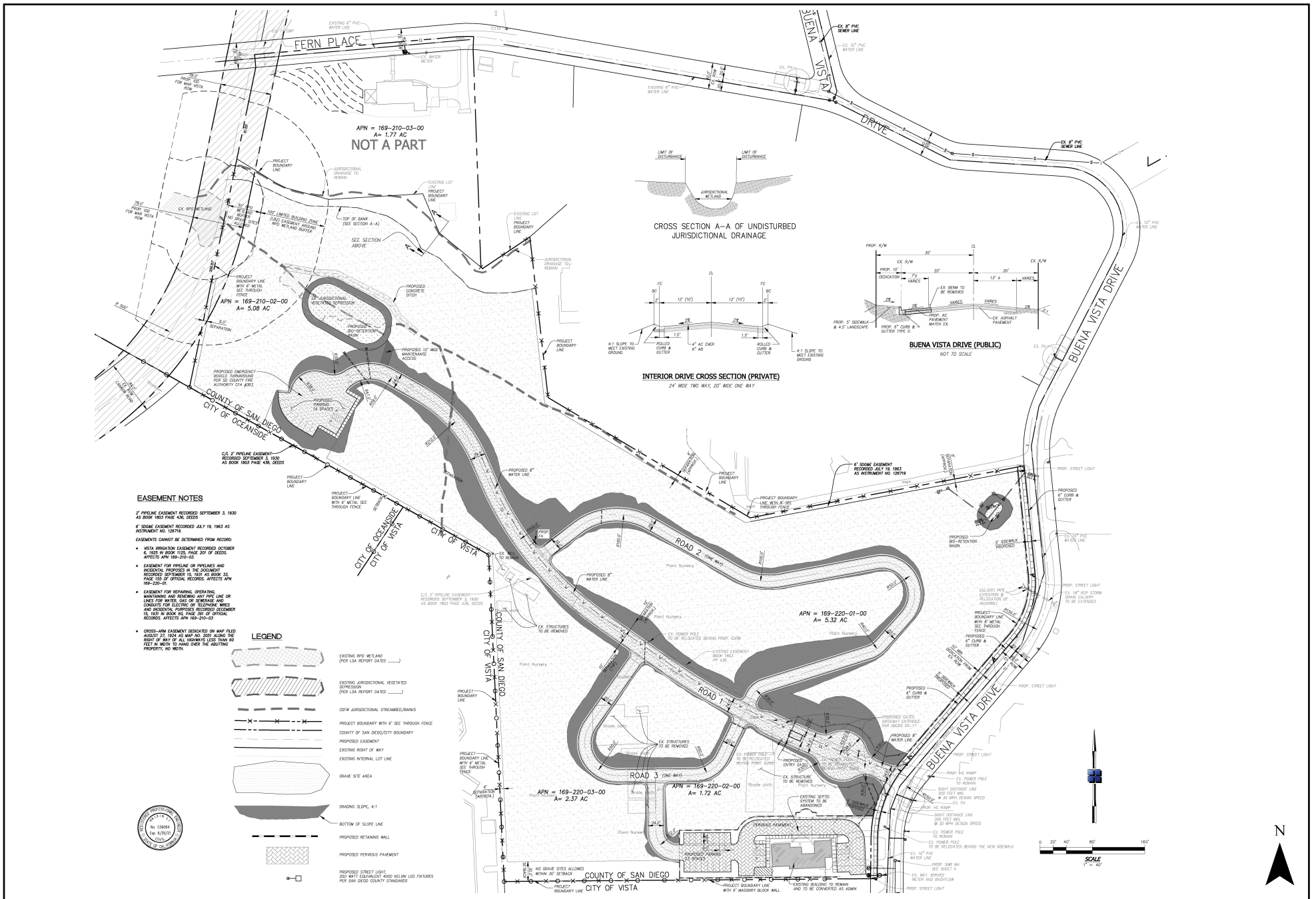
Figures:

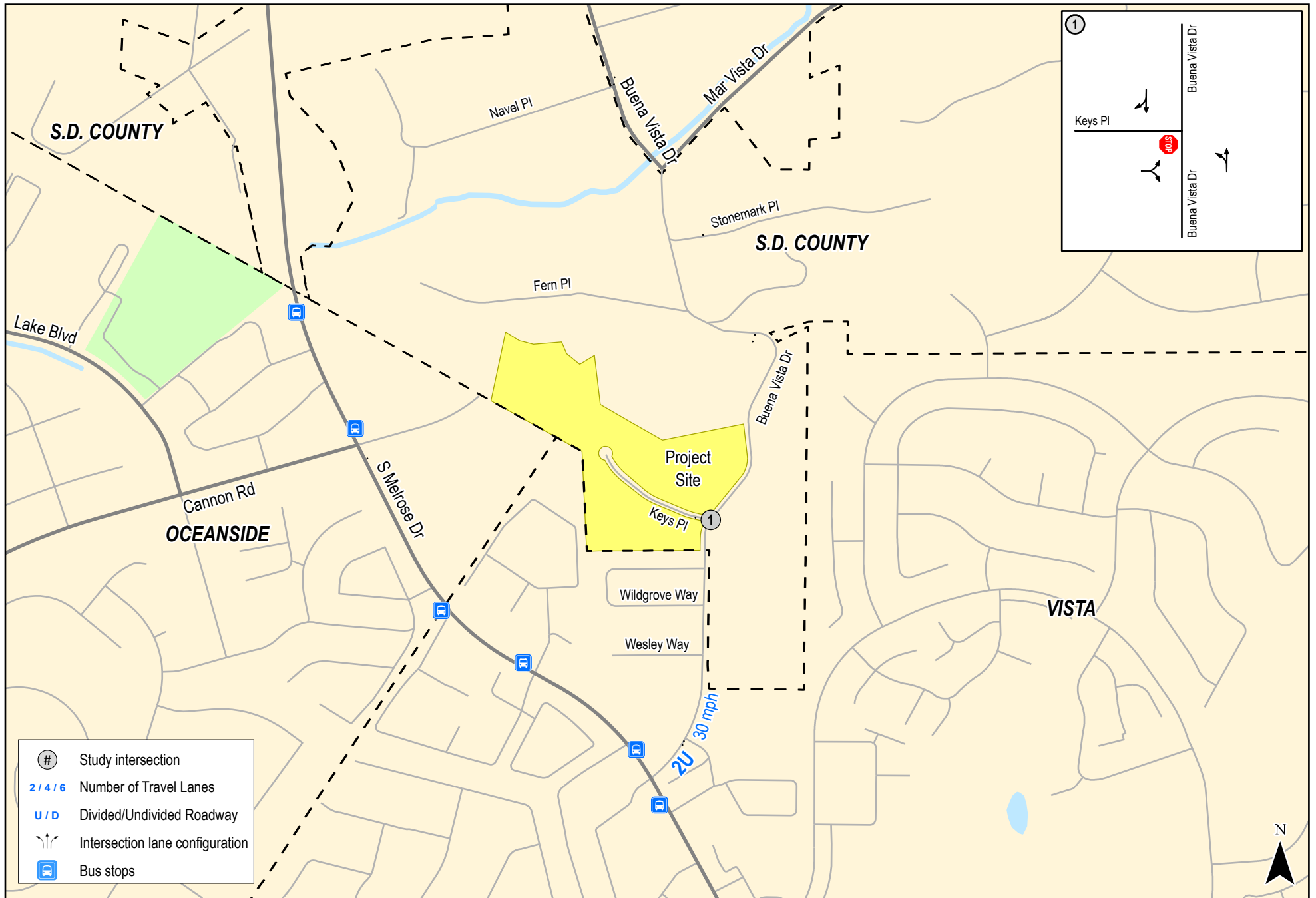
- 1: Project Vicinity
- 2: Project Site Plan
- 3: Existing Conditions Diagram
- 4: Existing Traffic Volumes

