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PLANNING DEPARTMENT

FILE # TM-C23-0002

EL DORADO COUNTY PLANNING DEPARTMENT

APPLICATION FOR Map Amendment for Parcel & Subdivision Maps

ASSESSOR'S PARCEL NO.(s) 102-210-12 & 13

PROJECT NAME/REQUEST: (Describe proposed use) Original name Summerbrook Estates/rename Oak Haven

No change in use.

IF SUBDIVISION/PARCEL MAP: Create 29 existin lots, ranging in size from 58,591s. ft to 91,113s. ft acre(s) / SF

IF ZONE CHANGE: From n/a to IF GENERAL PLAN AMENDMENT: From n/a to

IF TIME EXTENSION, REVISION, CORRECTION: Original approval date Expiration date

APPLICANT/AGENT Blue Mountain Communities

Mailing Address 707 Aldridge Road, Vacaville, CA 95688

Phone (707) 451-8111 x691 FAX (email) awong@bluemountaininc.net

PROPERTY OWNER Summerbrook El Dorado Inc.

Mailing Address Same

Phone () FAX ()

LIST ADDITIONAL PROPERTY OWNERS ON SEPARATE SHEET IF APPLICABLE

ENGINEER/ARCHITECT CTA Engineering & Surveying

Mailing Address 3233 Monier Circle, Rancho Cordova, CA 95742

Phone (916) 638-0919 FAX ()

LOCATION: The property is located on the North side of Green Valley Road
N/E/W/S street or road
500 feet/miles West of the intersection with Bass Lake Road
N/E/W/S major street or road
in the Cameron Park <or pick from list> area. PROPERTY SIZE 90 Acres
acreage / square footage

x [Signature] Date
signature of property owner or authorized agent

FOR OFFICE USE ONLY

Date 20 March 23 Fee \$ 2,117 Receipt # 45633 Rec'd by CER Census

Zoning RE-5 PD GPD LDR Supervisor Dist 4 Sec/Twn/Rng

ACTION BY: PLANNING COMMISSION
 ZONING ADMINISTRATOR
 PLANNING DIRECTOR

ACTION BY BOARD OF SUPERVISORS

Hearing Date

Hearing Date

Approved Denied (findings and/or conditions attached)

Approved Denied (findings and/or conditions attached)

APPEAL: Approved Denied

Executive Secretary

Executive Secretary

Revised 07/02)

EL DORADO COUNTY PLANNING DEPARTMENT

REQUIRED SUBMITTAL INFORMATION for Map Amendment for Parcel & Subdivision Maps

The following information must be provided with all applications. If all the information is not provided, the application will be deemed incomplete and will not be accepted. For your convenience, please use the check (✓) column on the left to be sure you have all the required information. All plans and maps MUST be folded to 8½" x 11".

FORMS AND MAPS REQUIRED

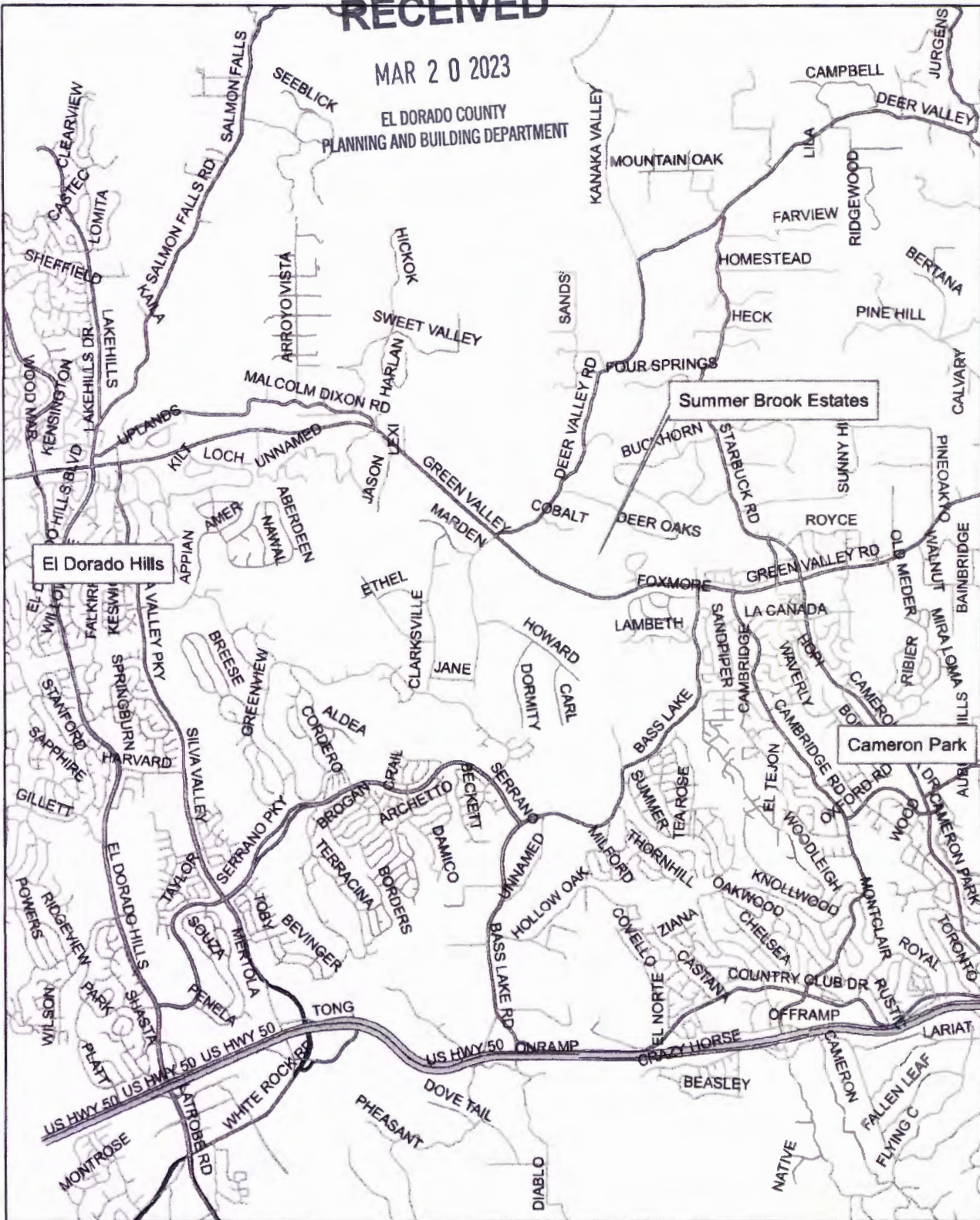
Check (✓)
Applicant County

- | | | |
|------------------|----|--|
| <u>✓</u> _____ | 1) | Application Form and Agreement for Payment of Processing Fees, completed and signed. |
| <u>N/A</u> _____ | 2) | Letter of authorization from <u>all</u> property owners authorizing agent to act as applicant, when applicable. |
| <u>N/A</u> _____ | 3) | Proof of ownership (Grant Deed), if the property has changed title since the last tax roll. |
| <u>✓</u> _____ | 4) | A copy of official Assessor's map, showing the property outlined in red. |
| <u>✓</u> _____ | 5) | An 8 ½ x 11" vicinity map showing the location of the project in relation to the distance to major roads, intersections, and town sites. |
| <u>✓</u> _____ | 6) | Provide name, mailing address and phone number of all property owners and their agents. |
| <u>N/A</u> _____ | 7) | Ten (10) copies of the proposed map amendment, folded to 8½" x 11". |
| <u>✓</u> _____ | 8) | Narrative of requested amendment, including supporting documentation, if applicable. |
| <u>N/A</u> _____ | 9) | Name and address of Homeowners' Association, CSA 9 Zone of Benefit, or other road maintenance entity if it exists in the project area. |

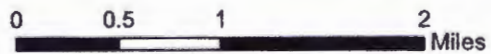
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EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT



