FEHR PEERS

MEMORANDUM

Date: December 8, 2025

To: Andrea Howard, Parker Development

From: David B. Robinson, Fehr & Peers

Subject: Serrano Village M5 – Access and Local Circulation Analysis

RS24-4347

Introduction

Fehr & Peers completed the access and local circulation analysis to support the application for Serrano Village M5. The analysis investigates the need for multi-way stop control and the adequacy of sight distance at the Appian Way/Sangiovese Drive intersection, and traffic operations at the Silva Valley Parkway/Appian Way intersection, including the need for traffic signal control, average delay, and level of service. This memorandum summarizes the proposed application, data collection conducted to support the analysis, analysis methodology, and findings.

Application

The Serrano Village M5 tentative map includes ten single family residential lots that will access Appian Way by creating the fourth leg of the Appian Way/Sangiovese Drive intersection. The Serrano – Village M5 Tentative Subdivision Map is attached.

Data Collection

We collected the following data to support the access and local circulation analysis:

- Traffic Counts – New 24-hour roadway segments counts collected on Appian Way north and south of Sangiovese Drive (Collected on Tuesday April 2, 2024). Available 24-hour roadway segment counts on Silva Valley Parkway north of Harvard Way (Collected by El Dorado County in March 2023).
- Speed Survey – Spot speed surveys on Appian Way north and south of Sangiovese Drive (Collected April 2, 2024, from 10:00 AM to 1:05 PM)
- Injury Collision Records – Collision records from UC Berkeley's SafeTREC Transportation Injury Mapping System (TIMS) for the 3-year period March 1, 2021, through March 31, 2024.

Attachment A includes the data collection outlined above.

Evaluation Methodology

The access and local circulation analysis applied the following guidelines and analysis methods:

- Multi-Way Stop Application – We applied the multi-way stop evaluation guidelines outlined in Section 2B.07 of the *California Manual on Uniform Traffic Control Devices* (CA MUTCD, Caltrans 2014, Revision 5).
- Traffic Signal Warrant Evaluation – We applied the signal warrant evaluation guidelines outlined in Section 4C.04 of the *California Manual on Uniform Traffic Control Devices* (CA MUTCD, Caltrans 2014, Revision 5) for Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), Warrant 3A (Peak Hour Vehicle Delay), and Warrant 3B (Peak Hour Volume). Note that the CA MUTCD states that satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal; however, satisfaction of one or more signal warrants may indicate conditions where the installation of a traffic signal is justified.
- Intersection Operations Analysis – We applied the procedures and methodologies contained in the Highway Capacity Manual; 7th Edition (Transportation Research Board, 2022) as implemented with the Synchro 11 software. The HCM methodology determines delay at all-way stop-controlled intersections based on the weighted average control delay per vehicle at the intersection. The intersection analysis applies field measured peak hour factors (AM – 0.81, PM – 0.91) and 2 percent heavy vehicles during both peak hours. **Table 1** presents delay ranges for each LOS for stop-controlled intersections.

Table 1: Level of Service Definitions for Stop Controlled Intersections

Level of Service	Average Control Delay (Seconds/Vehicle)
A	≤ 10
B	> 10 to 15
C	> 15 to 25
D	> 25 to 35
E	> 35 to 50
F	> 50

Source: *Highway Capacity Manual, 7th Edition*, Transportation Research Board, 2022.

- Trip Generation – We used trip generation rates published in the *Trip Generation Manual 12th Edition* – Institute of Transportation Engineers, 2025 to estimate the trip generation for the

Project. **Table 2** presents the trip generation for weekday daily, AM peak hour, and PM peak hour conditions. As summarized, Village M5 is anticipated to generate a total of 95 daily, 7AM peak hour, and 10 PM peak hour trips.

Table 2: Project Trip Generation

Land Use	Description	Quantity (Dwelling Units)	Trip Generation						
			Daily	AM			PM		
				Total	In	Out	Total	In	Out
ITE 210	Single Family Detached Housing	10	91	7	2	5	9	6	3

Source: Fehr & Peers, 2025

- Traffic Signal Warrant Evaluation – We applied the signal warrant evaluation guidelines outlined in Section 4C.04 of the California Manual on Uniform Traffic Control Devices (CA MUTCD, Caltrans 2014, Revision 5) for Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), Warrant 3A (Peak Hour Vehicle Delay), and Warrant 3B (Peak Hour Volume). Note that the CA MUTCD states that satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal; however, satisfaction of one or more signal warrants may indicate conditions where the installation of a traffic signal is justified.

Findings

The analysis findings at the Appian Way/Sangiovese Drive intersection and Silva Valley Parkway/Appian Way intersection are summarized below.

Appian Way/Sangiovese Drive – Multi-Way Stop Control

Table 3 summarizes the evaluation of the potential application of multi-way stop control at the Appian Way/Sangiovese Drive intersection. As shown, none of the criteria for consideration of multi-way stop control are satisfied.

Table 3: Multi-Way Stop Control Evaluation

Criteria		Description	Evaluation	Criteria Satisfied?
Collisions		Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation.	No Reported injury collisions	No
Minimum Volume	Major Street (Appian Way)	The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day.	Minimum volumes met for 5 hours	No
	Minor Street (Sangiovese Drive)	The combined vehicle, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours.	Minimum volumes not met	No
85th Percentile Speed		85th-percentile approach speed of the major-street traffic exceeds 40 mph.	85th percentile approach speed is 37 mph	No

Source: Fehr & Peers, 2025

Appian Way/Sangiovese Drive – Sight Distance

Table 4 summarizes the calculated stopping and intersection sight distance at the Appian Way/Sangiovese Drive intersection, based on the guidance provided in American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018. **Attachment B** includes a sight distance exhibit prepared by R.E.Y Engineers that shows the sight line that can be accommodated to the left and right of the proposed Village M5 access, accounting for the vertical curvature of Appian Way. Based on this exhibit, the intersection sight distance presented in **Table 4** would be obstructed by the Appian Way.

Table 4: Sight Distance – Village M5 Access

Criteria		Description	Value	Source[1]
Object & Eye Height (feet)		The height of the driver's eye and object to be seen above the roadway surface.	3.5	Page 9-39
Time Gap (seconds)	Right Turn from Stop (Case B2)	The gap in major road traffic (i.e., measured in seconds) for a driver on a minor road to accelerate from a stop and complete a left or right turn without unduly interfering with major road traffic operations.	6.5	Table 9-8
	Left Turn from Stop (Case B1)		7.5	Table 9-6
Design Speed (mph)		Selected speed used to determine sight distance. Measured 85th percentile speed was used.	35	Field Measured (Attachment A)
Stopping Sight Distance (feet)		The minimum length of roadway that must be visible to the driver to allow a vehicle traveling at a given speed to stop safely before reaching an object in its path.	250	Table 9-7 & Table 9-9
Intersection Sight Distance (feet)	Right Turn from Stop (Case B2)	The length of roadway visible to a driver approaching or stopped at an intersection, allowing them to enter or cross the major road safely without causing a collision.	335	Table 9-9
	Left Turn from Stop (Case B1)		390	Table 9-7

Note:
[1]American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018.
Source: Fehr & Peers, 2025

Silva Valley Parkway/Appian Way – Traffic Operations

As summarized in **Table 2**, Village M5 is anticipated to generate 7 AM peak hour and 10 PM peak hour trips. We assigned all project trips through the Silva Valley Parkway/Appian Way intersection to develop the intersection turning movement volumes for the Existing Plus Project analysis scenario, which are summarized in **Table 5**.

Table 5: AM & PM Peak Hour Intersection Turning Movement Forecasts

Intersection	Approach	Movement	Existing		Village M5		Existing Plus Village M5	
			AM	PM	AM	PM	AM	PM
1. Silva Valley Parkway/Appian Way	NB	L	20	70	-	-	20	70
		T	264	294	-	-	264	294
		R	57	108	3	8	60	116
	SB	L	38	57	1	4	39	61
		T	371	233	-	-	371	233
		R	19	29	-	-	19	29
	EB	L	35	17	-	-	35	17
		T	1	47	-	-	1	4
		R	83	39	-	-	83	39
	WB	L	176	113	7	4	183	117
		T	2	2	-	-	2	2
		R	71	87	3	3	74	90

All intersections were analyzed using Synchro 11 traffic operations software following the HCM 7th Edition methodology.

Source: Fehr & Peers, 2025.

Table 6 reports the vehicle delay and LOS during the weekday AM and PM peak hours at the study intersections under Existing Conditions with and without the addition of traffic from Village M5. As shown, the intersection will operate acceptably, LOS E or better, with the addition of Village M5. **Attachment C** includes technical calculations.

Table 6: Intersection Operations – Existing Plus Project

Intersection	Control	Existing Conditions				Existing Plus Village M5			
		AM		PM		AM		PM	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2. Silva Valley Parkway/Appian Way	All-Way Stop	40	E	16	C	42	E	16	C

All intersections were analyzed using Synchro 11 traffic operations software following the HCM 7th Edition methodology.

Source: Fehr & Peers, 2024.

Silva Valley Parkway/Appian Way – Signal Warrant Evaluation

Table 7 presents the peak hour signal warrant results at the Silva Valley Parkway/Appian Way intersection under existing conditions. Refer to **Attachment D** for the signal warrant reports.