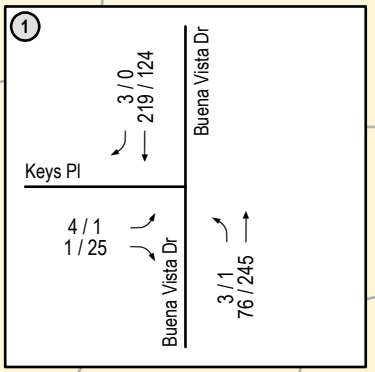
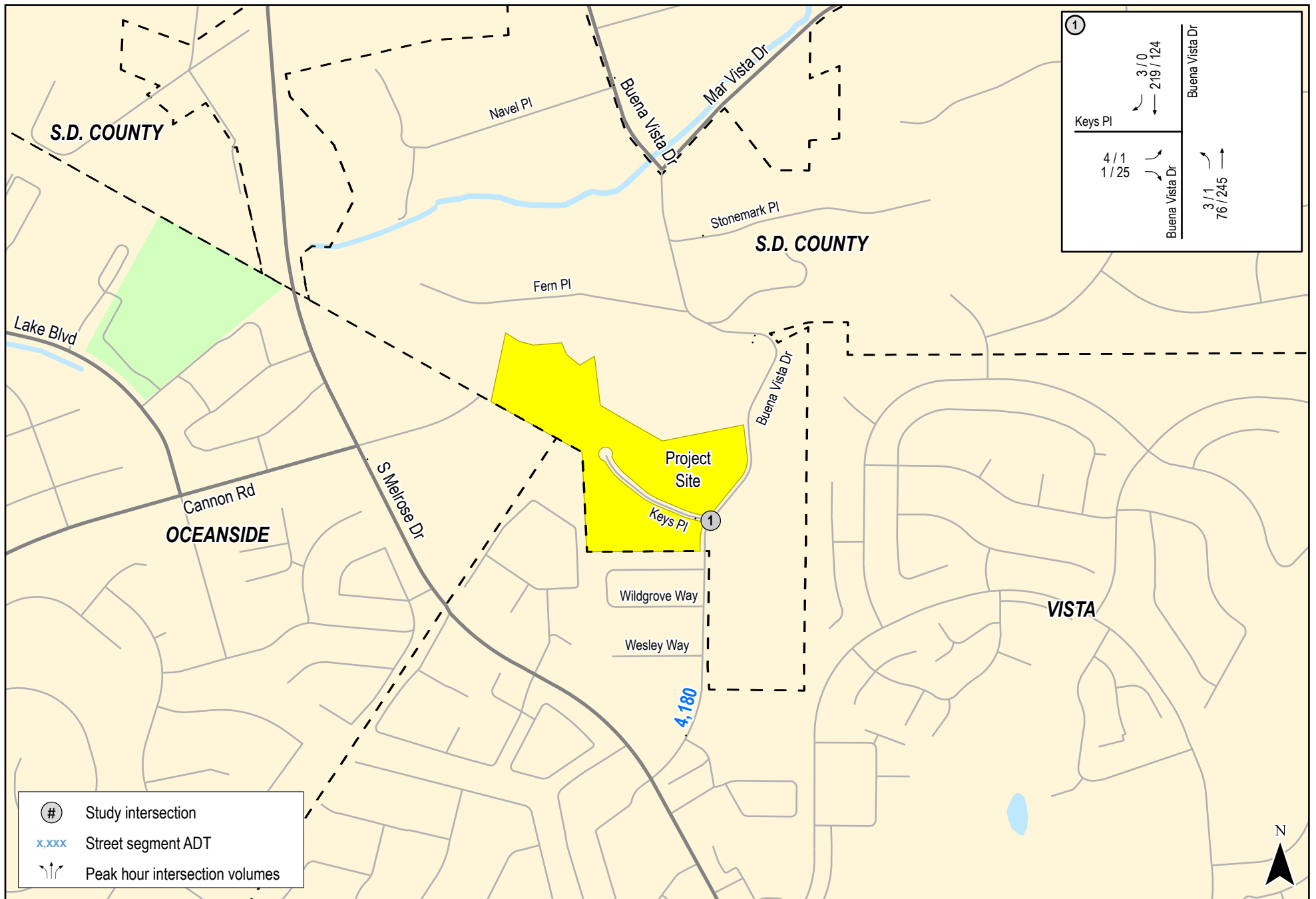
Attachments:

- A: Existing Traffic Count Sheets
- B: ITE *Trip Generation* Excerpts
- C: Existing Intersection Analysis Worksheets
- D: Collision Diagram
- E: County Public Road Standards Table 2B
- cc: File









Study intersection
 x,xxx Street segment ADT
 Peak hour intersection volumes

N:\3282\Figure
 Date: 10/21/2020
 Time: 4:33 PM

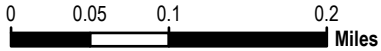


Figure 4

Existing Volumes

ATTACHMENT A
EXISTING TRAFFIC COUNT SHEETS

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Buena Vista Road, between Keys Place and Melrose Drive**

Date: Wednesday, October 7, 2020		Total Daily Volume: 3341																				Description: Total Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
11	8	6	7	25	70	137	251	197	170	203	170	210	212	247	302	316	292	182	140	72	66	31	16
3	5	2	0	3	7	26	57	58	44	54	44	60	47	64	76	88	69	62	32	28	19	4	5
5	0	1	1	6	10	24	62	50	49	53	34	49	47	52	71	84	82	43	36	19	17	10	6
2	2	2	3	6	26	42	77	50	40	39	51	51	60	63	82	62	69	36	30	14	14	7	2
1	1	1	3	10	27	45	55	39	37	57	41	50	58	68	73	82	72	41	42	11	16	10	3