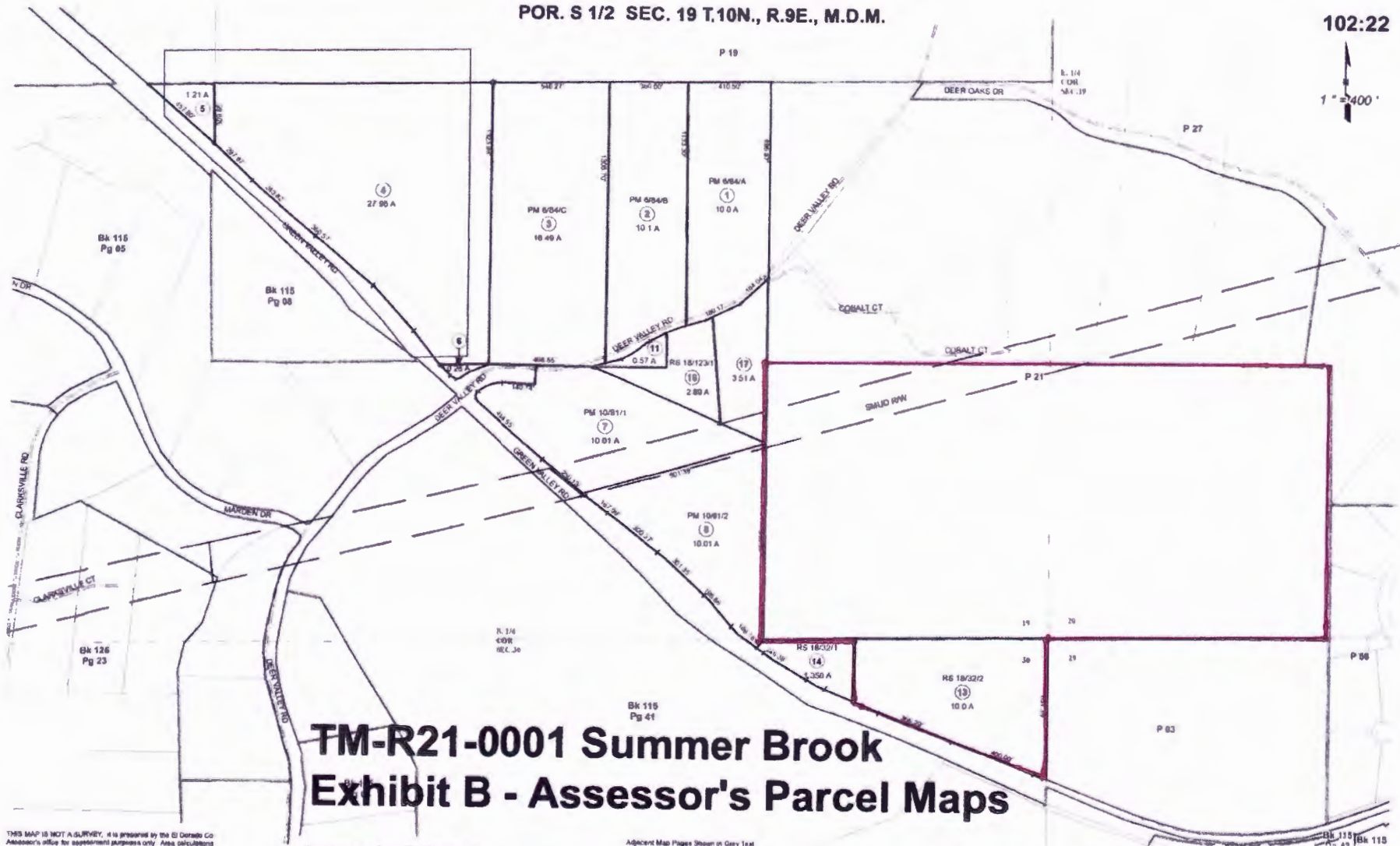
TM-R21-0001/Summer Brook
Location Map
Exhibit A



TM-R21-0001, TM-C23-0002

POR. S 1/2 SEC. 19 T.10N., R.9E., M.D.M.

102:22



TM-R21-0001 Summer Brook Exhibit B - Assessor's Parcel Maps

Acreages Are Estimates

THIS MAP IS NOT A SURVEY. It is prepared by the El Dorado Co Assessor's office for assessment purposes only. Area calculations and dimensions are not guaranteed. Users should verify items such as dimensions and acreage.

Adjacent Map Pages Shown in Gray Text Assessor's Block Numbers Shown in Italic Assessor's Parcel Numbers Shown in Circles

Rev June 19, 2012 Assessor's Map Bk. 102, Pg. 22
County of El Dorado, CA

Proposed Amendment to Project Conditions

25. The applicant shall ~~signalize-construct~~ street lighting to illuminate the Green Valley/Deer Valley Road intersection to meet current El Dorado County Standards, ~~as required in the approved traffic study.~~ These required enhancements shall include street lighting with the use of cobra head LED fixtures in accordance with County Standards and the provision of electrical power to the light standards. Subdivider shall provide a funding source e.g. inclusion in the project Home Owners Association (HOA) budget to cover the cost of electricity and general maintenance of the equipment ~~geometric improvements to Green Valley Road consistent with the approved improvement plans for CIP Project no. 6614 which includes the intersection widening to provide for right and left turn channelization and acceleration/deceleration lanes and shall adhere to the latest version of the Manual Uniform Traffic Control Devices (MUTCD), the California Supplement, and the Caltrans Highway Design Manual.~~ The improvements shall be substantially completed to the approval of the Department of Transportation or the applicant shall obtain an approved-revised Improvement Agreement with security reflecting the changes above, prior to the filing the final map for Phase 3 of the Subdivision.
26. ~~The signal controller and controller cabinets shall be approved the Department of Transportation Operations Maintenance prior to purchase of said items.~~

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PLANNING AND BUILDING DEPARTMENT

TM-R21-0001, TM-C23-0002

Narrative to Application for Amended Final Map

This application seeks the amendment of Condition No. 25 of the tentative map approved by the County in 2008, which was subsequently incorporated into the final map approved by the Board of Supervisors on October 11, 2022, requiring that the project be responsible for the construction of traffic signals at the intersection of Green Valley Road and Deer Valley Road (the "Subject Intersection"). All other Conditions have been satisfied, including intersection improvements, construction of a Class 2 bike lane and irrevocable offers of dedication of right of way for Green Valley Road slope easements.

The basis for this request is that there are changed circumstances that make the installation of traffic signals at the Subject Intersection no longer appropriate or necessary. In 2007 and 2008, when the traffic analysis was performed for the project, the traffic engineers were utilizing an early iteration of the County Traffic Demand Model which resulted in a finding that Subject Intersection was failing with or without the addition of traffic from the project. Since the project would add more than 10 vehicle trips in the a.m. peak hour, it was deemed to "worsen" the existing deficiency pursuant to General Plan Policies TC-Xa and TC-Xe. The determination that the project would worsen the impacts resulted in the application of Policy TC-Xf requiring mitigation. The traffic studies provided that to reduce impacts in compliance, with applicable standards, would require extensive physical improvement to the Subject Intersection, including signalization. These requirements were embodied in Conditions 25, 26 and 27 of the tentative map.

Since the approval of the project the County undertook an extensive updating of its Traffic Demand Model and Capital Improvement Plan. It was determined through the update process that some of the assumptions on population growth and densities utilized in the earlier model were dramatically overstated and a new Transportation Demand Model was adopted utilizing updated assumptions. Further, significant improvements were made at the Subject Intersection consistent with the physical improvements contained in the project Conditions 26 and 27.

Updated traffic reports were prepared for the project by Kimley Horn (the traffic engineer that conducted the study in 2007) in 2019, 2021 and 2022, which reveal that the Subject Intersection is operating well within County standards today and is projected to remain in compliance in future cumulative conditions. The updated project traffic studies revealed that the baseline traffic volumes utilized in the original analysis for 2007, is higher than the measured volumes in 2021, and 2022. As part of the recent traffic study updates a traffic signal warrants analysis was performed which concluded that warrants for signals were not met for existing or future traffic volumes.

As a result of the updated traffic analysis and traffic signal warrants, DOT has indicated that signalization is unnecessary and undesirable. Understanding that the intent of the condition was to improve the performance of the Subject Intersection, other measures were discussed that could be implemented other than signals to enhance the performance or safety of the intersection. In accordance with those discussions, the Subdivider has agreed to install street lighting at the intersection consisting of pole lights with LED downcast light fixtures ("cobra heads") complying with County standards. In addition, a funding source will be provided for the cost of electricity and general maintenance of the lighting ensuring there is no financial burden to the County.

This application is consistent with Ordinance Code Sections 120.72.010 and meets the findings required by Section 120.72.040 to amend a final map, itemized below.

1. There are changes in circumstance which make the condition of the map no longer appropriate or necessary;
2. The proposed modification does not impose any additional burden on the present fee owner of the property;
3. The modification proposed does not alter any right, title or interest in the real property reflected in the recorded map;
4. The map as modified conforms to the provisions of Government Code Section 66474.