The 70% criteria is applicable since the posted speed limit on Silva Valley Parkway is 45 miles per hour near the intersection. As shown in **Table 7**, the intersection would meet Warrant 1, Warrant 2, and Warrant 3 at 70%.

The addition of Village M5 would not change finding of the warrant evaluation.

Conclusions

The following summarize the conclusion of the access evaluation discussed above:

- Appian Way/Sangiovese Drive – All-way stop control is recommended for the Village M5 access, which will create the fourth (i.e., west) leg of the intersection, due to the sight distance constraints created by the geometry of Appian Way.
- Silva Valley Parkway/Appian Way – The intersection would operate acceptably, LOS E or better, under existing conditions with and without Village M5. The intersection satisfies CAMUTCD Warrant 1, Warrant 2, and Warrant 3 (at 70%). The installation of traffic signal control should be added the El Dorado County Capital Improvement Program for future installation.

Table 7: Signal Warrants – Silva Valley Parkway/Appian Way

Intersection	Warrant 1		Warrant 2		Warrant 3			
					AM Peak Hour		PM Peak Hour	
	100%	70%	100%	70%	3A	3B	3A	3B
Silva Valley Parkway/Appian Way	No	Yes	No	Yes	No (WB 24)	100% No 70% Yes	No (WB 13)	100% No 70% Yes

The average vehicle delay for the highest vehicle-hours of delay on a minor approach is reported in parentheses.

Signal warrants analyzed following methodology outlined in the California Manual on Uniform Traffic Control Devices (Caltrans, 2014)

Source: Fehr & Peers, 2025.

Attachment A

Data Collection

Prepared by National Data & Surveying Services

VOLUME

Appian Way S/O Sangiovese Dr

Day: Tuesday
Date: 4/2/2024

City: El Dorado Hills
Project #: CA24_070064_002

DAILY TOTALS	NB	SB	EB	WB	Total
	1,964	2,022	0	0	3,986

DAILY TOTALS

15-Minutes Interval

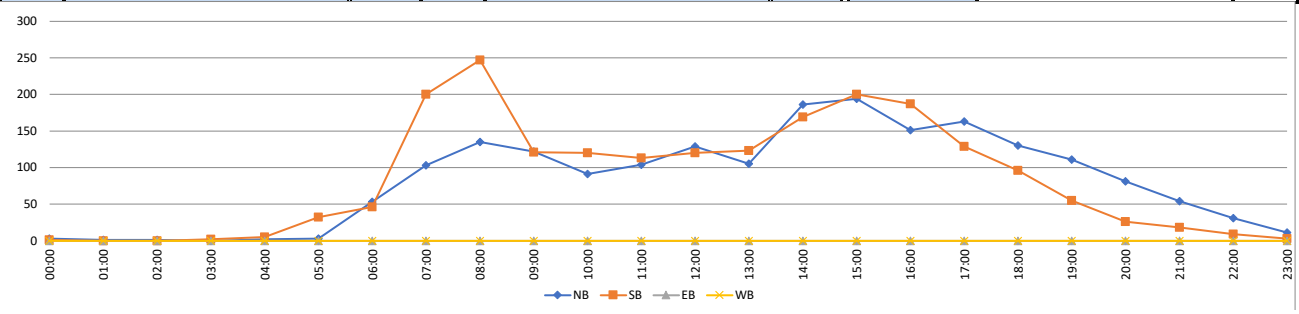
TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00	1	0			1	12:00	24	31			55
0:15	2	0			2	12:15	34	42			76
0:30	0	0			0	12:30	40	25			65
0:45	0	1			1	12:45	31	22			53
1:00	1	0			1	13:00	23	27			50
1:15	0	0			0	13:15	27	28			55
1:30	0	0			0	13:30	28	23			51
1:45	0	0			0	13:45	27	45			72
2:00	0	0			0	14:00	29	42			71
2:15	0	0			0	14:15	35	43			78
2:30	0	0			0	14:30	77	42			119
2:45	1	0			1	14:45	45	42			87
3:00	0	0			0	15:00	33	52			85
3:15	0	1			1	15:15	65	39			104
3:30	0	1			1	15:30	51	51			102
3:45	0	0			0	15:45	45	58			103
4:00	0	3			3	16:00	36	59			95
4:15	1	0			1	16:15	43	52			95
4:30	0	1			1	16:30	36	33			69
4:45	1	1			2	16:45	36	43			79
5:00	0	4			4	17:00	37	21			58
5:15	1	4			5	17:15	38	38			76
5:30	0	10			10	17:30	41	35			76
5:45	2	14			16	17:45	47	35			82
6:00	5	7			12	18:00	35	21			56
6:15	3	6			9	18:15	34	28			62
6:30	8	10			18	18:30	30	25			55
6:45	37	23			60	18:45	31	22			53
7:00	16	20			36	19:00	31	13			44
7:15	21	35			56	19:15	32	14			46
7:30	21	79			100	19:30	30	6			36
7:45	45	66			111	19:45	18	22			40
8:00	34	67			101	20:00	30	7			37
8:15	44	82			126	20:15	31	11			42
8:30	24	77			101	20:30	10	6			16
8:45	33	21			54	20:45	10	2			12
9:00	42	30			72	21:00	16	8			24
9:15	23	36			59	21:15	15	2			17
9:30	24	25			49	21:30	10	6			16
9:45	33	30			63	21:45	13	2			15
10:00	21	34			55	22:00	10	1			11
10:15	25	28			53	22:15	4	4			8
10:30	23	30			53	22:30	13	2			15
10:45	22	28			50	22:45	4	2			6
11:00	22	27			49	23:00	2	2			4
11:15	30	20			50	23:15	6	1			7
11:30	21	40			61	23:30	1	0			1
11:45	31	26			57	23:45	2	0			2
TOTALS	618	887	0	0	1505	TOTALS	1346	1135	0	0	2481
SPLIT %	41%	59%	0%	0%	38%	SPLIT %	54%	46%	0%	0%	62%

Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00	3	1			4
01:00	02:00	1	0			1
02:00	03:00	1	0			1
03:00	04:00	0	2			2
04:00	05:00	2	5			7
05:00	06:00	3	32			35
06:00	07:00	53	46			99
07:00	08:00	103	200			303
08:00	09:00	135	247			382
09:00	10:00	122	121			243
10:00	11:00	91	120			211
11:00	12:00	104	113			217
12:00	13:00	129	120			249
13:00	14:00	105	123			228
14:00	15:00	186	169			355
15:00	16:00	194	200			394
16:00	17:00	151	187			338
17:00	18:00	163	129			292
18:00	19:00	130	96			226
19:00	20:00	111	55			166
20:00	21:00	81	26			107
21:00	22:00	54	18			72
22:00	23:00	31	9			40
23:00	00:00	11	3			14

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume	618	887			1505
Peak Hour	7:45	7:30			7:45
Peak Volume	147	294			439
Peak Hour Factor	0.817	0.896			0.871
Peak Period	12:00	to	00:00		
Volume	1346	1135			2481
Peak Hour	14:30	15:30			15:15
Peak Volume	220	220			404
Peak Hour Factor	0.714	0.932			0.971
Peak Period	07:00	to	09:00		
Volume	238	447			685
Peak Hour	7:45	7:30			7:45
Peak Volume	147	294			439
Peak Hour Factor	0.817	0.896			0.871
Peak Period	16:00	to	18:00		
Volume	314	316			630
Peak Hour	17:00	16:00			16:00
Peak Volume	163	187			338
Peak Hour Factor	0.867	0.792			0.889



EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION

Count Summary Beginning: March 15, 2023

Count Station:	1502347	Counter ID:	83
City/Town:	El Dorado Hills	Mile Post:	**2.00**
Road Name:	**Silva Valley Pkwy.**	Location:	**100 Ft. N. of Harvard Way**
Lanes:	2	Direction:	NORTHBOUND

Date	19	20	21	15	16	17	18	Weekly	Wk Day
Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Average	Avg.
Time									
100	23	9	13	14	10	10	31	16	11
200	12	3	8	7	12	6	12	9	7
300	9	5	5	5	3	8	6	6	5
400	10	6	6	7	10	9	12	9	8
500	7	15	15	9	16	13	4	11	14
600	10	34	37	38	56	33	14	32	40
700	21	83	94	92	119	98	54	80	97
800	33	246	251	251	239	231	91	192	244
900	104	289	295	321	276	319	137	249	300
1000	121	160	168	178	183	237	238	184	185
1100	162	188	187	192	230	228	266	208	205
1200	195	203	190	218	213	231	324	225	211
1300	204	214	196	288	267	274	277	246	248
1400	222	233	198	324	227	273	309	255	251
1500	192	343	425	377	453	463	284	362	412
1600	228	426	356	389	395	368	272	348	387
1700	215	341	364	354	398	400	261	333	371
1800	178	371	374	399	385	396	226	333	385
1900	144	262	233	288	281	299	199	244	273
2000	101	211	184	231	217	188	175	187	206
2100	90	145	143	165	166	169	158	148	158
2200	54	113	90	97	105	139	148	107	109
2300	39	38	43	50	56	92	92	59	56
2400	24	22	26	28	31	69	53	36	35
Totals	2398	3960	3901	4322	4348	4553	3643	3875	4217
AM Peak Hr	12:00	9:00	9:00	9:00	9:00	9:00	12:00	9:00	9:00
AM Count	195	289	295	321	276	319	324	249	300
PM Peak Hr	4:00	4:00	3:00	6:00	3:00	3:00	2:00	3:00	3:00
PM Count	228	426	425	399	453	463	309	362	412