Date: Wednesday, October 7, 2020		Total Daily Volume: 1701																				Description: Northbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
8	2	1	4	6	14	33	69	69	69	105	90	117	114	143	170	206	187	117	85	38	30	16	8
2	1	0	0	1	1	9	15	17	15	28	30	35	26	33	47	51	45	38	18	15	7	3	2
4	0	0	1	1	2	5	18	16	21	30	18	25	26	27	40	54	56	28	25	8	11	6	4
1	1	1	1	1	6	8	27	18	19	16	22	29	30	39	44	40	50	25	18	7	7	2	1
1	0	0	2	3	5	11	9	18	14	31	20	28	32	44	39	61	36	26	24	8	5	5	1

Date: Wednesday, October 7, 2020		Total Daily Volume: 1640																				Description: Southbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	6	5	3	19	56	104	182	128	101	98	80	93	98	104	132	110	105	65	55	34	36	15	8
1	4	2	0	2	6	17	42	41	29	26	14	25	21	31	29	37	24	24	14	13	12	1	3
1	0	1	0	5	8	19	44	34	28	23	16	24	21	25	31	30	26	15	11	11	6	4	2
1	1	1	2	5	20	34	50	32	21	23	29	22	30	24	38	22	19	11	12	7	7	5	1
0	1	1	1	7	22	34	46	21	23	26	21	22	26	24	34	21	36	15	18	3	11	5	2

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Intersection Turning Movement - Peak Hour Vehicle Count



Location:	#01	File Name:	ITM-20-038-01
Intersection:	Buena Vista Drive & Keys Place	Project:	LLG Ref. 3-20-3282
Date of Count:	Wednesday, October 07, 2020		Vista

AM	Buena Vista Drive Southbound			- Westbound			Buena Vista Drive Northbound			Keys Place Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	41	0	0	0	0	0	12	0	0	0	0	53
7:15	0	43	1	0	0	0	0	20	0	1	0	0	65
7:30	0	46	1	0	0	0	0	18	0	0	0	1	66
7:45	0	46	0	0	0	0	1	9	0	1	0	0	57
8:00	0	40	0	0	0	0	1	14	0	1	0	0	56
8:15	0	38	0	0	0	0	0	16	0	0	0	1	55
8:30	0	27	0	0	0	0	0	19	0	0	0	0	46
8:45	0	21	0	0	0	0	0	17	0	0	0	0	38
Total	0	302	2	0	0	0	2	125	0	3	0	2	436
Approach%	-	99.3	0.7	-	-	-	1.6	98.4	-	60.0	-	40.0	
Total%	-	69.3	0.5	-	-	-	0.5	28.7	-	0.7	-	0.5	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	-	175	2	-	-	-	2	61	-	3	-	1	244
Approach%	-	98.9	1.1	-	-	-	3.2	96.8	-	75.0	-	25.0	
Total%	-	71.7	0.8	-	-	-	0.8	25.0	-	1.2	-	0.4	
PHF			0.94			#DIV/0!			0.79			1.00	0.00

PM	Buena Vista Drive Southbound			- Westbound			Buena Vista Drive Northbound			Keys Place Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	29	0	0	0	0	0	50	0	0	0	0	79
16:15	0	31	0	0	0	0	0	50	0	1	0	0	82
16:30	0	17	0	0	0	0	0	40	0	0	0	20	77
16:45	0	22	0	0	0	0	1	56	0	0	0	0	79
17:00	0	27	0	0	0	0	0	44	0	0	0	0	71
17:15	0	19	0	0	0	0	1	53	0	0	0	0	73
17:30	0	23	0	0	0	0	1	47	0	0	0	0	71
17:45	0	32	0	0	0	0	1	33	0	2	0	0	68
Total	0	200	0	0	0	0	4	373	0	3	0	20	600
Approach%	-	100.0	-	-	-	-	1.1	98.9	-	13.0	-	87.0	
Total%	-	33.3	-	-	-	-	0.7	62.2	-	0.5	-	3.3	

PM Intersection Peak Hour: 16:00 to 17:00

Volume	-	99	-	-	-	-	1	196	-	1	-	20	317
Approach%	-	100.0	-	-	-	-	0.5	99.5	-	4.8	-	95.2	
Total%	-	31.2	-	-	-	-	0.3	61.8	-	0.3	-	6.3	
PHF			0.80			#DIV/0!			0.86			0.26	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #01	File Name: ITM-20-038-01
	Intersection: Buena Vista Drive & Keys Place	Project: LLG Ref. 3-20-3282
	Date of Count: Wednesday, October 07, 2020	Vista

AM	Buena Vista Drive Southbound				- Westbound				Buena Vista Drive Northbound				Keys Place Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:45	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
8:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ped Total	1				0				0				3				4	
Bike Total		0	0	0		0	0	0		0	1	0		0	0	0		1

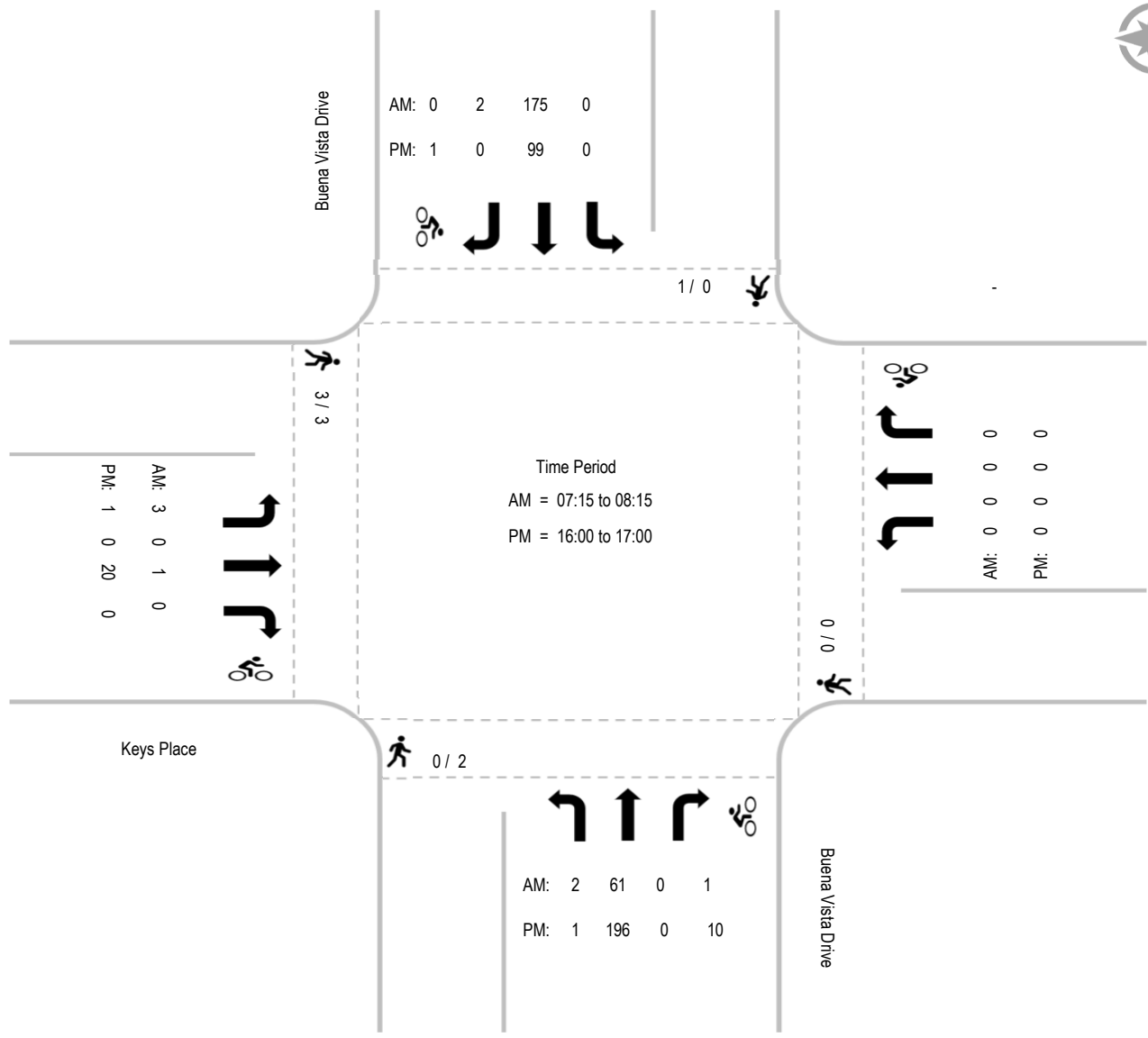
PM	Buena Vista Drive Southbound				- Westbound				Buena Vista Drive Northbound				Keys Place Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16:30	0	0	1	0	0	0	0	0	2	0	0	0	1	0	0	0	0	
16:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:30	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	
17:45	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	
Ped Total	0				0				2				3				5	
Bike Total		0	1	0		0	0	0		0	10	0		0	0	0		11