Attachments

Kimley Horn, *Green Valley Road Intersection Operations Analysis*, April 12, 2022

Kimley Horn, *Traffic Signal Warrant Evaluation-Green Valley Road at Deer Valley Road*, June 4,

2021

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EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT

Memorandum

To: Mike Harlan, Blue Mountain Communities
From: Robert Paderna, P.E., Kimley-Horn
Zachary Ramalingam, EIT, Kimley-Horn
Re: Summer Brook
Traffic Signal Warrant Evaluation - Green Valley Road at Deer Valley Road
Date: June 4, 2021

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EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT

The purpose of this memorandum is to present the results of the traffic signal warrant evaluation completed for the Green Valley Road and Deer Valley Road intersection in El Dorado County, CA. We understand that El Dorado County has requested completion of the traffic signal warrant evaluation for the subject intersection as part of a condition of approval (COA) for the Summer Brook development project. This memorandum summarizes the signal warrant evaluation and our findings.

Data Collection

Kimley-Horn completed a site visit of the subject intersection on Monday, February 18, 2019, to observe posted speed limits, intersection lane configurations, and intersection geometry. Additionally, we collected 7-day, bi-directional roadway segment counts along each of the Green Valley Road and Deer Valley Road approaches to the subject intersection on the week of May 11, 2021. In addition, we collected intersection turning movement counts during the peak 8-hour window on May 26, 2021 for use in the traffic signal warrant evaluation. The traffic count data sheets are provided in Attachment A.

Traffic Control Warrants

We completed a traffic signal warrant evaluation for the subject intersection based on the methodologies noted in Section 4C.01 of the California Manual on Uniform Traffic Control Devices (CMUTCD), 2014 Edition (with March 2018 revisions). The warrant evaluation was completed for the Existing plus Project traffic conditions and included the review of Warrants 1 through 4 noted below.

- Warrant 1 (Eight-Hour Vehicular Volume) is intended for application at locations where there is either a large volume of intersecting traffic (Condition A-Warrant 1A) or where the traffic volume on a major street is so heavy that the traffic on the minor intersecting street experiences delay or conflict in entering or crossing the major street (Condition B-Warrant 1B). The need for a traffic control signal shall be considered if an engineering study finds that one of the conditions (Condition A and Condition B) exist for each of any 8 hours of an average day.
- Warrant 2 (Four-Hour Vehicular Volume) is intended for locations where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day the volume conditions are met.
- Warrant 3 (Peak Hour) is intended for use at a location where during any one (1) hour of an average day the minor street traffic experiences undue delay when entering or crossing the major street.
- Warrant 4 (Pedestrian Volumes) The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.



Based on the evaluation of the abovementioned traffic signal warrants , it was determined that the warrant for a traffic signal at the Green Valley Road at Deer Valley Road intersection is not satisfied under Existing plus Project conditions. The results of the warrant evaluation is summarized in **Table 1** below. Summary sheets for the warrant evaluation are included as **Attachment B**.

Table 1: Traffic Signal Warrant Evaluation Summary

Intersection	Traffic Signal Warrant			
	Warrant 1 8-hour volume	Warrant 2 4-hour volume	Warrant 3 Peak Hour	Warrant 4 Pedestrian Volume
Green Valley Road & Deer Valley Road	Not Satisfied	Not Satisfied	Not Satisfied	Not Satisfied

Equitable Share Responsibility

Because it was determined that the traffic signal warrant is not satisfied, the County has requested that the project applicant determine the project’s fair share percentage of the construction costs to install a traffic signal at the subject intersection. The project’s fair share contribution was calculated based on the project’s proportionate traffic contribution to the overall future traffic volumes at the subject intersection. Based on the Caltrans *Guide for the Preparation of Traffic Impact Studies* (2002), the fair share calculation for impacts at an intersection is calculated using the following equation:

$$P = T / (T_B - T_E)$$

Where:

P = The equitable share for the proposed project’s traffic impact.

T = The vehicle trips generated by the project during the peak hour of subject intersection in vehicles per hour, vph.

T_B = The forecasted traffic volume on impacted intersection at the time of general plan build-out, vph.

T_E = The existing traffic volume on the impacted intersection plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

Based on proposed project trips and traffic volumes contained in the *Summer Brook Traffic Impact Analysis* (dated February 14, 2007), we calculated a fair share of 3.9% for the proposed project’s traffic impact.

Summary and Recommendations

Based on the traffic signal warrant criteria contained in the *CMUTCD*, the Warrants 1 through 4 are not satisfied at the Green Valley Road at Deer Valley Road intersection under Existing plus Project conditions. Therefore, no traffic control or other intersection control modifications are required at this time. The proposed project’s fair share contribution percentage of construction costs to install a traffic signal was calculated to be 3.9%, which is equivalent to approximately \$10,000 to \$12,000. Note that this represents an opinion of probable construction costs under current market conditions, and Kimley-Horn cannot guarantee accuracy of construction cost estimates in future years due to factors beyond our control.

Attachments:

Attachment A – Traffic Counts

Attachment B – Warrant Analysis Worksheets

Attachment A
Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: Green Valley Rd & Deer Valley Rd
 City: Rescue
 Control: 2-Way Stop(EB/WB)

Project ID: 21-070070-001
 Date: 5/26/2021

Data - Total

NS/EW Streets:	Green Valley Rd				Green Valley Rd				Deer Valley Rd				Deer Valley Rd				TOTAL
	NORTHBOUND		SOUTHBOUND		EASTBOUND		WESTBOUND		NORTHBOUND		SOUTHBOUND		WESTBOUND				
NOON	1	1	0	1	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
11:00 AM	3	88	1	0	9	74	4	0	2	0	5	0	1	0	5	0	192
11:15 AM	5	85	1	0	4	85	3	0	3	0	4	0	2	1	6	0	199
11:30 AM	2	83	3	0	6	91	5	0	5	0	7	0	1	0	5	0	208
11:45 AM	3	108	2	0	2	79	4	0	3	1	5	0	4	1	8	0	220
12:00 PM	4	81	4	0	4	86	6	0	1	0	2	0	2	0	13	0	213
12:15 PM	7	96	0	2	6	93	3	0	7	0	5	0	1	0	6	0	226
12:30 PM	2	98	0	0	5	89	5	0	4	0	2	0	2	0	10	0	217
12:45 PM	4	108	4	0	5	102	4	0	6	0	3	0	0	0	9	0	245
1:00 PM	4	97	8	0	10	105	6	0	1	1	3	0	4	1	4	0	244
1:15 PM	11	93	6	0	5	113	2	0	3	0	3	0	2	0	1	0	239
1:30 PM	2	94	3	1	9	99	7	0	5	0	3	0	4	0	5	0	232
1:45 PM	8	96	1	0	11	88	5	0	4	1	6	0	1	2	1	0	224
TOTAL VOLUMES :	55	1127	33	3	76	1104	54	0	44	3	48	0	24	5	73	0	2649
APPROACH %'s :	4.52%	92.53%	2.71%	0.25%	6.16%	89.47%	4.38%	0.00%	46.32%	3.16%	50.53%	0.00%	23.53%	4.90%	71.57%	0.00%	
PEAK HR :	12:45 PM - 01:45 PM				29	419	19	0	15	1	12	0	10	1	19	0	960
PEAK HR VOL :	21	392	21	1	29	419	19	0	15	1	12	0	10	1	19	0	960
PEAK HR FACTOR :	0.477	0.907	0.656	0.250	0.725	0.927	0.679	0.000	0.625	0.250	1.000	0.000	0.625	0.250	0.528	0.000	0.980
	0.938				0.965				0.778				0.833				
PM	1	1	0	1	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
2:00 PM	4	93	1	0	7	126	0	0	6	1	8	0	2	0	5	0	253
2:15 PM	9	86	7	1	7	124	9	0	3	0	3	0	1	0	4	0	254
2:30 PM	3	77	7	0	2	105	2	0	3	0	1	0	5	0	7	0	212
2:45 PM	4	90	2	0	5	127	2	0	6	0	0	0	2	0	4	0	242
3:00 PM	2	79	6	0	8	129	1	0	3	0	2	0	1	0	6	0	237
3:15 PM	5	99	2	0	8	127	3	0	6	0	8	0	0	0	4	0	262
3:30 PM	3	82	1	0	9	116	5	1	8	1	2	0	4	0	11	0	243
3:45 PM	7	99	1	0	10	128	3	0	4	0	6	0	7	0	7	0	272
4:00 PM	5	129	2	0	8	145	2	0	4	0	3	0	3	0	3	0	304
4:15 PM	5	105	3	0	7	127	4	0	5	1	6	0	3	0	6	0	272
4:30 PM	4	103	5	0	7	103	5	0	4	0	3	0	3	1	5	0	243
4:45 PM	5	86	4	0	5	134	9	0	3	0	6	1	4	0	6	0	263
5:00 PM	10	94	7	0	2	111	6	0	5	0	5	0	0	0	7	0	247
5:15 PM	1	85	5	0	7	170	5	0	2	0	1	0	4	0	6	0	286
5:30 PM	4	104	2	0	7	135	5	0	5	0	4	0	4	0	3	0	273
5:45 PM	3	99	3	0	8	122	3	0	1	0	6	0	2	0	7	0	254
6:00 PM	6	85	1	1	6	105	5	0	2	0	5	0	2	0	0	0	216
6:15 PM	5	73	4	0	6	77	3	0	3	0	5	0	1	0	5	0	182
6:30 PM	0	65	3	0	5	97	2	0	3	0	2	0	0	0	5	0	182
6:45 PM	2	38	3	0	4	93	3	0	2	0	5	0	0	1	2	0	153
TOTAL VOLUMES :	87	1771	69	2	128	2401	77	1	78	3	81	1	48	2	103	0	4852
APPROACH %'s :	4.51%	91.81%	3.58%	0.10%	4.91%	92.10%	2.95%	0.04%	47.85%	1.84%	49.69%	0.61%	31.37%	1.31%	67.32%	0.00%	
PEAK HR :	03:45 PM - 04:45 PM				32	503	14	0	17	1	18	0	16	1	21	0	1091
PEAK HR VOL :	21	436	11	0	32	503	14	0	17	1	18	0	16	1	21	0	1091
PEAK HR FACTOR :	0.750	0.845	0.550	0.000	0.800	0.867	0.700	0.000	0.850	0.250	0.750	0.000	0.571	0.250	0.750	0.000	0.897
	0.860				0.885				0.750				0.679				