TOTAL ADT: 7,812

EL DORADO COUNTY
DEPARTMENT OF TRANSPORTATION

Count Summary Beginning: March 15, 2023

Count Station:	1502347	Counter ID:	83
City/Town:	El Dorado Hills	Mile Post:	**2.00**
Road Name:	**Silva Valley Pkwy.**	Location:	**100 Ft. N. of Harvard Way**
Lanes:	2	Direction:	SOUTHBOUND

Date	19	20	21	15	16	17	18	Weekly	Wk Day
Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Average	Avg.
Time									
100	24	10	11	8	7	8	28	14	9
200	14	6	3	3	5	6	13	7	5
300	8	1	1	2	4	3	2	3	2
400	4	5	6	5	13	8	7	7	7
500	12	20	19	11	24	18	10	16	18
600	15	52	52	42	37	27	16	34	42
700	29	89	122	108	101	101	49	86	104
800	53	355	375	347	367	355	133	284	360
900	94	406	405	409	389	380	215	328	398
1000	130	178	200	181	188	188	226	184	187
1100	166	182	159	219	189	216	257	198	193
1200	189	200	164	172	193	192	270	197	184
1300	194	191	183	254	188	230	209	207	209
1400	168	224	182	219	224	262	234	216	222
1500	175	273	250	290	284	290	219	254	277
1600	165	305	266	272	322	329	228	270	299
1700	170	293	261	276	293	295	232	260	284
1800	130	245	239	263	258	289	205	233	259
1900	135	202	186	202	196	208	168	185	199
2000	88	138	110	150	133	142	111	125	135
2100	58	94	80	91	95	102	75	85	92
2200	38	38	52	66	62	62	85	58	56
2300	23	17	33	26	30	63	64	37	34
2400	7	11	17	17	18	36	41	21	20
Totals	2089	3535	3376	3633	3620	3810	3097	3309	3595
AM Peak Hr	12:00	9:00	9:00	9:00	9:00	9:00	12:00	9:00	9:00
AM Count	189	406	405	409	389	380	270	328	398
PM Peak Hr	1:00	4:00	4:00	3:00	4:00	4:00	2:00	4:00	4:00
PM Count	194	305	266	290	322	329	234	270	299

TOTAL ADT: 7,812

Spot Speed Study

Prepared by: National Data & Surveying Services

City of El Dorado Hills

DATE: 4/2/2024 **Location:** Appian Way N/O Sangiovese Dr

TIME: 10:00-11:30 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 24-070065-001

Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	**1**
27	**1**
28	**2**
29	**3**
30	**3**
31	**5**
32	**6**
33	**4**
34	**8**
35	**6**
36	**6**
37	**4**
38	**2**
39	**1**
40	**1**
41	**1**
42	
43	
44	
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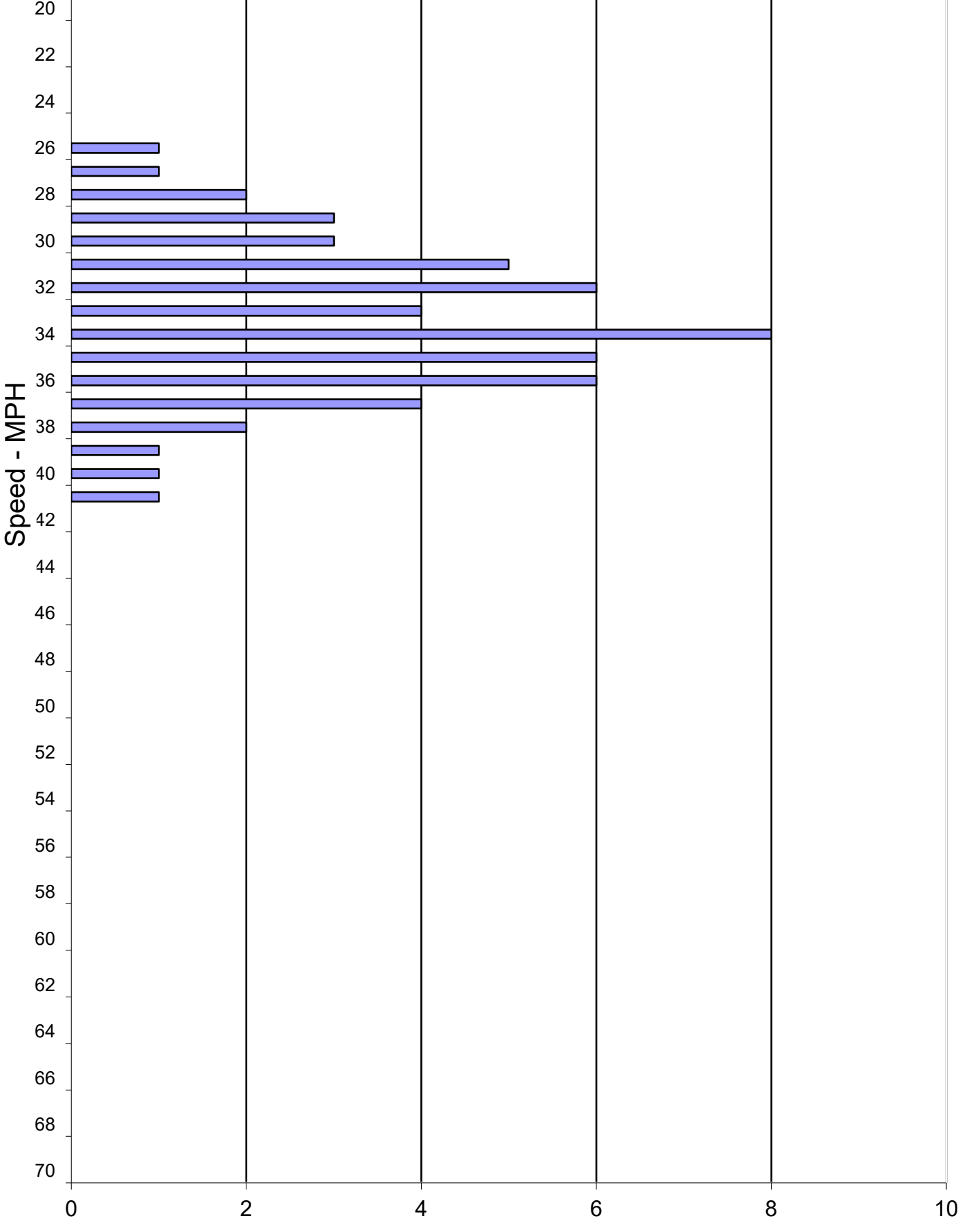

SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	54	26 - 41	34 mph	37 mph	28 - 37	47	87%	3% / 2	10% / 5

Spot Speed Study

Prepared by: National Data & Surveying Services

City of El Dorado Hills

DATE: 4/2/2024 **Location:** Appian Way S/O Sangiovese Dr

TIME: 11:45-13:05 **Posted Speed:** 25 MPH Clear/Dry **Project #:** 24-070065-002

Northbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	1
23	
24	1
25	1
26	2
27	4
28	2
29	5
30	4
31	5
32	3
33	3
34	6
35	4
36	3
37	2
38	1
39	3
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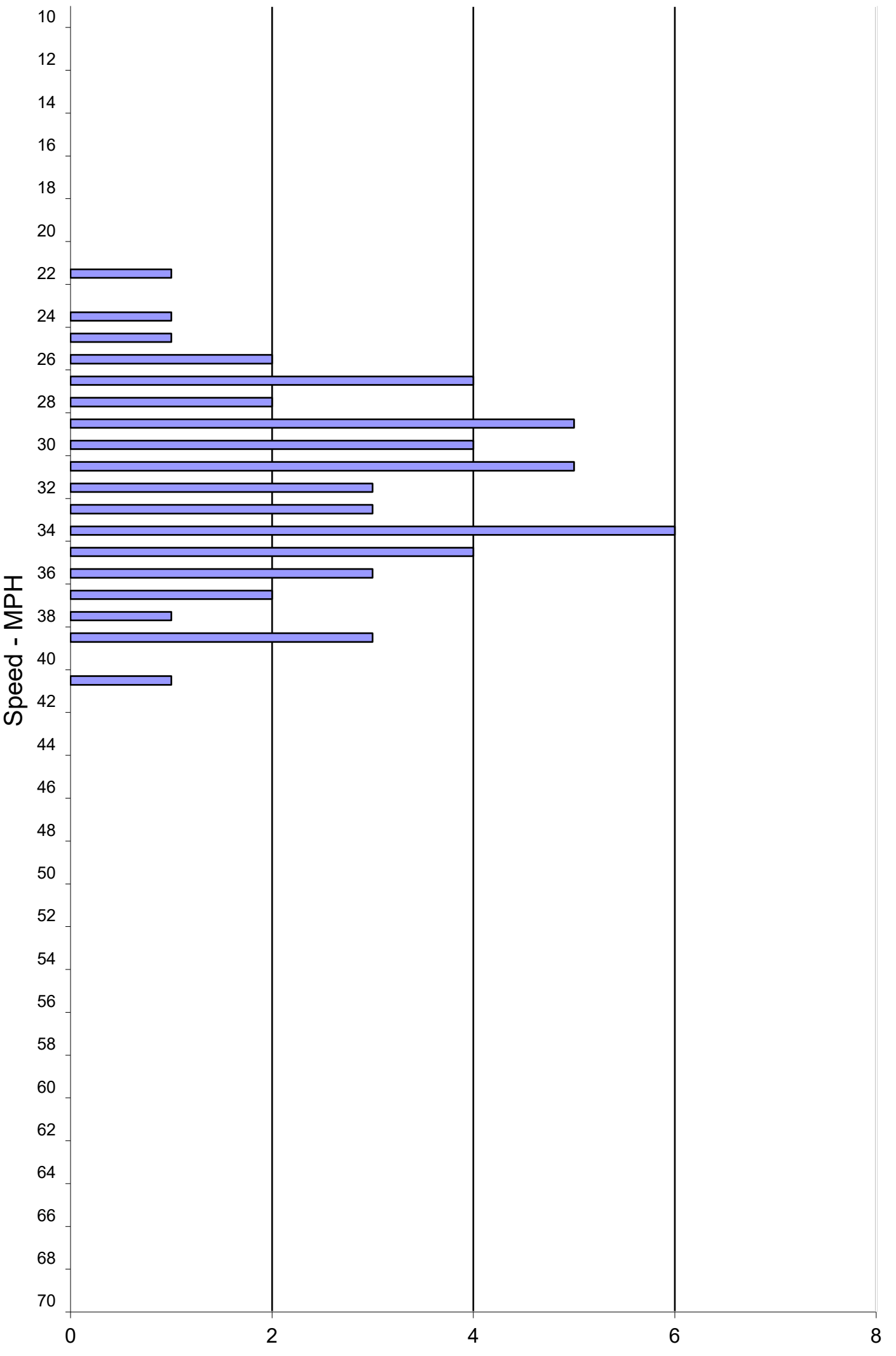
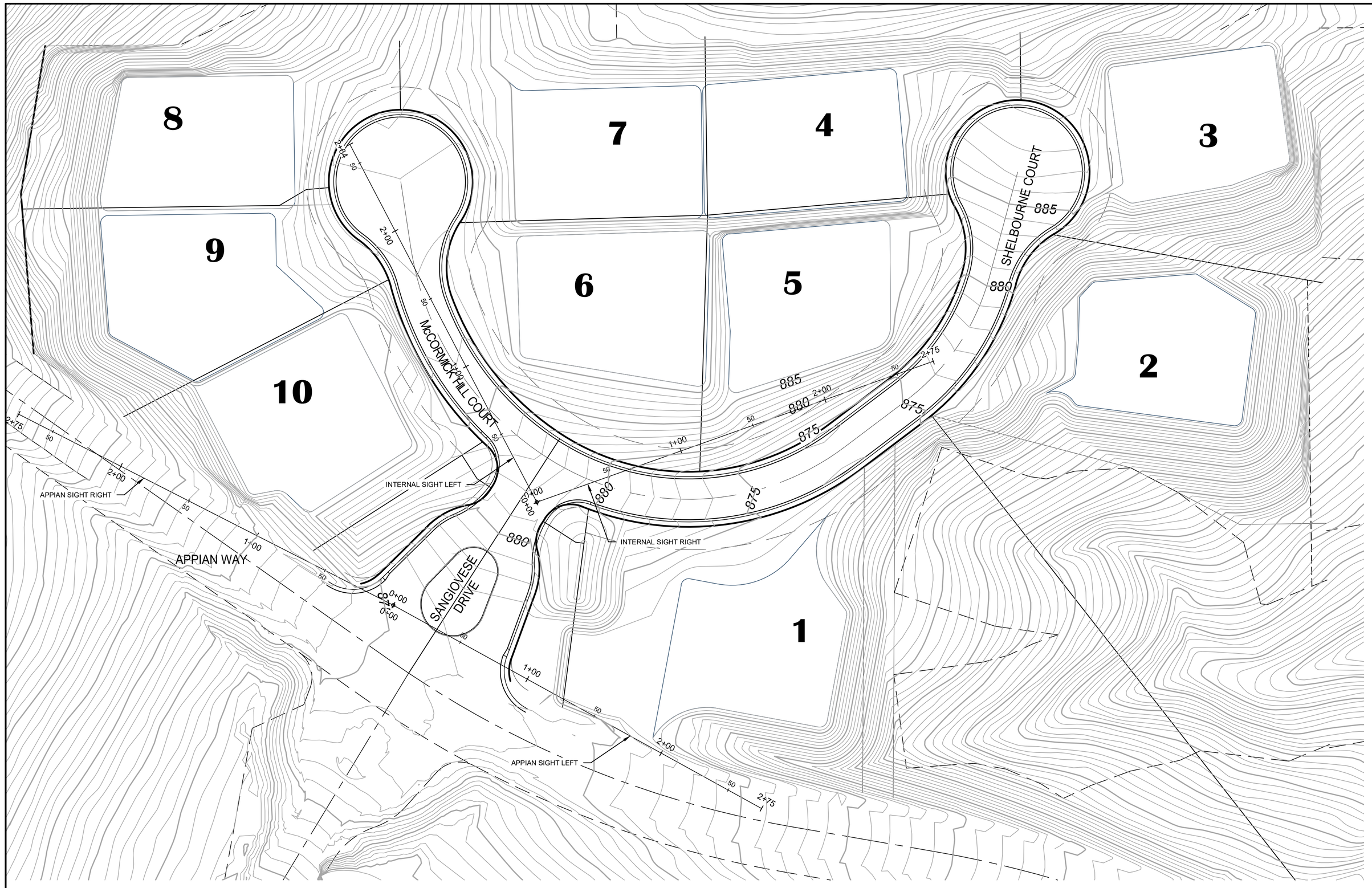
>=70	

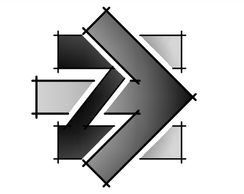


SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	51	22 - 41	32 mph	36 mph	27 - 36	39	76%	9% / 5	14% / 7

Attachment B

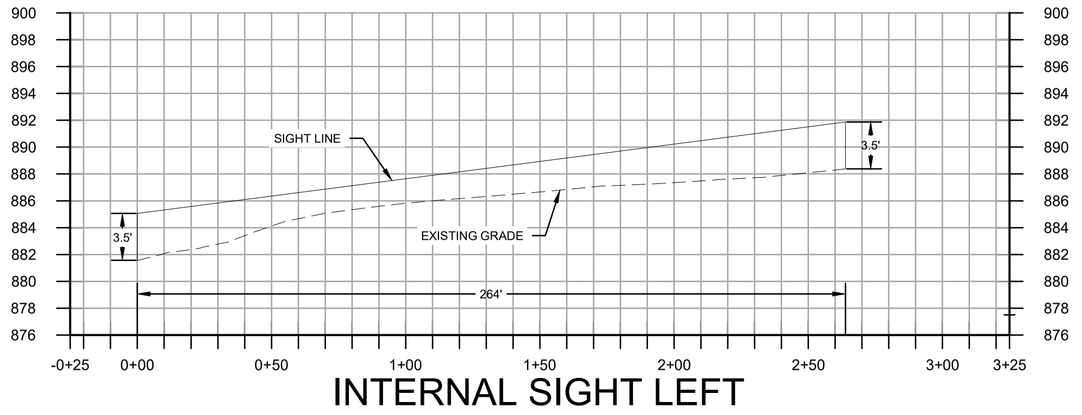
Appian Way/Sangiovese Drive – Sight Distance