Intersection Turning Movement - Peak Hour Summary



Location: #01
 Intersection: Buena Vista Drive & Keys Place
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-038-01
 Project: LLG Ref. 3-20-3282
 Vista



ATTACHMENT B

ITE *TRIP GENERATION* EXCERPTS

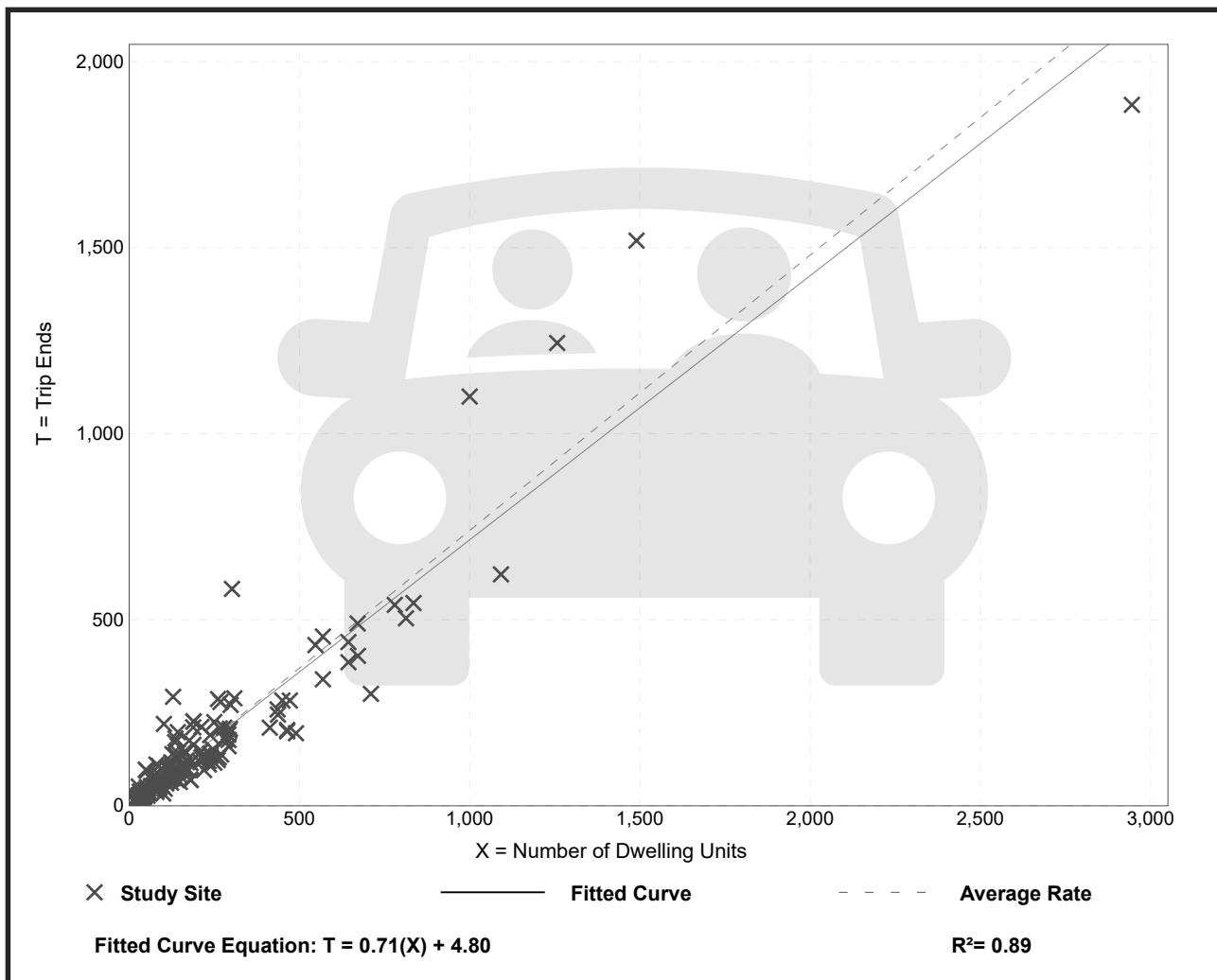
Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 173
 Avg. Num. of Dwelling Units: 219
 Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