P N
O M
Green Valley Rd & Deer Valley Rd

Tuesday
5/11/2021

E Dorado Hills
CA21_070069_001

O N																					
MP	N					O	MP	N					O								
	2	9	0	2		13		92	90	7	12	201									
	2	9	0	0		11		76	104	6	12	198									
	1	3	0	0		4		79	99	15	10	203									
	1	6	4	25	0	1	3	6	34	81	328	90	383	5	33	5	39	181	783		
	2	4	0	0		6		71	96	6	5	178									
	2	3	0	0		5		83	107	8	9	207									
	2	3	0	1		6		95	102	7	9	213									
	0	6	2	12	0	0	1	2	19	87	336	109	414	7	28	10	33	213	811		
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	2	2	1	0		5		82	118	9	13	222									
	1	5	0	5	0	1	1	2	13	105	373	115	481	11	33	13	43	244	930		
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	3	1	0	1		5		116	139	4	9	268									
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	5	1	0	3		9		98	132	11	10	251									
	6	2	0	3		11		109	153	11	4	277									
	10	23	5	12	0	2	8	17	43	102	415	120	522	3	33	6	28	231	998		
	7	4	0	2		13		89	132	6	8	235									
	25	4	0	4		33		100	172	10	6	288									
	34	7	0	6		47		66	131	8	7	212									
	38	104	18	33	0	3	15	59	152	53	308	119	554	9	33	14	35	195	930		
	29	15	1	3		48		57	101	6	10	174									
	42	17	1	2		62		64	76	6	8	154									
	82	23	2	7		114		63	104	7	6	180									
	61	214	42	97	5	9	12	24	120	344	55	239	104	385	3	22	11	35	173	681	
	69	40	2	7		118		53	94	8	5	160									
	110	48	6	11		175		41	70	1	6	118									
	125	70	10	23		228		32	56	2	4	94									
	120	424	93	251	12	30	17	58	242	763	35	161	77	297	2	13	2	17	116	488	
	100	67	9	14		190		46	55	0	6	107									
	95	69	6	8		178		23	52	1	2	78									
	102	73	13	16		204		27	64	2	2	95									
	114	411	93	302	7	35	13	51	227	799	25	121	81	252	3	6	1	11	110	390	
	68	77	12	11		168		29	48	0	0	77									
	109	72	3	4		188		24	37	2	5	68									
	78	62	8	6		154		15	41	6	1	63									
	80	335	78	289	3	26	12	33	173	683	9	77	40	166	0	8	1	7	50	258	
	80	56	11	10		157		13	20	2	0	35									
	66	67	4	9		146		9	26	1	1	37									
	60	75	7	6		148		11	13	1	0	25									
	84	290	58	256	5	27	7	32	154	605	5	38	21	80	1	5	0	1	27	124	
	75	77	7	10		169		6	6	0	1	13									
	79	81	9	9		178		3	8	0	0	11									
	85	86	9	3		183		3	12	0	1	16									
	88	327	86	330	4	29	11	33	189	719	4	16	9	35	0	2	4	15	55		
O		2155	1620	157	261			O		2822	4134	238	293								
P		51.4%	38.6%	3.7%	6.2%			P		37.7%	55.2%	3.2%	3.9%								

O N												
MP	07:15	11:45	07:45	07:15		PM P	15:15	16:30	14:15	14:15		
MP	455	379	40	65		PM P	427	577	37	46		
P	0.910	0.911	0.769	0.707		P	0.920	0.839	0.841	0.885		
	835	553	65	109			723	1076	66	63		
P	07:15	07:45	07:45	07:15		P	16:00	16:30	16:00	17:00		
P	455	302	40	65		P	415	577	33	35		
P	0.910	0.812	0.769	0.707		P	0.952	0.839	0.750	0.625		

P N
O M
Green Valley Rd & Deer Valley Rd

ednesday
5/12/2021

B Dorado Hills
CA21_070069_001

O N																				
MP	N					O	MP	N					O							
	5	8	1	0	0	14		98	91	5	12	206								
	2	3	0	0	0	5		61	97	7	15	180								
	1	1	0	0	0	2		89	101	6	6	202								
	4	12	7	19	0	1	0	11	32	83	331	110	399	5	23	11	44	209	797	
	1	4	0	0	0	5		89	101	7	13	210								
	1	4	0	0	0	5		116	115	10	15	256								
	4	6	0	0	0	10		87	128	15	6	236								
	2	8	5	19	1	1	0	8	28	110	402	128	472	5	37	16	50	259	961	
	4	3	0	0	0	7		83	103	8	11	205								
	0	3	0	1	0	4		111	124	7	18	260								
	4	1	0	0	0	5		109	139	11	12	271								
	3	11	4	11	0	0	1	7	23	84	387	114	480	7	33	3	44	208	944	
	1	6	0	0	0	7		95	125	9	7	236								
	3	2	0	2	0	7		106	139	9	6	260								
	3	3	0	0	0	6		93	147	15	18	273								
	1	8	0	11	0	0	2	1	21	115	409	129	540	9	42	9	40	262	1031	
	5	2	0	0	0	7		91	136	9	6	242								
	4	3	0	3	0	10		105	157	11	3	276								
	6	4	0	3	0	13		100	128	12	1	241								
	9	24	6	15	0	3	9	18	48	84	380	107	528	4	36	12	22	207	966	
	16	1	0	0	0	17		99	133	8	8	248								
	35	8	0	5	0	48		86	138	2	13	239								
	32	10	0	4	0	46		98	133	6	7	244								
	30	113	9	28	0	1	10	40	151	72	355	157	561	6	22	8	36	243	974	
	40	13	0	1	0	54		79	126	7	14	226								
	56	30	0	5	0	91		66	106	4	7	183								
	61	20	1	7	0	89		67	88	5	7	167								
	74	231	40	103	5	6	4	17	123	357	54	266	85	405	15	31	6	34	160	736
	86	44	3	8	0	141		58	74	8	7	147								
	104	48	3	9	0	164		55	81	8	6	150								
	105	65	4	23	0	197		41	75	5	3	124								
	129	424	105	262	15	25	16	56	265	767	40	194	66	296	5	26	10	26	121	542
	114	68	5	7	0	194		33	73	4	5	115								
	114	68	7	8	0	197		42	83	7	7	139								
	126	93	8	17	0	244		35	58	9	1	103								
	100	454	107	336	3	23	8	40	218	853	31	141	58	272	3	23	4	17	96	453
	101	86	7	8	0	202		34	60	2	7	103								
	78	60	7	18	0	163		21	43	3	2	69								
	80	79	6	9	0	174		20	39	0	1	60								
	97	356	63	288	11	31	11	46	182	721	18	93	33	175	4	9	2	12	57	289
	78	66	6	6	0	156		19	31	4	3	57								
	87	62	7	8	0	164		11	31	1	0	43								
	89	85	3	3	0	180		7	22	1	1	31								
	71	325	78	291	7	23	5	22	161	661	8	45	8	92	0	6	3	7	19	150
	87	71	7	10	0	175		7	18	0	0	25								
	77	78	7	12	0	174		8	11	1	0	20								
	74	79	9	9	0	171		7	10	1	0	18								
	84	322	81	309	8	31	15	46	188	708	6	28	10	49	0	2	1	1	17	80
O	2288 1692 141 249						O	3031 4269 290 333												
P	52.4% 38.7% 3.2% 5.7%						P	38.3% 53.9% 3.7% 4.2%												