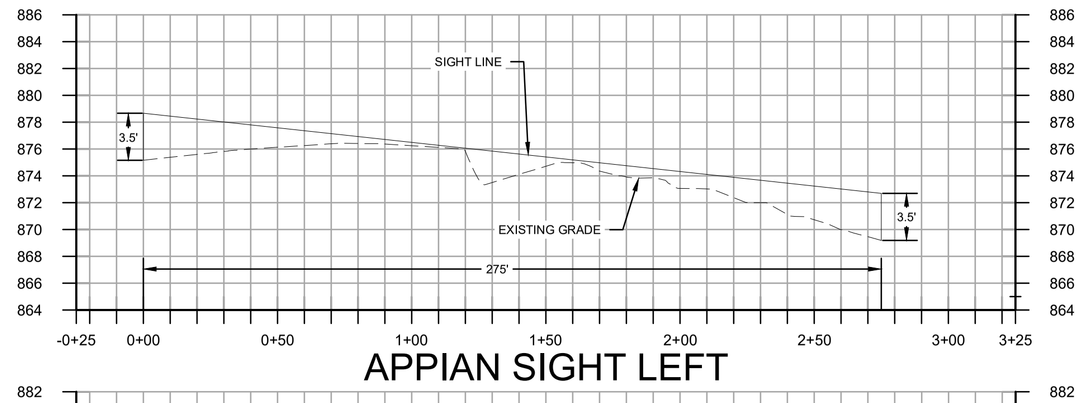


SCALE IN FEET

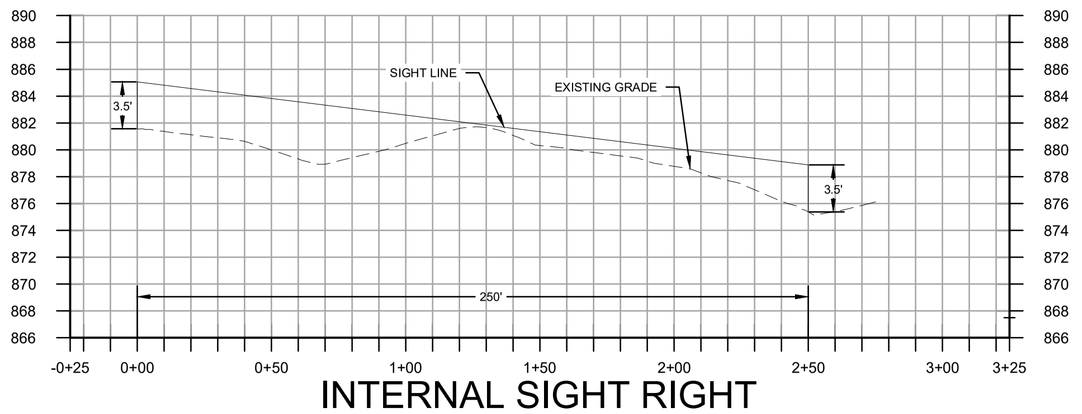
NOTE:
THE AASHTO SIGHT DISTANCE CALCULATION AND A DESIGN SPEED OF 35 MPH WERE USED TO DETERMINE THE SIGHT DISTANCES IN THIS EXHIBIT.



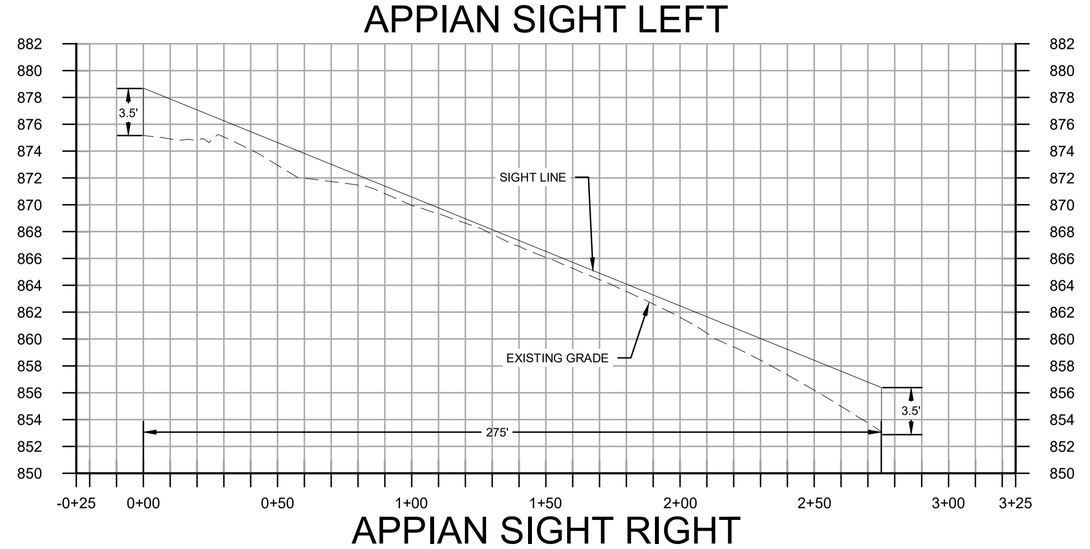
INTERNAL SIGHT LEFT



APPIAN SIGHT LEFT



INTERNAL SIGHT RIGHT



APPIAN SIGHT RIGHT

NO.	REVISION DESCRIPTION	CHECKED BY	DATE

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING SCALE
HOR. SCALE:
VERT. SCALE:

REY ENGINEERS, INC.
Civil Engineers | Land Surveyors | LD/AR
905 Sutter Street, Suite 200 Folsom, CA 95630
Phone (916) 366-3043 Fax (916) 366-3333

IMPROVEMENT AND GRADING PLANS FOR:
SERRANO - VILLAGE M5
TM 01-1381
SIGHT DISTANCE EXHIBIT
EL DORADO COUNTY CALIFORNIA

DRAWING INFO
DATE: 10/08/2025
DRAFTER: GC
DESIGNER: GC
REVIEWER: RR

PROJECT NO.
2677.225
SHEET NO. OF

Attachment C

Silva Valley Parkway/Appian Way – Traffic Operations

Intersection	
Intersection Delay, s/veh	39.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1	83	176	2	71	20	264	57	38	371	19
Future Vol, veh/h	35	1	83	176	2	71	20	264	57	38	371	19
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	1	102	217	2	88	25	326	70	47	458	23
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	14.8	23.4	25.8	67.5
HCM LOS	B	C	D	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	0%	29%	71%	9%
Vol Thru, %	93%	0%	1%	1%	87%
Vol Right, %	0%	100%	70%	29%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	57	119	249	428
LT Vol	20	0	35	176	38
Through Vol	264	0	1	2	371
RT Vol	0	57	83	71	19
Lane Flow Rate	351	70	147	307	528
Geometry Grp	5	5	2	2	4a
Degree of Util (X)	0.737	0.133	0.324	0.644	1.007
Departure Headway (Hd)	7.563	6.806	7.941	7.547	6.859
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	477	525	451	476	528
Service Time	5.33	4.572	6.03	5.615	4.918
HCM Lane V/C Ratio	0.736	0.133	0.326	0.645	1
HCM Control Delay	28.8	10.6	14.8	23.4	67.5
HCM Lane LOS	D	B	B	C	F
HCM 95th-tile Q	6	0.5	1.4	4.5	14.2

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	4	39	113	2	87	70	294	108	57	233	29
Future Vol, veh/h	17	4	39	113	2	87	70	294	108	57	233	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	43	124	2	96	77	323	119	63	256	32
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	10.4	13	17.7	15.7
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	0%	28%	56%	18%
Vol Thru, %	81%	0%	7%	1%	73%
Vol Right, %	0%	100%	65%	43%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	364	108	60	202	319
LT Vol	70	0	17	113	57
Through Vol	294	0	4	2	233
RT Vol	0	108	39	87	29
Lane Flow Rate	400	119	66	222	351
Geometry Grp	5	5	2	2	4a
Degree of Util (X)	0.67	0.172	0.117	0.379	0.554
Departure Headway (Hd)	6.026	5.218	6.395	6.142	5.692
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	596	684	556	582	631
Service Time	3.784	2.976	4.492	4.214	3.754
HCM Lane V/C Ratio	0.671	0.174	0.119	0.381	0.556
HCM Control Delay	20.3	9.1	10.4	13	15.7
HCM Lane LOS	C	A	B	B	C
HCM 95th-tile Q	5	0.6	0.4	1.8	3.4

Intersection	
Intersection Delay, s/veh	41.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	1	83	183	2	74	20	264	60	39	371	19
Future Vol, veh/h	35	1	83	183	2	74	20	264	60	39	371	19
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	1	102	226	2	91	25	326	74	48	458	23
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	14.9	24.4	25.6	72
HCM LOS	B	C	D	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	0%	29%	71%	9%
Vol Thru, %	93%	0%	1%	1%	86%
Vol Right, %	0%	100%	70%	29%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	60	119	259	429
LT Vol	20	0	35	183	39
Through Vol	264	0	1	2	371
RT Vol	0	60	83	74	19
Lane Flow Rate	351	74	147	320	530
Geometry Grp	5	5	2	2	4a
Degree of Util (X)	0.733	0.139	0.322	0.663	1.023
Departure Headway (Hd)	7.694	6.936	8.106	7.635	6.955
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	473	520	447	476	524
Service Time	5.394	4.636	6.106	5.635	4.955
HCM Lane V/C Ratio	0.742	0.142	0.329	0.672	1.011
HCM Control Delay	28.7	10.8	14.9	24.4	72
HCM Lane LOS	D	B	B	C	F
HCM 95th-tile Q	6	0.5	1.4	4.8	14.9

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	4	39	117	2	90	70	294	116	61	233	29
Future Vol, veh/h	17	4	39	117	2	90	70	294	116	61	233	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	4	43	129	2	99	77	323	127	67	256	32
Number of Lanes	0	1	0	0	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	1	1
HCM Control Delay	10.4	13.3	17.8	16.1
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	0%	28%	56%	19%
Vol Thru, %	81%	0%	7%	1%	72%
Vol Right, %	0%	100%	65%	43%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	364	116	60	209	323
LT Vol	70	0	17	117	61
Through Vol	294	0	4	2	233
RT Vol	0	116	39	90	29
Lane Flow Rate	400	127	66	230	355
Geometry Grp	5	5	2	2	4a
Degree of Util (X)	0.674	0.186	0.12	0.394	0.566
Departure Headway (Hd)	6.07	5.262	6.557	6.175	5.738
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	592	678	550	579	625
Service Time	3.836	3.028	4.557	4.252	3.807
HCM Lane V/C Ratio	0.676	0.187	0.12	0.397	0.568
HCM Control Delay	20.6	9.2	10.4	13.3	16.1
HCM Lane LOS	C	A	B	B	C
HCM 95th-tile Q	5.1	0.7	0.4	1.9	3.5