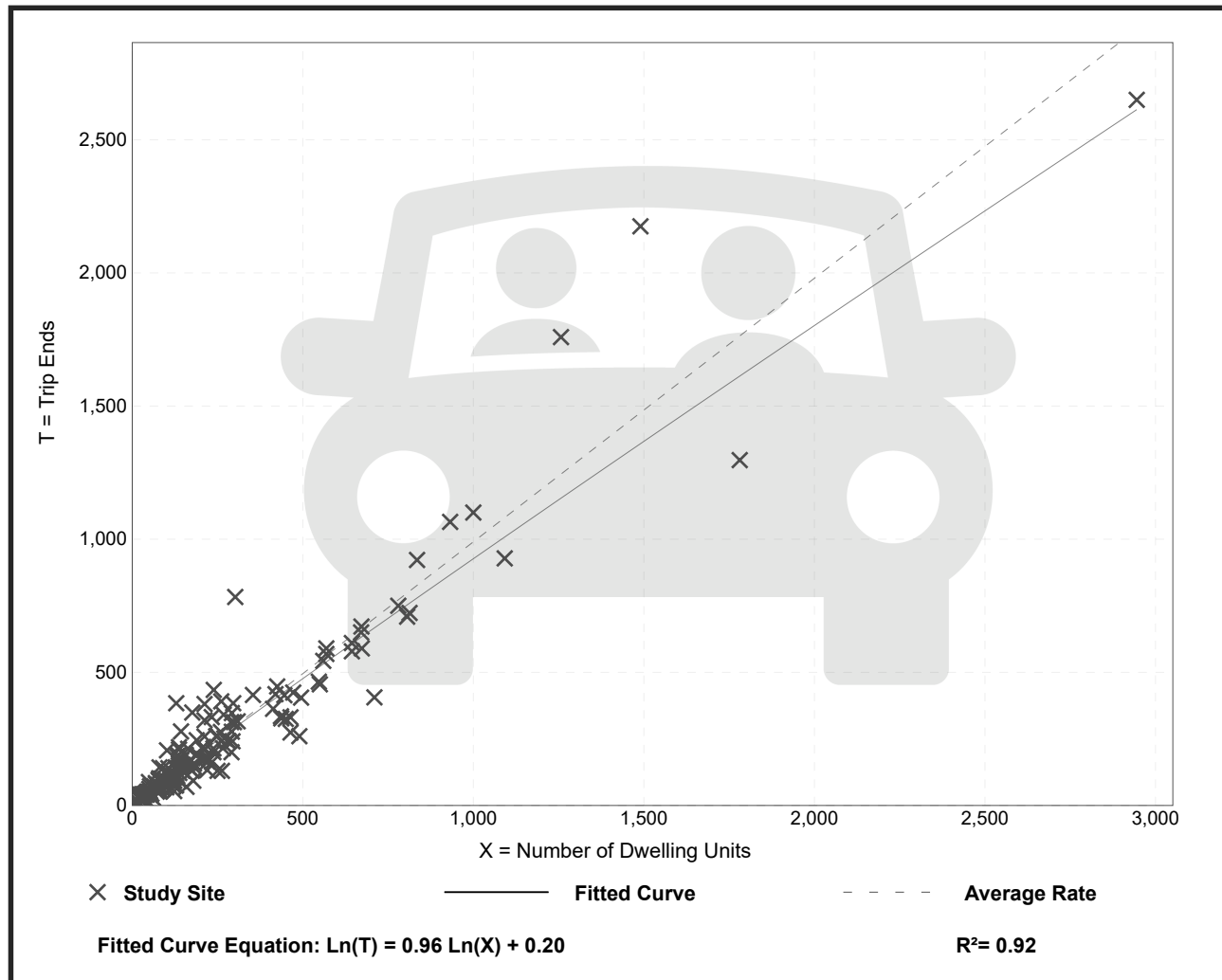
Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 190
 Avg. Num. of Dwelling Units: 242
 Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing (210)

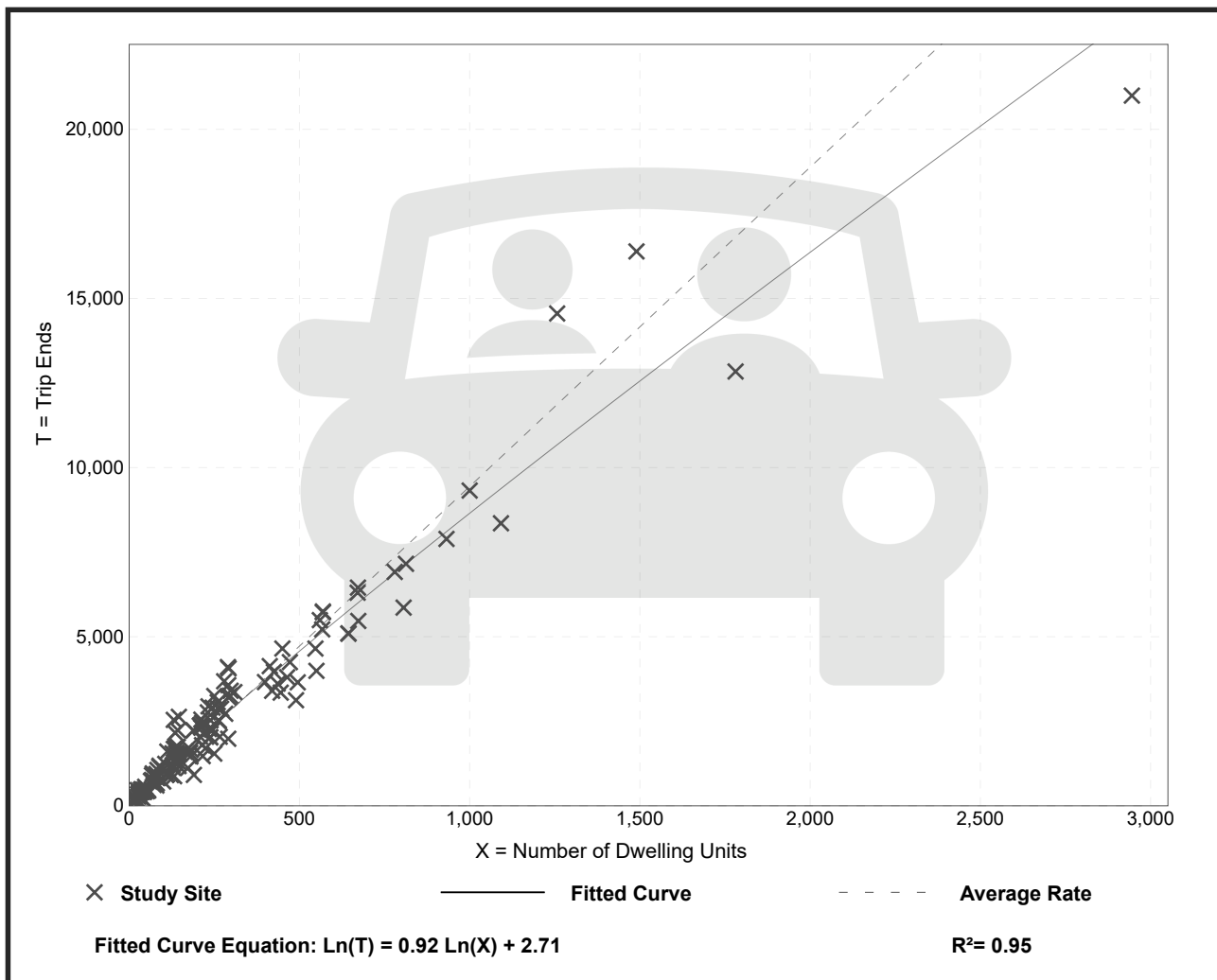
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Cemetery (566)