O N										
MP	07:45	11:45	07:45	07:00		MP	13:45	15:30	15:30	13:45
MP	483	370	35	56		MP	413	569	44	57
P	0.936	0.916	0.583	0.609		P	0.930	0.906	0.733	0.792
	878	598	48	96			735	1089	58	58
P	07:45	08:00	07:45	07:00		P	16:15	17:00	16:00	16:45
P	483	336	35	56		P	388	561	36	40
P	0.936	0.785	0.583	0.609		P	0.924	0.893	0.750	0.769

P N
O M
Green Valley Rd & Deer Valley Rd

Tuesday
5/13/2021

B Dorado Hills
CA21_070069_001

O N																			
MP	N					O	MP	N					O						
	7	5	0	0	0	12		94	81	4	9	188							
	1	7	0	0	0	8		101	107	11	11	230							
	2	4	0	0	0	6		92	96	7	13	208							
	2	12	8	24	0	10	36	66	353	99	383	10	32	5	38	180	806		
	2	1	0	0	0	3		84	97	6	4	191							
	5	4	0	2	2	11		83	97	9	9	198							
	1	0	1	0	0	2		90	101	2	6	199							
	4	12	2	7	0	1	0	2	78	335	97	392	9	26	3	22	187	775	
	1	3	0	0	0	4		117	96	9	8	230							
	1	2	0	0	0	3		88	120	7	5	220							
	4	0	0	0	0	4		99	135	7	10	251							
	0	6	5	10	1	1	0	6	17	126	430	108	459	9	32	12	35	255	956
	2	2	0	0	0	4		92	157	8	9	266							
	1	6	0	0	0	7		107	149	12	5	273							
	4	4	0	0	0	8		140	153	8	8	309							
	3	10	1	13	0	1	1	5	24	112	451	155	614	13	41	12	34	292	1140
	6	2	0	0	0	8		94	127	16	14	251							
	5	2	0	2	2	9		112	122	10	12	256							
	6	2	0	3	3	11		112	149	3	9	273							
	13	30	3	9	0	3	8	19	47	92	410	196	594	7	36	10	45	305	1085
	19	5	0	1	1	25		109	142	7	14	272							
	19	5	0	3	3	27		103	147	10	16	276							
	40	9	0	7	7	56		92	152	11	11	266							
	34	112	16	35	0	5	16	55	163	101	405	126	567	7	35	9	50	243	1057
	38	11	0	3	3	52		67	99	7	8	181							
	61	31	1	6	6	99		80	110	11	4	205							
	68	27	1	2	2	98		78	101	10	3	192							
	69	236	25	94	4	6	9	20	65	290	80	390	3	31	6	21	154	732	
	93	50	3	6	6	152		62	77	8	7	154							
	110	51	4	11	11	176		61	99	9	10	179							
	121	50	5	21	21	197		59	62	4	5	130							
	138	462	112	263	10	22	19	57	41	223	72	310	12	33	2	24	127	590	
	101	63	6	8	8	178		41	53	11	3	108							
	115	72	7	9	9	203		36	71	2	4	113							
	136	88	2	13	13	239		43	70	4	3	120							
	117	469	103	326	6	21	9	39	36	156	70	264	4	21	2	12	112	453	
	81	77	6	10	10	174		24	52	6	2	84							
	102	70	6	8	8	186		25	51	5	3	84							
	106	62	5	9	9	182		20	40	1	3	64							
	70	359	72	281	5	22	10	37	15	84	48	191	5	17	4	12	72	304	
	80	69	6	9	9	164		14	38	0	0	52							
	87	63	5	8	8	163		13	29	1	0	43							
	82	74	1	12	12	169		12	25	2	1	40							
	79	328	84	290	6	18	12	41	8	47	21	113	1	4	1	2	31	166	
	90	62	1	8	8	161		8	16	1	0	25							
	105	68	6	8	8	187		6	12	0	2	20							
	92	95	8	9	9	204		5	9	1	1	16							
	83	370	82	307	1	16	10	35	4	23	9	46	1	3	1	4	15	76	
O	2406	1659	107	256					O	3207	4323	311	299						
P	54.3%	37.5%	2.4%	5.8%					P	39.4%	53.1%	3.8%	3.7%						

O N												
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MP	07:45	11:45	07:30	07:15		PM P	14:45	16:45	15:15	16:45
MP	490	366	28	59		PM P	465	637	49	51
P	0.888	0.855	0.700	0.702		P	0.830	0.813	0.766	0.797
	931	589	43	96			815	1161	71	95
P	07:45	07:45	07:30	07:15		P	16:15	16:45	16:00	16:45
P	490	335	28	59		P	425	637	36	51
P	0.888	0.748	0.700	0.702		P	0.949	0.813	0.563	0.797

P N
O M
Green Valley Rd & Deer Valley Rd

Friday
5/14/2021

El Dorado Hills
CA21_070069_001

O N																	
MP	N				O		PM P	N				O					
	6	7	0	0	13			70	99	3	14	186					
	5	12	0	0	17			86	89	4	13	192					
	6	8	0	0	14			88	94	9	14	205					
	5	22	6	33	2	2	2	84	328	117	399	10	26	13	54	224	807
	0	4	0	0	4			85	113	5	4	207					
	6	6	0	0	12			88	143	6	8	245					
	4	2	0	0	7			84	117	2	10	213					
	2	12	3	15	0	0	1	106	363	131	504	10	23	12	34	259	924
	0	3	0	0	3			102	103	8	11	224					
	1	4	0	0	5			103	128	6	9	246					
	1	3	0	0	4			124	132	11	10	277					
	3	5	2	12	1	1	0	103	432	124	487	11	36	12	42	250	997
	1	2	0	0	3			110	123	12	12	257					
	0	4	0	0	4			125	170	11	13	319					
	5	0	0	0	5			117	171	10	7	305					
	2	8	2	8	0	1	1	118	470	124	588	6	39	9	41	257	1138
	5	2	0	1	8			93	166	9	10	278					
	4	1	0	2	7			109	157	8	5	279					
	8	2	0	2	12			101	125	10	5	241					
	7	24	6	11	1	1	2	103	406	151	599	7	34	5	25	266	1064
	16	2	0	2	20			92	122	5	8	227					
	26	4	1	2	33			107	146	6	7	266					
	39	9	2	7	57			99	146	8	11	264					
	48	129	9	24	1	4	2	90	388	125	539	4	23	14	40	233	990
	52	14	2	2	70			86	110	7	15	218					
	51	37	2	7	97			63	107	10	4	184					
	65	25	2	2	94			72	86	9	11	178					
	59	227	38	114	10	16	3	61	282	99	402	5	31	9	39	174	754
	86	40	2	6	134			54	81	4	2	141					
	95	43	9	11	158			37	81	2	7	127					
	126	60	10	23	219			46	94	2	2	144					
	157	464	90	233	8	29	15	40	177	76	332	3	11	8	19	127	539
	117	72	9	12	210			40	66	3	6	115					
	111	51	8	7	177			43	67	3	2	115					
	118	90	20	9	237			41	56	2	3	102					
	113	459	73	286	9	46	13	35	159	56	245	1	9	2	13	94	426
	90	87	10	9	196			41	55	3	3	102					
	88	67	6	8	169			24	42	5	2	73					
	117	58	7	9	191			22	31	2	2	57					
	89	384	78	290	6	29	1	23	110	47	175	4	14	0	7	74	306
	95	75	11	9	190			32	56	0	2	90					
	103	73	10	8	194			14	46	0	2	62					
	104	73	7	8	192			15	43	1	1	60					
	84	386	82	303	6	34	5	11	72	23	168	0	1	1	6	35	247
	93	63	10	8	174			11	23	1	1	36					
	94	87	7	11	199			11	26	0	0	37					
	117	90	6	13	226			13	18	1	0	32					
	80	384	101	341	9	32	13	4	39	17	84	0	2	1	2	22	127
O	2504	1670	194	236			O	3226	4522	249	322						
P	54.4%	36.3%	4.2%	5.1%			P	38.8%	54.4%	3.0%	3.9%						

O N									
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MP	07:30	11:45	08:15	07:15	PM P	15:00	15:15	14:30	12:00
MP	511	383	47	61	PM P	470	631	45	54
P	0.814	0.948	0.588	0.663	P	0.940	0.923	0.938	0.964
	923	519	75	96		794	1138	57	65
P	07:30	07:45	08:00	07:15	P	16:00	16:00	16:00	17:00
P	511	303	46	61	P	406	599	34	40
P	0.814	0.842	0.575	0.663	P	0.931	0.902	0.850	0.714