Attachment D

Silva Valley Parkway/Appian Way – Signal Warrant Evaluation

Start Time	Southbound Approach						Westbound Approach						Northbound Approach						Eastbound Approach					
	Southbound						Westbound						Nouthbound						Eastbound					
	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total
12:00 AM						0						0						0						0
12:15 AM						0						0						0						0
12:30 AM		8				8		1				1		14				14						0
12:45 AM						0						0						0						0
Hourly Total	0	8	0	0	0	8	0	1	0	0	0	1	0	14	0	0	0	14	0	0	0	0	0	0
1:00 AM						0						0						0						0
1:15 AM		3				3		0				0		7				7						0
1:30 AM						0						0						0						0
1:45 AM						0						0						0						0
Hourly Total	0	3	0	0	0	3	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0
2:00 AM						0						0						0						0
2:15 AM		2				2		0				0		5				5						0
2:30 AM						0						0						0						0
2:45 AM						0						0						0						0
Hourly Total	0	2	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0
3:00 AM						0						0						0						0
3:15 AM		5				5		2				2		7				7						0
3:30 AM						0						0						0						0
3:45 AM						0						0						0						0
Hourly Total	0	5	0	0	0	5	0	2	0	0	0	2	0	7	0	0	0	7	0	0	0	0	0	0
4:00 AM						0						0						0						0
4:15 AM		11				11		5				5		9				9						0
4:30 AM						0						0						0						0
4:45 AM						0						0						0						0
Hourly Total	0	11	0	0	0	11	0	5	0	0	0	5	0	9	0	0	0	9	0	0	0	0	0	0
5:00 AM						0						0						0						0
5:15 AM		42				42		32				32		38				38						0
5:30 AM						0						0						0						0
5:45 AM						0						0						0						0
Hourly Total	0	42	0	0	0	42	0	32	0	0	0	32	0	38	0	0	0	38	0	0	0	0	0	0
6:00 AM						0						0						0						0
6:15 AM		108				108		46				46		92				92						0
6:30 AM						0						0						0						0
6:45 AM						0						0						0						0
Hourly Total	0	108	0	0	0	108	0	46	0	0	0	46	0	92	0	0	0	92	0	0	0	0	0	0
7:00 AM						0						0						0						0
7:15 AM		347				347		200				200		251				251						0
7:30 AM						0						0						0						0
7:45 AM						0						0						0						0
Hourly Total	0	347	0	0	0	347	0	200	0	0	0	200	0	251	0	0	0	251	0	0	0	0	0	0
8:00 AM						0						0						0						0
8:15 AM		409				409		247				247		321				321						0
8:30 AM						0						0						0						0
8:45 AM						0						0						0						0
Hourly Total	0	409	0	0	0	409	0	247	0	0	0	247	0	321	0	0	0	321	0	0	0	0	0	0
9:00 AM						0						0						0						0
9:15 AM		181				181		121				121		178				178						0
9:30 AM						0						0						0						0
9:45 AM						0						0						0						0
Hourly Total	0	181	0	0	0	181	0	121	0	0	0	121	0	178	0	0	0	178	0	0	0	0	0	0
10:00 AM						0						0						0						0
10:15 AM		219				219		120				120		192				192						0
10:30 AM						0						0						0						0
10:45 AM						0						0						0						0
Hourly Total	0	219	0	0	0	219	0	120	0	0	0	120	0	192	0	0	0	192	0	0	0	0	0	0
11:00 AM						0						0						0						0
11:15 AM		172				172		113				113		218				218						0
11:30 AM						0						0						0						0
11:45 AM						0						0						0						0
Hourly Total	0	172	0	0	0	172	0	113	0	0	0	113	0	218	0	0	0	218	0	0	0	0	0	0
12:00 PM						0						0						0						0
12:15 PM		254				254		120				120		288				288						0
12:30 PM						0						0						0						0
12:45 PM						0						0						0						0
Hourly Total	0	254	0	0	0	254	0	120	0	0	0	120	0	288	0	0	0	288	0	0	0	0	0	0

NOTES:

It should be noted that if data is copied overtop of the Hourly Totals or Approach Totals, that the 'AutoSum' Formula will be lost. This should not affect the actual totals if the data was copied from a program that performs the calculations for the user.

1:00 PM						0						0						0						0
1:15 PM		219				219		123				123		324				324						0
1:30 PM						0						0						0						0
1:45 PM						0						0						0						0
Hourly Total	0	219	0	0	0	219	0	123	0	0	0	123	0	324	0	0	0	324	0	0	0	0	0	0
2:00 PM						0						0						0						0
2:15 PM		290				290		169				169		377				377						0
2:30 PM						0						0						0						0
2:45 PM						0						0						0						0
Hourly Total	0	290	0	0	0	290	0	169	0	0	0	169	0	377	0	0	0	377	0	0	0	0	0	0
3:00 PM						0						0						0						0
3:15 PM		272				272		200				200		389				389						0
3:30 PM						0						0						0						0
3:45 PM						0						0						0						0
Hourly Total	0	272	0	0	0	272	0	200	0	0	0	200	0	389	0	0	0	389	0	0	0	0	0	0
4:00 PM						0						0						0						0
4:15 PM		276				276		187				187		354				354						0
4:30 PM						0						0						0						0
4:45 PM						0						0						0						0
Hourly Total	0	276	0	0	0	276	0	187	0	0	0	187	0	354	0	0	0	354	0	0	0	0	0	0
5:00 PM						0						0						0						0
5:15 PM		263				263		129				129		399				399						0
5:30 PM						0						0						0						0
5:45 PM						0						0						0						0
Hourly Total	0	263	0	0	0	263	0	129	0	0	0	129	0	399	0	0	0	399	0	0	0	0	0	0
6:00 PM						0						0						0						0
6:15 PM		202				202		96				96		288				288						0
6:30 PM						0						0						0						0
6:45 PM						0						0						0						0
Hourly Total	0	202	0	0	0	202	0	96	0	0	0	96	0	288	0	0	0	288	0	0	0	0	0	0
7:00 PM						0						0						0						0
7:15 PM		150				150		55				55		231				231						0
7:30 PM						0						0						0						0
7:45 PM						0						0						0						0
Hourly Total	0	150	0	0	0	150	0	55	0	0	0	55	0	231	0	0	0	231	0	0	0	0	0	0
8:00 PM						0						0						0						0
8:15 PM		91				91		26				26		165				165						0
8:30 PM						0						0						0						0
8:45 PM						0						0						0						0
Hourly Total	0	91	0	0	0	91	0	26	0	0	0	26	0	165	0	0	0	165	0	0	0	0	0	0
9:00 PM						0						0						0						0
9:15 PM		66				66		18				18		97				97						0
9:30 PM						0						0						0						0
9:45 PM						0						0						0						0
Hourly Total	0	66	0	0	0	66	0	18	0	0	0	18	0	97	0	0	0	97	0	0	0	0	0	0
10:00 PM						0						0						0						0
10:15 PM		26				26		9				9		50				50						0
10:30 PM						0						0						0						0
10:45 PM						0						0						0						0
Hourly Total	0	26	0	0	0	26	0	9	0	0	0	9	0	50	0	0	0	50	0	0	0	0	0	0
11:00 PM						0						0						0						0
11:15 PM		17				17		3				3		28				28						0
11:30 PM						0						0						0						0
11:45 PM						0						0						0						0
Hourly Total	0	17	0	0	0	17	0	3	0	0	0	3	0	28	0	0	0	28	0	0	0	0	0	0

OMUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? Yes

**Only applicable after an adequate trial of other alternatives (See section 4C.02.06 of the 2012 OMUTCD)*

Lanes Major/ Minor	Adjusted Volumes		Condition A				Condition B				Combination A/B*							
											Cond. A		Cond. B		Cond. A		Cond. B	
	Major	Minor	100%		70%		100%		70%		80%		80%		56%		56%	
			Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
1 / 1	X		500	150	350	105	750	75	525	53	400	120	600	60	280	84	420	42
2+ / 1			600	150	420	105	900	75	630	53	480	120	720	60	336	84	504	42
2+ / 2+			600	200	420	140	900	100	630	70	480	160	720	80	336	112	504	56
1 / 2+			500	200	350	140	750	100	525	70	400	160	600	80	280	112	420	56
12:00 AM	22	1																
12:15 AM	22	1																
12:30 AM	32	1																
12:45 AM	10	0																
1:00 AM	10	0																
1:15 AM	10	0																
1:30 AM	7	0																
1:45 AM	7	0																
2:00 AM	7	0																
2:15 AM	7	0																
2:30 AM	12	2																
2:45 AM	12	2																
3:00 AM	12	2																
3:15 AM	12	2																
3:30 AM	20	5																
3:45 AM	20	5																
4:00 AM	20	5																
4:15 AM	20	5																
4:30 AM	80	32																
4:45 AM	80	32																
5:00 AM	80	32																
5:15 AM	80	32																
5:30 AM	200	46																
5:45 AM	200	46																
6:00 AM	200	46																
6:15 AM	200	46																
6:30 AM	598	200	1	1	1	1			1	1	1	1			1	1	1	1
6:45 AM	598	200																
7:00 AM	598	200																
7:15 AM	598	200																
7:30 AM	730	247	1	1	1	1			1	1	1	1	1	1	1	1	1	1
7:45 AM	730	247																
8:00 AM	730	247																
8:15 AM	730	247																
8:30 AM	359	121			1	1									1	1		
8:45 AM	359	121																
9:00 AM	359	121																
9:15 AM	359	121																
9:30 AM	411	120			1	1					1	1			1	1		
9:45 AM	411	120																