Vehicle Trip Ends vs: Acres
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

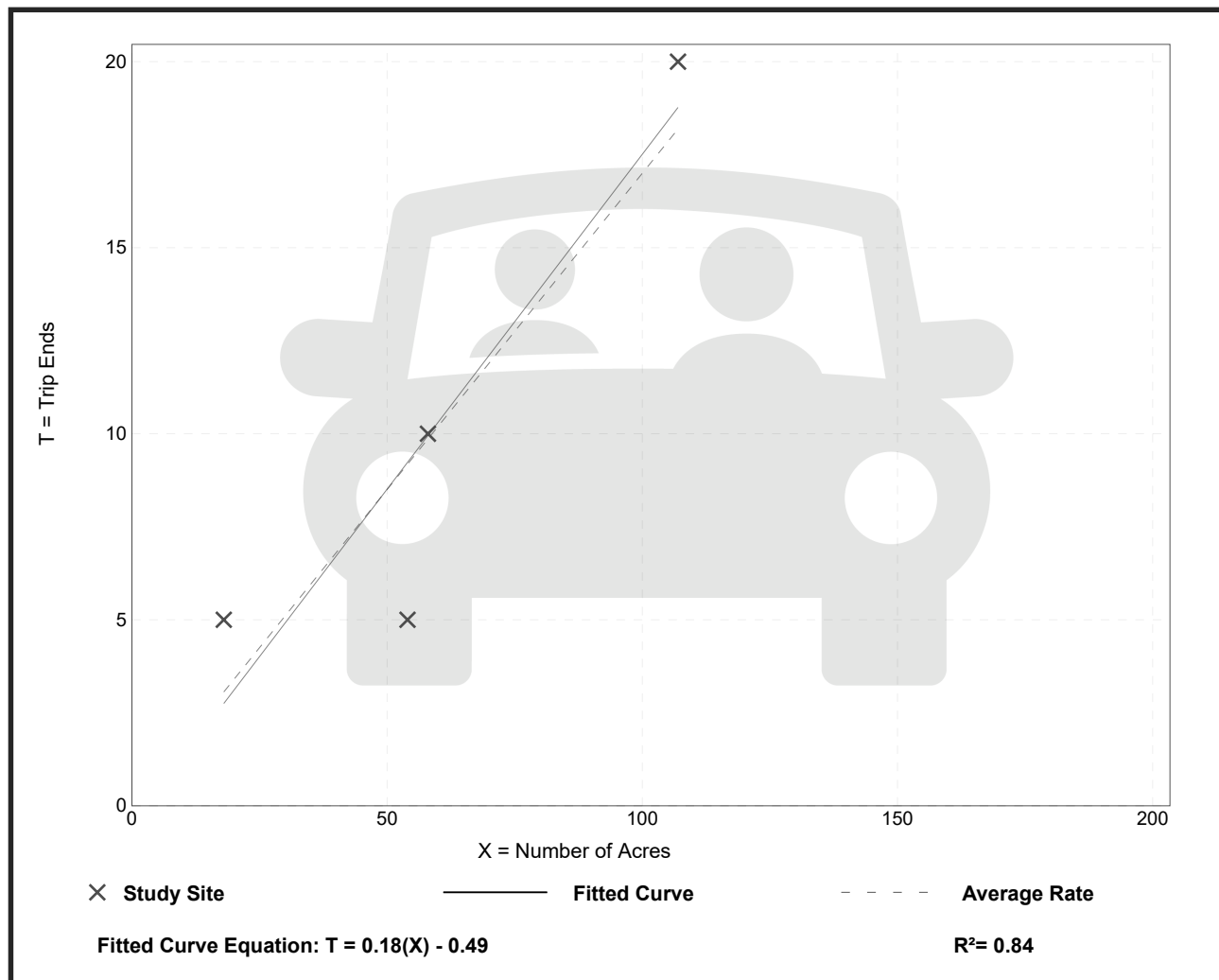
Number of Studies: 4
 Avg. Num. of Acres: 59
 Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per Acre

Average Rate	Range of Rates	Standard Deviation
0.17	0.09 - 0.28	0.06

Data Plot and Equation

Caution – Small Sample Size



Trip Gen Manual, 10th Edition • Institute of Transportation Engineers

Cemetery (566)

Vehicle Trip Ends vs: Acres
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

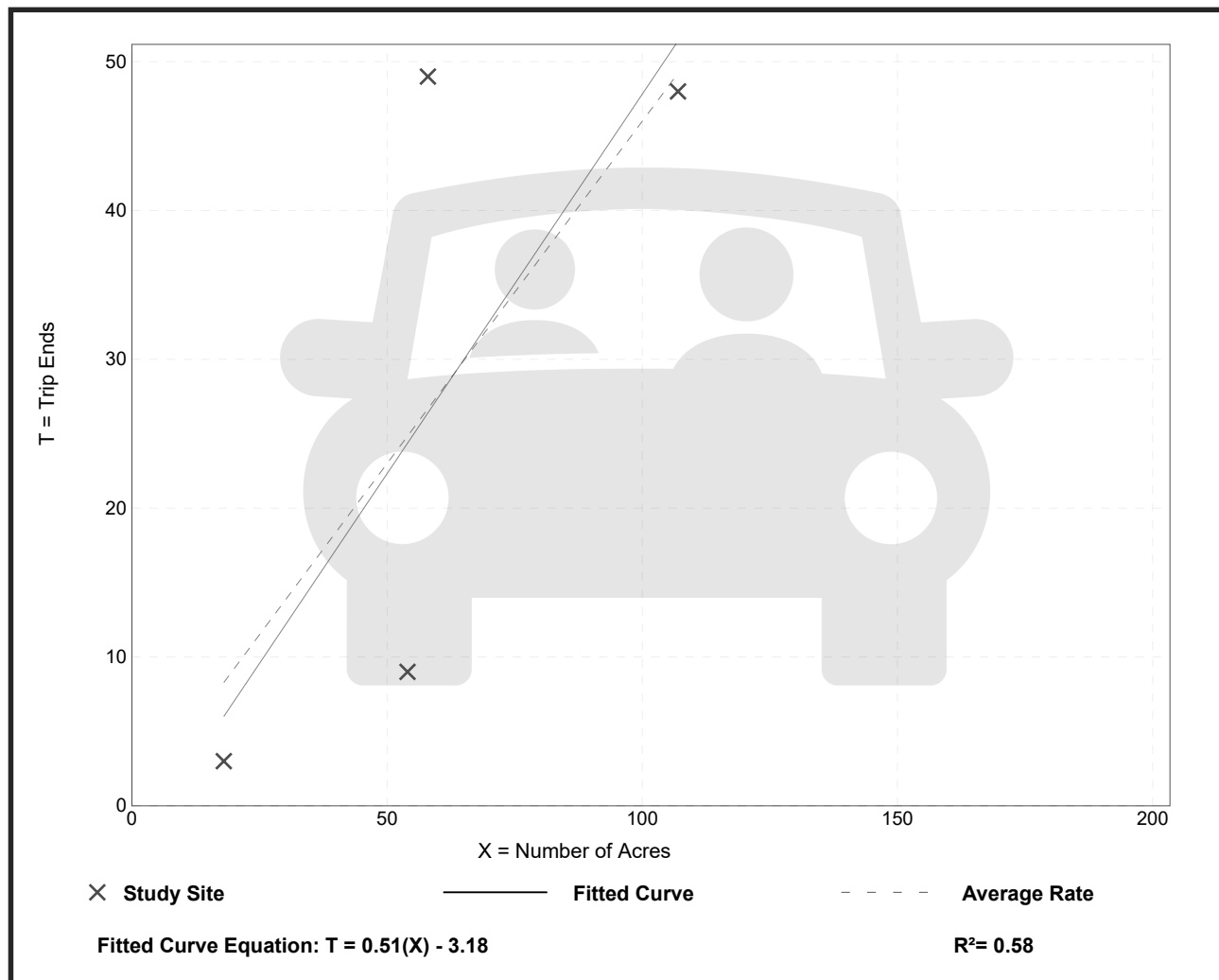
Number of Studies: 4
 Avg. Num. of Acres: 59
 Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per Acre