P N
O M
Green Valley Rd & Deer Valley Rd

Monday
5/15/2021

El Dorado Hills
CA21_070069_001

O										N										
MP	N				O		PM P	N				O								
	5	12	0	0	17		96	97	6	7	206									
	5	14	0	1	20		87	146	6	9	248									
	7	7	1	1	16		96	110	6	15	227									
	2	19	7	40	0	1	0	2	9	62	217	898								
	4	5	0	0	9	62		96	121	2	5	224								
	2	8	0	0	10			108	110	4	15	237								
	5	9	0	0	14			103	96	6	5	210								
	3	14	6	28	0	0		95	402	123	450	5	17	15	40	238	909			
	2	1	1	1	5			85	102	6	4	197								
	1	3	0	1	5			96	119	7	7	229								
	2	4	0	0	6			100	100	7	7	214								
	1	6	3	11	0	1	0	2	4	20	100	381	122	443	9	29	16	34	247	887
	3	3	1	0	7			85	126	5	12	228								
	3	1	0	0	4			69	130	7	10	216								
	2	4	0	0	6			93	101	1	12	207								
	0	8	1	9	0	1	0	0	1	18	70	317	101	458	2	15	5	39	178	829
	3	3	0	0	6			93	103	7	7	210								
	5	1	0	0	6			94	102	5	7	208								
	6	3	0	1	10			79	142	11	12	244								
	5	19	4	11	0	0	1	0	9	31	72	338	108	455	9	32	10	36	199	861
	7	1	0	2	10			81	93	8	7	189								
	10	5	0	0	15			93	83	7	14	197								
	10	7	0	2	19			67	79	6	15	167								
	22	49	7	20	1	1	2	6	32	76	67	308	70	325	8	29	15	51	160	713
	21	11	1	2	35			74	100	2	12	188								
	19	8	1	3	31			62	88	2	9	161								
	29	12	2	2	45			59	73	11	9	152								
	31	100	18	49	0	4	3	10	52	163	53	248	79	340	4	19	7	37	143	644
	29	18	2	3	52			52	83	4	5	144								
	48	26	6	5	85			50	67	6	8	131								
	58	26	3	8	95			39	58	5	3	105								
	50	185	29	99	6	17	8	24	93	325	42	183	50	258	7	22	5	21	104	484
	49	39	5	5	98			41	55	4	4	104								
	55	43	9	5	112			34	62	4	6	106								
	81	49	9	11	150			34	60	6	5	105								
	68	253	67	198	10	33	8	29	153	513	30	139	50	227	1	15	6	21	87	402
	67	68	9	12	156			29	57	3	2	91								
	78	49	6	7	140			31	40	1	1	73								
	96	66	6	10	178			29	53	2	3	87								
	91	332	67	250	7	28	8	37	173	647	30	119	63	213	3	9	1	7	97	348
	83	90	7	8	188			32	44	0	6	82								
	100	72	7	9	188			20	29	2	4	55								
	100	78	4	8	190			27	25	1	1	54								
	115	398	84	324	5	23	9	34	213	779	18	97	31	129	0	3	1	12	50	241
	106	90	12	10	218			10	24	2	1	37								
	104	68	6	10	188			14	32	2	3	51								
	120	94	5	12	231			9	31	2	3	45								
	89	419	100	352	10	33	9	41	208	845	6	39	11	98	2	8	2	9	21	154
O	1802				1391	142	186		O	2945	3851	222	352							
P	51.2%				39.5%	4.0%	5.3%		P	40.0%	52.3%	3.0%	4.8%							

O										N									
MP	10:45	11:45	08:15	10:45	PM P	12:45	12:15	16:30	17:15										
MP	445	453	37	41	PM P	402	479	35	56										
P	0.927	0.776	0.925	0.854	P	0.931	0.820	0.795	0.933										
	438	297	50	53		646	780	61	87										
P	08:00	08:00	08:00	07:45	P	16:00	16:00	16:30	17:00										
P	253	198	33	29		338	455	35	51										
P	0.781	0.739	0.825	0.659	P	0.899	0.801	0.795	0.850										

P N
O M
Green Valley Rd & Deer Valley Rd

unday
5/16/2021

B Dorado Hills
CA21_070069_001

O N																			
MP	N					O	PM P	N					O						
	7	19	1	0	0	27		88	101	10	10	209							
	12	14	0	0	0	26		82	85	3	6	176							
	6	13	0	2	2	21		86	109	5	8	208							
	7	32	4	50	0	1	2	4	13	87		207							
	2	5	0	0	0	7		83	109	7	10	209							
	2	7	0	1	1	10		85	86	9	9	189							
	3	12	0	1	1	16		87	96	10	6	199							
	1	8	5	29	0	0	2	6	39	83	338	90	381	5	31	6	31	184	781
	0	8	0	0	0	8		78	114	2	3	197							
	4	7	0	0	0	11		78	94	4	10	186							
	0	2	0	0	0	2		81	99	6	6	192							
	4	8	2	19	0	6		80	317	97	404	5	17	8	27	190	765		
	1	1	0	0	0	2		59	80	4	10	153							
	5	1	0	2	2	8		71	112	2	6	191							
	0	2	0	0	0	2		85	106	3	10	204							
	4	10	1	5	0	5		68	283	109	407	5	14	12	38	194	742		
	1	1	0	0	0	2		85	83	4	5	177							
	3	3	0	1	1	7		61	109	2	9	181							
	1	1	0	1	1	3		75	77	5	10	167							
	4	9	3	8	0	3		71	292	98	367	1	12	7	31	177	702		
	3	0	0	1	1	4		65	95	7	11	178							
	9	3	0	0	0	12		70	88	3	6	167							
	9	5	0	2	2	16		64	86	6	7	163							
	18	39	5	13	1	1		48	247	61	330	4	20	7	31	120	628		
	13	5	0	3	3	21		63	65	4	7	139							
	12	6	1	2	2	21		51	57	3	5	116							
	11	10	1	2	2	24		49	61	6	7	123							
	15	51	11	32	3	5		37	200	63	246	3	16	9	28	112	490		
	28	6	0	4	4	38		35	70	4	6	115							
	28	14	2	3	3	47		42	60	8	7	117							
	42	21	3	3	3	69		38	46	0	7	91							
	35	133	34	75	4	9		30	145	68	244	1	13	7	27	106	429		
	29	29	5	3	3	66		34	55	1	8	98							
	43	26	4	15	15	88		50	36	2	1	89							
	43	34	7	3	3	87		31	68	0	2	101							
	63	178	29	118	4	20		20	135	45	204	4	7	1	12	70	358		
	64	29	6	8	8	107		32	31	5	2	70							
	65	38	7	9	9	119		23	29	1	0	53							
	89	58	8	10	10	166		17	28	0	1	46							
	89	308	51	176	4	25		10	82	29	117	0	6	0	3	39	208		
	73	66	5	4	4	148		12	24	1	0	37							
	86	73	9	12	12	180		12	24	1	1	38							
	88	75	8	13	13	184		11	15	0	0	26							
	90	337	75	289	2	24		10	45	14	77	0	2	1	2	25	126		
	80	84	2	5	5	171		10	9	0	1	20							
	90	84	4	7	7	185		7	8	0	0	15							
	89	99	7	11	11	206		4	12	0	0	16							
	89	348	100	367	8	21		7	28	11	40	0	0	1	18	69			
O	1461	1181	106	186			O	2467	3205	162	264								
P	49.8%	40.3%	3.6%	6.3%			P	40.5%	52.6%	2.7%	4.3%								

O N										
MP	11:15	11:45	11:15	10:15		PM P	12:00	15:15	12:45	15:00
MP	356	395	29	47		PM P	355	410	32	38
P	0.989	0.906	0.725	0.691		P	0.896	0.915	0.800	0.792
	311	193	29	47			539	697	32	62
P	08:00	07:45	07:45	08:00		P	16:00	16:15	17:00	16:15
P	178	123	20	32		P	292	379	20	37
P	0.706	0.904	0.714	0.533		P	0.859	0.869	0.714	0.841