10:00 AM	411	120																
10:15 AM	411	120																
10:30 AM	390	113			1	1									1	1		
10:45 AM	390	113																
11:00 AM	390	113																
11:15 AM	390	113																
11:30 AM	542	120	1		1	1			1	1	1	1			1	1	1	1
11:45 AM	542	120																
12:00 PM	542	120																
12:15 PM	542	120																
12:30 PM	543	123	1		1	1			1	1	1	1			1	1	1	1
12:45 PM	543	123																
1:00 PM	543	123																
1:15 PM	543	123																
1:30 PM	667	169	1	1	1	1			1	1	1	1	1	1	1	1	1	1
1:45 PM	667	169																
2:00 PM	667	169																
2:15 PM	667	169																
2:30 PM	661	200	1	1	1	1			1	1	1	1	1	1	1	1	1	1
2:45 PM	661	200																
3:00 PM	661	200																
3:15 PM	661	200																
3:30 PM	630	187	1	1	1	1			1	1	1	1	1	1	1	1	1	1
3:45 PM	630	187																
4:00 PM	630	187																
4:15 PM	630	187																
4:30 PM	662	129	1		1	1			1	1	1	1	1	1	1	1	1	1
4:45 PM	662	129																
5:00 PM	662	129																
5:15 PM	662	129																
5:30 PM	490	96			1						1				1	1	1	1
5:45 PM	490	96																
6:00 PM	490	96																
6:15 PM	490	96																
6:30 PM	381	55			1										1			
6:45 PM	381	55																
7:00 PM	381	55																
7:15 PM	381	55																
7:30 PM	256	26																
7:45 PM	256	26																
8:00 PM	256	26																
8:15 PM	256	26																
8:30 PM	163	18																
8:45 PM	163	18																
9:00 PM	163	18																
9:15 PM	163	18																
9:30 PM	76	9																
9:45 PM	76	9																
HOURS MET			**8**	**5**	**13**	**11**	**0**	**0**	**8**	**8**	**10**	**9**	**5**	**5**	**13**	**12**	**9**	**9**
WARRANT SATISFIED?			**NO**		**YES**		**NO**		**YES**		**NO**				**YES**			

Warrant Met: **No**

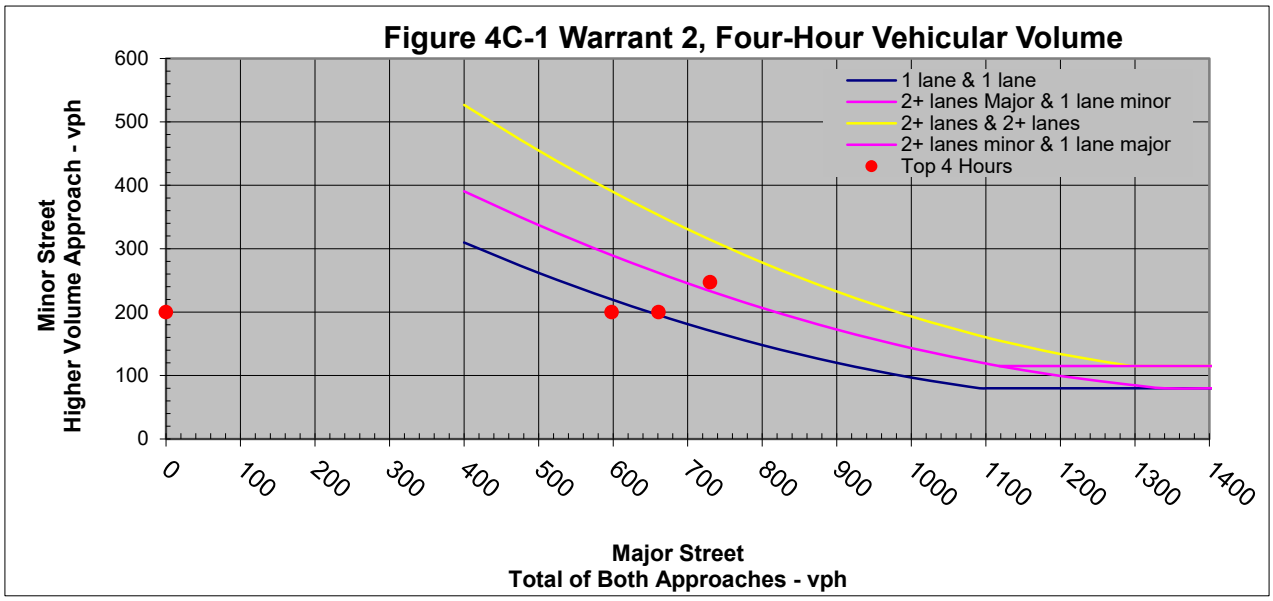
Notes: Condition A (70%) was met. Condition B (70%) was met. Combination of A/B (56%) was met.*

OMUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach		Total Number of Unique Hours Met on Figure 4C-1	2
Major street:	1 Lane	Total Number of Unique Hours Met on Figure 4C-2 (70% Factor)	8
Minor Street:	1 Lane		

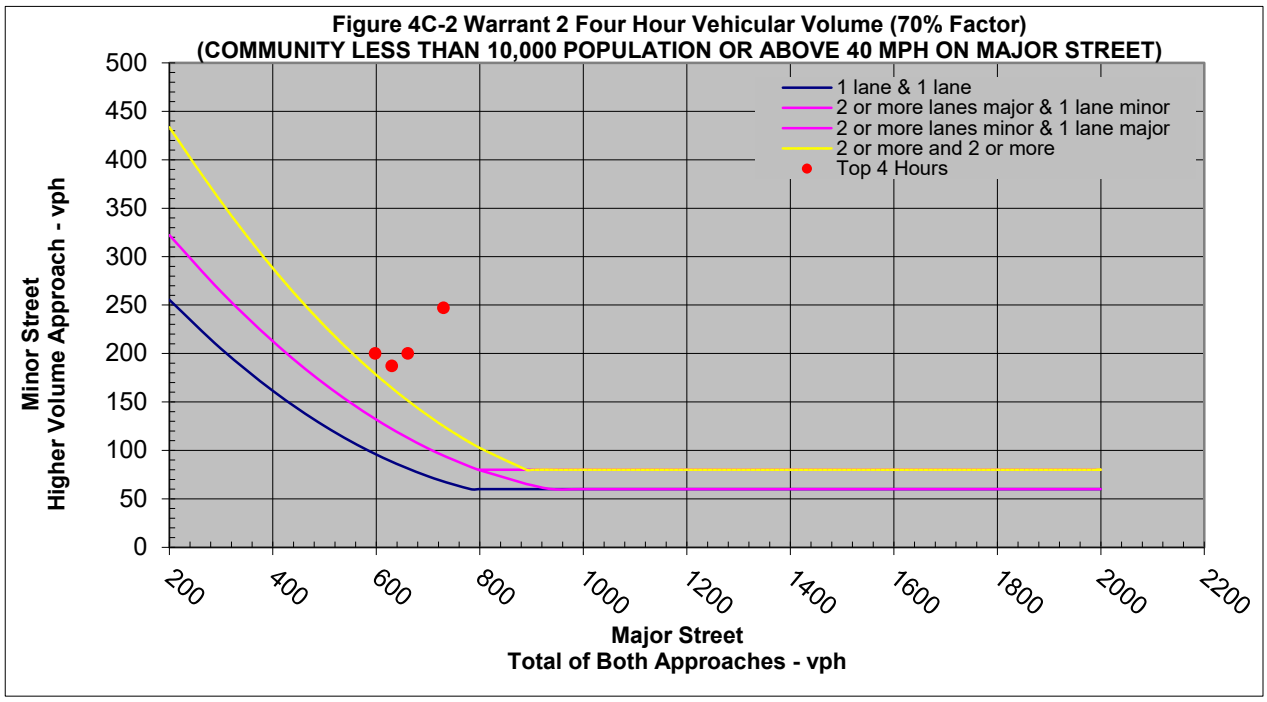
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