Average Rate	Range of Rates	Standard Deviation
0.46	0.17 - 0.84	0.29

Data Plot and Equation

Caution – Small Sample Size



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Cemetery (566)

Vehicle Trip Ends vs: Acres
On a: Weekday

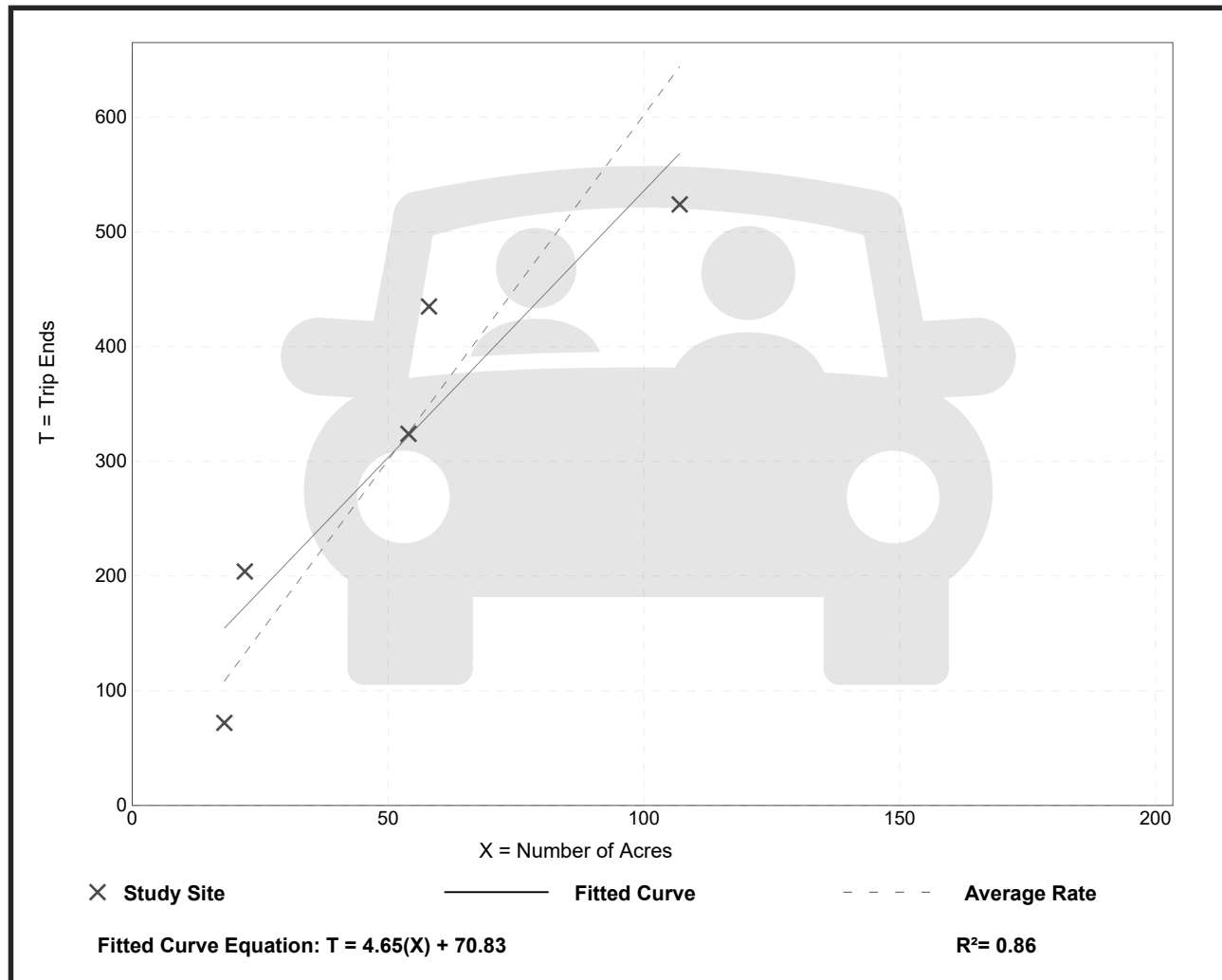
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Acres: 52
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Acre

Average Rate	Range of Rates	Standard Deviation
6.02	4.00 - 9.27	1.66

Data Plot and Equation

Caution – Small Sample Size



Trip Gen Manual, 10th Edition • Institute of Transportation Engineers

ATTACHMENT C
EXISTING INTERSECTION ANALYSIS WORKSHEETS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	4	1	3	76	219	3
Future Vol, veh/h	4	1	3	76	219	3
Conflicting Peds, #/hr	1	0	3	0	0	3
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	79	79	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1	4	96	233	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	343	238	239	0	-	0
Stage 1	238	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	653	801	1328	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	647	799	1324	-	-	-
Mov Cap-2 Maneuver	647	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1324	-	673	-	-
HCM Lane V/C Ratio	0.003	-	0.008	-	-
HCM Control Delay (s)	7.7	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	1	25	1	245	124	0
Future Vol, veh/h	1	25	1	245	124	0
Conflicting Peds, #/hr	0	2	3	0	0	3
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	86	86	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	27	1	285	155	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	445	160	158	0	-	0
Stage 1	158	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	571	885	1422	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	567	881	1418	-	-	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	760	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1418	-	863	-	-
HCM Lane V/C Ratio	0.001	-	0.033	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