P N
O M
Green Valley Rd & Deer Valley Rd

Monday
5/17/2021

El Dorado Hills
CA21_070069_001

O										N																															
MP	N					O					PM P	N					O																								
	3		5		0		0		0		8		66		100		8		9		183																				
	3		6		0		0		0		9		69		78		2		7		156																				
	2		8		0		1		1		11		85		86		6		10		187																				
	3	11	3	22	0		0		1		6	34	78	298	99	363	9	25	3	29	189 715																				
	5		4		0		0		0		9		91		88		9		7		195																				
	2		8		0		0		0		10		74		96		4		9		183																				
	2		2		0		0		0		4		67		94		10		15		186																				
	3	12	1	15	0		0		0		4	27	86	318	91	369	12	35	10	41	199 763																				
	1		2		0		0		0		3		78		120		8		10		216																				
	3		3		0		2		2		8		108		108		7		12		235																				
	4		0		0		0		0		4		97		123		9		5		234																				
	5	13	2	7	0		0		2		7	22	95	378	131	482	10	34	4	31	240 925																				
	0		2		0		0		0		2		86		135		6		6		233																				
	1		4		0		0		0		5		95		136		6		11		248																				
	1		3		0		1		1		5		109		134		13		15		271																				
	3	5	0	9	0		0		1		3	15	71	361	148	553	6	31	9	41	234 986																				
	6		2		0		0		0		8		99		131		6		8		244																				
	6		2		0		1		1		9		99		125		6		10		240																				
	7		3		0		2		2		12		83		108		14		8		213																				
	12	31	4	11	0		3		6		19	48	97	378	130	494	11	37	8	34	246 943																				
	10		4		0		1		1		15		89		129		10		7		235																				
	31		6		0		4		4		41		76		117		4		5		202																				
	28		6		0		2		2		36		77		133		9		14		233																				
	37	106	9	25	1	1	6	13	13		53	145	65	307	123	502	8	31	4	30	200 870																				
	45		16		1		5		5		67		49		98		3		5		155																				
	46		28		1		3		3		78		74		99		13		6		192																				
	66		25		0		2		2		93		39		72		2		6		119																				
	60	217	18	87	0	2	13	23	23		91	329	56	218	78	347	9	27	8	25	151 617																				
	77		37		1		12		12		127		56		58		5		4		123																				
	102		49		2		7		7		160		54		55		5		5		119																				
	117		71		6		25		25		219		36		52		5		7		100																				
	121	417	90	247	10	19	14	58	58		235	741	28	174	64	229	6	21	4	20	102 444																				
	103		60		11		16		16		190		37		69		4		4		114																				
	108		63		8		5		5		184		33		64		3		1		101																				
	134		73		7		12		12		226		33		53		5		3		94																				
	113	458	64	260	3	29	5	38	38		185	785	25	128	46	232	5	17	4	12	80 389																				
	78		80		5		10		10		173		29		44		3		3		79																				
	79		53		6		11		11		149		24		45		2		1		72																				
	107		62		8		7		7		184		10		23		2		4		39																				
	79	343	57	252	6	25	12	40	40		154	660	10	73	26	138	1	8	0	8	37 227																				
	79		79		6		6		6		170		14		23		0		1		38																				
	91		61		2		13		13		167		6		20		0		1		27																				
	87		65		5		12		12		169		7		14		1		0		22																				
	101	358	81	286	7	20	6	37	37		195	701	7	34	18	75	0	1	3	5	28 115																				
	88		82		3		2		2		175		7		21		1		0		29																				
	77		94		6		17		17		194		11		8		1		0		20																				
	83		99		14		7		7		203		4		12		0		0		16																				
	94	342	78	353	5	28	7	33	33		184	756	3	25	10	51	0	2	0		13 78																				
O	2313					1574					124					252					O	2692					3835					269					276				
P	54.3%					36.9%					2.9%					5.9%					P	38.1%					54.2%					3.8%					3.9%				

O										N										
MP	07:45		11:15		07:45		07:15		07:15		PM P	14:15		15:00		16:15		13:30		
MP	466		371		36		62		62		PM P	386		553		41		47		
P	0.869		0.928		0.818		0.620		0.620		P	0.894		0.934		0.732		0.783		
	875		507		48		96		96			685		996		68		64		
P	07:45		07:45		07:45		07:15		07:15		P	16:00		16:45		16:15		16:00		
P	466		286		36		62		62		P	378		509		41		34		
P	0.869		0.794		0.818		0.620		0.620		P	0.955		0.957		0.732		0.850		

Attachment B
Warrant Analysis Worksheet

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2012 MUTCD)

MAJOR STREET: Green Valley Road NB SB # OF APPROACH LANES: 1
 MINOR STREET: Deer Valley Road EB WB # OF APPROACH LANES: 1
 CITY, STATE: El Dorado County, CA
 COMMENTS: Existing Conditions

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):

N
Y

 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

N
Y

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE 350	SIDE STREET 105	BOTH MET	MAIN LINE 525	SIDE STREET 53	BOTH MET	MAIN LINE 280	SIDE STREET 84	BOTH MET	MAIN LINE 420	SIDE STREET 42	BOTH MET			60	75
THRESHOLD VALUES																			
02:00 AM TO 03:00 AM																			
03:00 AM TO 04:00 AM																			
04:00 AM TO 05:00 AM																			
05:00 AM TO 06:00 AM																			
06:00 AM TO 07:00 AM																			
07:00 AM TO 08:00 AM																			
08:00 AM TO 09:00 AM																			
09:00 AM TO 10:00 AM																			
10:00 AM TO 11:00 AM																			
11:00 AM TO 12:00 PM	750	35	0	Y			Y			Y			Y						
12:00 PM TO 01:00 PM	818	43	0	Y			Y			Y			Y	Y	Y				
01:00 PM TO 02:00 PM	884	30	0	Y			Y			Y			Y						
02:00 PM TO 03:00 PM	900	31	0	Y			Y			Y			Y						
03:00 PM TO 04:00 PM	934	40	0	Y			Y			Y			Y						
04:00 PM TO 05:00 PM	1,012	36	0	Y			Y			Y			Y						
05:00 PM TO 06:00 PM	998	33	0	Y			Y			Y			Y						
06:00 PM TO 07:00 PM	692	27	0	Y			Y			Y			Y						
07:00 PM TO 08:00 PM																			
08:00 PM TO 09:00 PM																			
09:00 PM TO 10:00 PM																			
	6,988	275					8	0	0		8	0	0		8	0	0	0	0
							8 HOURS NEEDED NOT SATISFIED			8 HOURS NEEDED NOT SATISFIED			8 HOURS NEEDED for both Condition A & B NOT SATISFIED			4 HRS NEEDED NOT SATISFIED	1 HR NEEDED NOT SATISFIED	4 HRS NEEDED NOT SATISFIED	1 HR NEEDED NOT SATISFIED

To: Paul Lopez, Blue Mountain Inc.

From: Stephen Dillon, E.I.T.
Robert Paderna, P.E., RSP₁

Re: **Summer Brook - Oakhaven**
Green Valley Road/Deer Valley Road Intersection Summary

Date: November 21, 2022

RECEIVED

MAR 20 2023

EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT

The purpose of this memorandum is to document current intersection operations at Green Valley Road and Deer Valley Road (the “study intersection”), compare and contrast intersection volumes collected and analyzed between study years, and summarize previous analysis findings at the study intersection completed as part of the Summer Brook residential development project. Kimley-Horn previously conducted an analysis of the study intersection as part of the Traffic Impact Analysis (TIA) prepared for the Summer Brook development in February 2007, and have performed subsequent assessments of the study intersection in 2019, 2021, and 2022. This supplemental analysis is intended to inform and add context to recent conversations between Blue Mountain Inc., (the “Client”) and El Dorado County (“County”) regarding current operating conditions of the study intersection and the project’s conditions of approval (COA).

Analysis Background

The project proposes to construct a total of 29 single-family (detached) homes. Access to the site will be provided via two full-access driveways along Green Valley Road, east of the study intersection. As part of the development review process, a traffic impact analysis (TIA) for the proposed project was completed by Kimley-Horn in February 2007¹. The 2007 TIA established 2006 as the Existing year and 2025 as the Cumulative condition year for evaluation and concluded the study intersection satisfied the California Manual on Uniform Traffic Control Devices (CA MUTCD) peak-hour signal warrant requirements during both the AM and PM peak-hours under both Cumulative 2025 No Project and Plus Project conditions.

As future year conditions established using El Dorado County’s Travel Demand Model (TDM) have been updated since the 2007 TIA, the Client desired to reexamine the previously established signalization COA. Kimley-Horn compared CA MUTCD peak-hour warrant results from the 2007 TIA Cumulative 2025 scenario with CA MUTCD signal warrant results using traffic counts from January 2019 and May 2021. The updated CA MUTCD signal warrant evaluations (performed by Kimley-Horn and dated March 28, 2019² and June 4, 2021³ respectively) concluded that a traffic signal was not warranted for both No Project and Plus Project scenarios at the study intersection under the reestablished traffic conditions.