Hour Interval Beginning At	Raw Traffic Counts				Total Major Approach Volumes	Highest Actual Minor Street Approach Volumes	Hour Met?	Hour Met? (70% Factor)
	Major - Silva Valley Parkway		Minor - Appian Way					
	N-Bound	S-Bound	W-Bound	E-Bound				
6:00 AM	92	108	46	0	200	46		
6:15 AM	92	108	46	0	200	46		
6:30 AM	251	347	200	0	598	200		Met
6:45 AM	251	347	200	0	598	200		
7:00 AM	251	347	200	0	598	200		
7:15 AM	251	347	200	0	598	200		
7:30 AM	321	409	247	0	730	247	Met	Met
7:45 AM	321	409	247	0	730	247		
8:00 AM	321	409	247	0	730	247		
8:15 AM	321	409	247	0	730	247		
8:30 AM	178	181	121	0	359	121		
8:45 AM	178	181	121	0	359	121		
9:00 AM	178	181	121	0	359	121		
9:15 AM	178	181	121	0	359	121		
9:30 AM	192	219	120	0	411	120		
9:45 AM	192	219	120	0	411	120		
10:00 AM	192	219	120	0	411	120		
10:15 AM	192	219	120	0	411	120		
10:30 AM	218	172	113	0	390	113		
10:45 AM	218	172	113	0	390	113		
11:00 AM	218	172	113	0	390	113		
11:15 AM	218	172	113	0	390	113		
11:30 AM	288	254	120	0	542	120		Met
11:45 AM	288	254	120	0	542	120		
12:00 PM	288	254	120	0	542	120		
12:15 PM	288	254	120	0	542	120		
12:30 PM	324	219	123	0	543	123		Met
12:45 PM	324	219	123	0	543	123		
1:00 PM	324	219	123	0	543	123		
1:15 PM	324	219	123	0	543	123		
1:30 PM	377	290	169	0	667	169		Met
1:45 PM	377	290	169	0	667	169		
2:00 PM	377	290	169	0	667	169		
2:15 PM	377	290	169	0	667	169		
2:30 PM	389	272	200	0	661	200	Met	Met
2:45 PM	389	272	200	0	661	200		
3:00 PM	389	272	200	0	661	200		
3:15 PM	389	272	200	0	661	200		
3:30 PM	354	276	187	0	630	187		Met
3:45 PM	354	276	187	0	630	187		
4:00 PM	354	276	187	0	630	187		
4:15 PM	354	276	187	0	630	187		
4:30 PM	399	263	129	0	662	129		Met
4:45 PM	399	263	129	0	662	129		
5:00 PM	399	263	129	0	662	129		
5:15 PM	399	263	129	0	662	129		
5:30 PM	288	202	96	0	490	96		
5:45 PM	288	202	96	0	490	96		
6:00 PM	288	202	96	0	490	96		
6:15 PM	288	202	96	0	490	96		
6:30 PM	231	150	55	0	381	55		
6:45 PM	231	150	55	0	381	55		
7:00 PM	231	150	55	0	381	55		
7:15 PM	231	150	55	0	381	55		
7:30 PM	165	91	26	0	256	26		
7:45 PM	165	91	26	0	256	26		
8:00 PM	165	91	26	0	256	26		



Top Hours for Figure 4C-1	Start Time	End Time	Major Street	Minor Street
Top Hour	7:30 AM	8:30 AM	730	247
2nd Highest Hour	2:30 PM	3:30 PM	661	200
3rd Highest Hour	12:00 AM	1:00 AM	0	200
4th Highest Hour	6:30 AM	7:30 AM	598	200

Top Hours for Figure 4C-2	Start Time	End Time	Major Street	Minor Street
Top Hour	7:30 AM	8:30 AM	730	247
2nd Highest Hour	2:30 PM	3:30 PM	661	200
3rd Highest Hour	6:30 AM	7:30 AM	598	200
4th Highest Hour	3:30 PM	4:30 PM	630	187



Are the requirements for Warrant 2 met?: No

OMUTCD WARRANT 3, PEAK HOUR

Number of Lanes for Moving Traffic on Each Approach		Peak Hour Start time	7:30 AM
Major Street:	1 Lane	Peak Hour End Time	8:30 AM
Minor Street:	1 Lane		

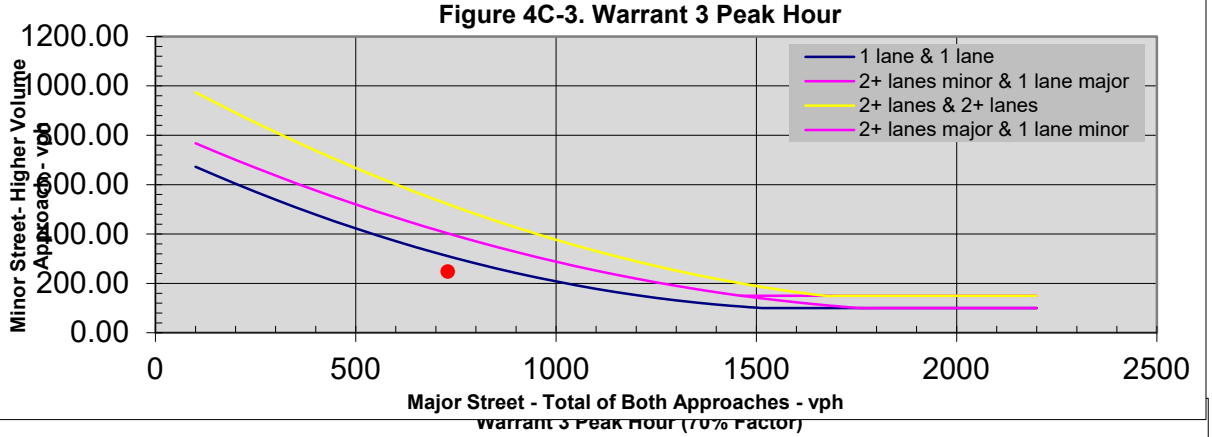
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

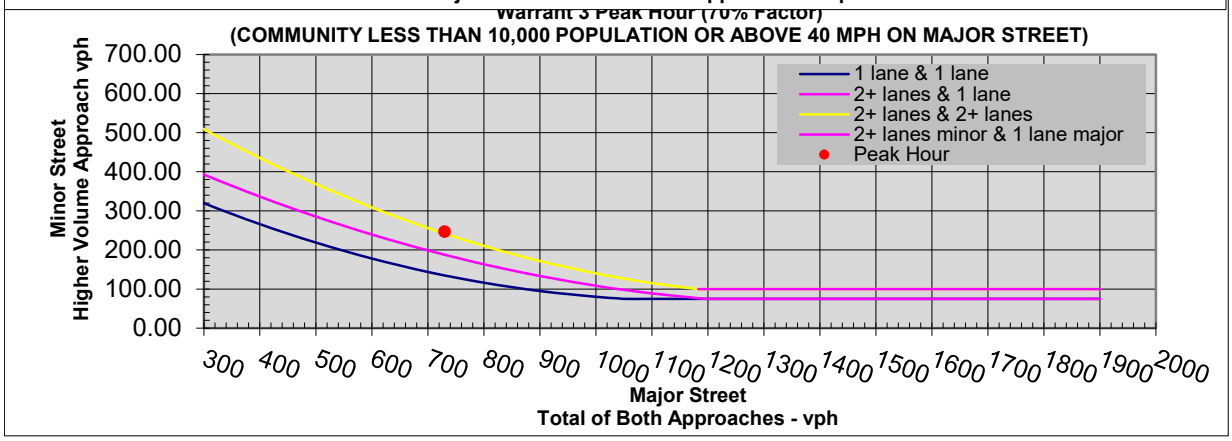
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
**If applicable, attach all supporting calculations and documentation.*	

Are the requirements for Warrant 3 met?: **No**

Figure 4C-3. Warrant 3 Peak Hour





Hour Vehicular Volume				
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Sum of Major Street and Highest Minor Street**	**Sum of Major Street and Combined Minor Street**
6:00 AM	200	46	246	246
6:15 AM	200	46	246	246
6:30 AM	598	200	798	798
6:45 AM	598	200	798	798
7:00 AM	598	200	798	798
7:15 AM	598	200	798	798
7:30 AM	730	247	977	977
7:45 AM	730	247	977	977
8:00 AM	730	247	977	977
8:15 AM	730	247	977	977
8:30 AM	359	121	480	480
8:45 AM	359	121	480	480
9:00 AM	359	121	480	480
9:15 AM	359	121	480	480
9:30 AM	411	120	531	531
9:45 AM	411	120	531	531
10:00 AM	411	120	531	531
10:15 AM	411	120	531	531
10:30 AM	390	113	503	503
10:45 AM	390	113	503	503
11:00 AM	390	113	503	503
11:15 AM	390	113	503	503
11:30 AM	542	120	662	662
11:45 AM	542	120	662	662
12:00 PM	542	120	662	662
12:15 PM	542	120	662	662
12:30 PM	543	123	666	666
12:45 PM	543	123	666	666
1:00 PM	543	123	666	666
1:15 PM	543	123	666	666
1:30 PM	667	169	836	836
1:45 PM	667	169	836	836
2:00 PM	667	169	836	836
2:15 PM	667	169	836	836
2:30 PM	661	200	861	861
2:45 PM	661	200	861	861
3:00 PM	661	200	861	861
3:15 PM	661	200	861	861
3:30 PM	630	187	817	817
3:45 PM	630	187	817	817
4:00 PM	630	187	817	817
4:15 PM	630	187	817	817
4:30 PM	662	129	791	791
4:45 PM	662	129	791	791
5:00 PM	662	129	791	791
5:15 PM	662	129	791	791
5:30 PM	490	96	586	586
5:45 PM	490	96	586	586
6:00 PM	490	96	586	586
6:15 PM	490	96	586	586
6:30 PM	381	55	436	436
6:45 PM	381	55	436	436
7:00 PM	381	55	436	436
7:15 PM	381	55	436	436
7:30 PM	256	26	282	282
7:45 PM	256	26	282	282
8:00 PM	256	26	282	282

Actual Peak Hour Major Traffic Volume	Actual Peak Hour Minor Traffic Volume	Required Peak Hour Minor Traffic Volume for Fig. 4C-3	Required Peak Hour Minor Traffic Volume for Fig. 4C-4
730	247	310	135