ATTACHMENT D
COLLISION DIAGRAM

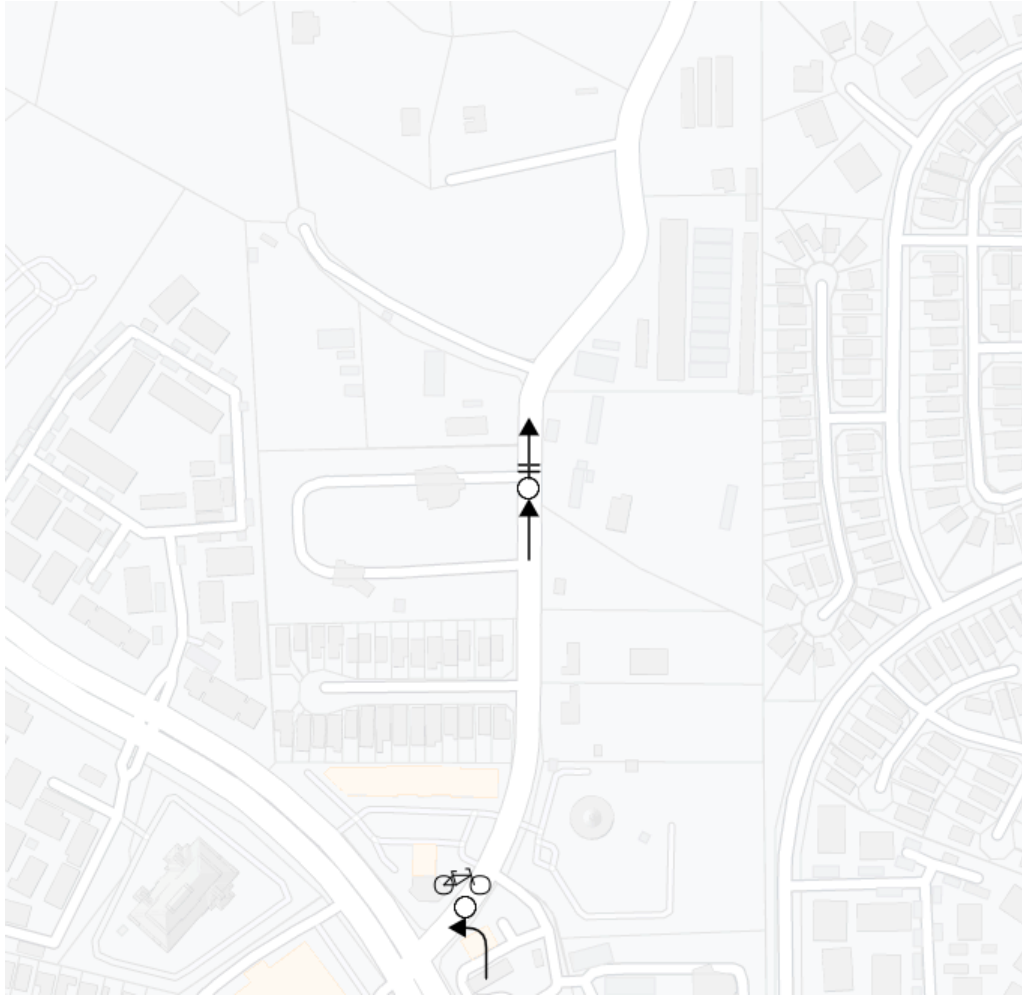
COLLISION DIAGRAM

Primary Street: _____
 Secondary Street: _____
 Time Period: _____
 Agency Name: _____

Mapping Summary:

Fatal Collision	0
Injury Collision	2
Mapped	2
Not Drawn	0
Total	2

→ Straight	🚶 Pedestrian
↶ Left Turn	🚲 Bicycle
↷ Right Turn	☒ Object
↺ U-Turn	● Fatal Crash
↻ Overturned	○ Injury Crash
↘ Ran Off Road	
⏸ Stopped	
🅓 Parked	



Date Created: 10/15/2020

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ATTACHMENT E
COUNTY PUBLIC ROAD STANDARDS TABLE 2A

TABLE 2B: COUNTY OF SAN DIEGO - PUBLIC ROAD STANDARDS

NON-MOBILITY ELEMENT ROAD CLASSIFICATIONS									
ROAD CLASSIFICATION	# LANES / LANE WIDTH	MEDIAN WIDTH	ROAD SURFACING WIDTH	R.O.W. WIDTH	PAVED SHOULDERS (# / WIDTH)	PARKWAY WIDTH	MINIMUM CURVE RADIUS	MAXIMUM DESIRABLE GRADE	MINIMUM DESIGN SPEED (MPH)
Residential Collector	2 / 12'	-	40'	60'	2 / 8'	10'	300'	12%	30
Rural Residential Collector *	2 / 12'	-	28'	48'	2 / 2'	10'	300'	12%	30
Residential Road	2 / 12'	-	36'	56'	2 / 6'	10'	200'	15%	30
Rural Residential Road *	2 / 12'	-	28'	48'	2 / 2'	10'	200'	15%	30
Residential Cul-de-sac	2 / 12'	-	32'	52'	2 / 4'	10'	200'	15%	30
Residential Loop	2 / 12'	-	32'	52'	2 / 4'	10'	200'	15%	30
Industrial/Commerical Collector	4 / 12'	-	68'	88'	2 / 10'	10'	300'	8%	30
Industrial/Commerical	2 / 16'	-	52'	72'	2 / 10'	10'	200'	8%	30
Industrial/Commercial Cul-de-sac	2 / 16'	-	52'	72'	2 / 10'	10'	200	8%	30
Frontage	2 / 12'	-	32' min	52' min	1 / 8'	10'	See above	See above	-
Alley	2 / 10'	-	20-30'	20-30'	None	None	50'	12%	n/a
Hillside Residential	See NOTE 4	-	-	-	-	-	-	-	-

- NOTES:**
- 1 Minimum longitudinal gradient shall be 1.0 percent for all road classificationis shown above.
 - 2 The maximum grade for a permanent cul-de-sac street turning area shall be 6 percent.
 - 3 The maximum grade for a temporary cul-de-sac street turning area shall be that of the classification of the road being constructed.
 - 4 For standards, see County Design Standard Drawing DS-2, DS-3, DS-4, and Section 4.5N of these Standards.
 - 5 The minimum curve radii, shown in the table above, are based on the design speed with 6% superelevation.
 - 6 Interim roads are to be a minimum of 28 feet A.C. within a 40 feet graded roadbed. They may be larger if traffic volumes require more travel lanes.

LEGEND: * Serves lots > 2 acres in size w/
no demand for on-street parking