Similarly, intersection operations analysis from the 2007 TIA was revisited using the current roadway geometry and revised Near Term (2031) and Cumulative (2041) forecast traffic conditions developed from August 2021 traffic volume data and the updated El Dorado County TDM. The updated intersection evaluation (performed by Kimley-Horn and dated April 12, 2022⁴) concluded that the study intersection operated within the County’s acceptable threshold for both Near Term (2031) No Project and Plus Project

¹ *Ghori Property TIA*, Kimley-Horn, February 14, 2007

² *Summer Brook-Traffic Signal Warrant Evaluation - Green Valley Rd at Deer Valley Rd*, Kimley-Horn, March 28, 2019

³ *Summer Brook-Traffic Signal Warrant Evaluation - Green Valley Rd at Deer Valley Rd*, Kimley-Horn, June 4, 2021

⁴ *Green Valley Road/Deer Valley Road Intersection Operations Analysis*, Kimley-Horn, April 12, 2022

scenarios and beyond the County's acceptable threshold for both Cumulative (2041) No Project and Plus Project scenarios.

This updated summary memo by Kimley-Horn dated November 17, 2022, is presented to the County regarding consideration of traffic signalization of the study intersection and includes updated traffic operations analysis for both No Project and Plus Project conditions using October 2022 intersection turning movements, updated CA MUTCD peak-hour warrant results, and comparison of intersection operations, CA MUTCD warrant results, and volumes (turning movements and segment ADT) between the various analysis years described above.

Analysis Methodology

Level of Service Definitions

The level of service (LOS) of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A, which represents minimal delay, to F, which represents heavy delay and a facility that is operating at or near its functional capacity. LOS for this study was determined using methods defined in the *Highway Capacity Manual (HCM) 6th Edition*.

Intersection Analysis

The HCM includes procedures for analyzing side-street stop controlled (SSSC) intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. **Table 1** presents intersection LOS definitions as defined in the HCM.

Table 1 - Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized
	Average Control Delay* (sec/veh)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

Source: *Highway Capacity Manual, 6th Edition*

* Applied to the worst lane/lane group(s) for SSSC

LOS for the study intersections was determined using the Synchro® traffic analysis software. Synchro is an interactive computer program that enables planners and engineers to: forecast the traffic impacts of new developments; conduct area-wide traffic forecasting studies; test different mitigation measures and compare different traffic scenarios. Synchro 11 utilizes HCM 6 methodology to analyze intersection delay and LOS. Level of service for the Intersection is evaluated against El Dorado County thresholds of LOS D for Rural Regions⁵.

Analysis Results

Synchro 11 analysis was conducted for the Intersection under Existing (2022) No Project and Plus Project conditions using present day intersection geometry. The results of the analysis, including results from prior Project analyses in 2007¹ and 2022⁴, are reported in **Table 2**.

⁵ *Transportation Impact Study Guidelines*, El Dorado County Community Development Agency, November 2014

The study intersection operates at a satisfactory level for the El Dorado County Rural Region under Existing (2022) No Project and Plus Project Existing (2022) scenarios. The project is shown to add nominal delay to the study intersection.

Under Cumulative (2041) conditions, the study intersection is anticipated to operate below the County's LOS D threshold under No Project and Plus Project conditions. However, the project does not result in an increase of 5 or more seconds of delay.

Table 2 – Intersection Levels of Service (Green Valley Rd/Deer Valley Rd)

Scenario			LOS Threshold	Peak Hour	Delay (s)	LOS
Current Analysis	Existing (2022)	No Project	D	AM	2.7(22.1 SB)	A(C)
				PM	2.1(27.9 NB)	A(D)
		Plus Project		AM	2.8(22.6 SB)	A(C)
				PM	2.1(28.5 NB)	A(D)
Previously Updated Analysis	Near Term (2031)*	No Project	D	AM	4.7(29.3 SB)	A(D)
				PM	2.8(31.3 NB)	A(D)
		Plus Project		AM	4.7(30.1 SB)	A(D)
				PM	2.8(32.1 NB)	A(D)
	Cumulative (2041)*	No Project	D	AM	7.2(44.0 SB)	A(E)
				PM	4.3(45.0 NB)	A(E)
		Plus Project		AM	7.3(45.2 SB)	A(E)
				PM	4.4(46.3 NB)	A(E)
Original Analysis	Cumulative (2025) ⁺	No Project	D	AM	N/A(635.7 SB)	F
				PM	N/A(954.9 SB)	F
		Plus Project		AM	N/A(656.9 SB)	F
				PM	N/A(985.3 SB)	F
	EPAP (2011) ⁺	No Project	D	AM	N/A(220.4 SB)	F
				PM	N/A(72.1 SB)	F
		Plus Project		AM	N/A(231.1 SB)	F
				PM	N/A(75.3 SB)	F
	Existing (2007) ⁺	No Project	D	AM	N/A(25.7 SB)	D
				PM	N/A(20.1 NB)	C
		Plus Project		AM	N/A(26.3 SB)	D
				PM	N/A(20.4 NB)	C

Note: **Bold** represents deficient operations.

Side Street Stop Control (SSSC) reported as intersection delay followed by worst approach's delay

*Green Valley Road/Deer Valley Road Intersection Operations Analysis, Kimley-Horn, April 12, 2022

⁺Ghori Property TIA, Kimley-Horn, February 14, 2007

Signal Warrant Results

CA MUTCD peak-hour signal warrants were developed for the Intersection under Existing (2022) No Project and Plus Project conditions using present day intersection geometry. The updated signal warrant findings, including warrant results from prior Project analyses in 2007¹, 2019², and 2021³, are presented in Table 3.

The Intersection does not satisfy the peak-hour signal warrant requirements in either AM or PM periods under Existing (2022) No Project and Plus Project conditions per CA MUTCD standards accepted by El Dorado County.

Table 3 - Intersection CA MUTCD Peak-Hour Signal Warrant Results

#	Intersection	Analysis Scenarios						
		Current Analysis	Previously Updated Analysis			Original Analysis		
		Existing (2022) plus Project	Existing (2021) plus Project*	Existing (2019) plus Project**	Cumulative (2025) plus Project [†]	EPAP (2011) plus Project [†]	Existing (2007) plus Project [†]	
1	Green Valley Road @ Deer Valley Road	No/No	No/No	No/No	Yes/Yes	Yes/Yes	Yes/No	

Results are presented in AM / PM format, locations where a signal is warranted during a peak hour are shaded

*Summer Brook-Traffic Signal Warrant Evaluation - Green Valley Rd at Deer Valley Rd , Kimley-Horn, June 4, 2021

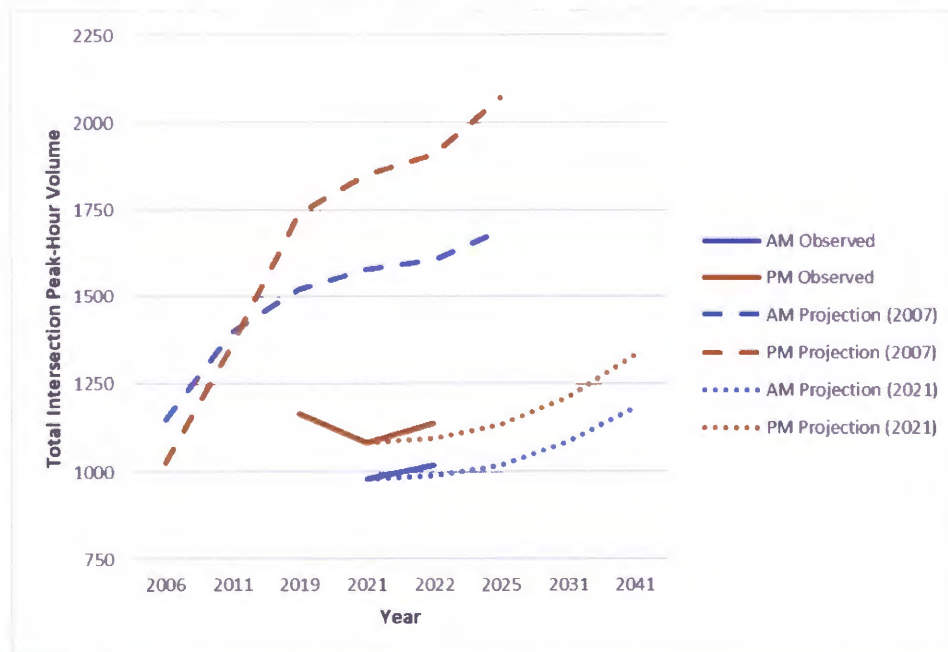
**Summer Brook-Traffic Signal Warrant Evaluation - Green Valley Rd at Deer Valley Rd , Kimley-Horn, March 28, 2019

[†]Ghori Property TIA , Kimley-Horn, February 14, 2007

Volume Comparison

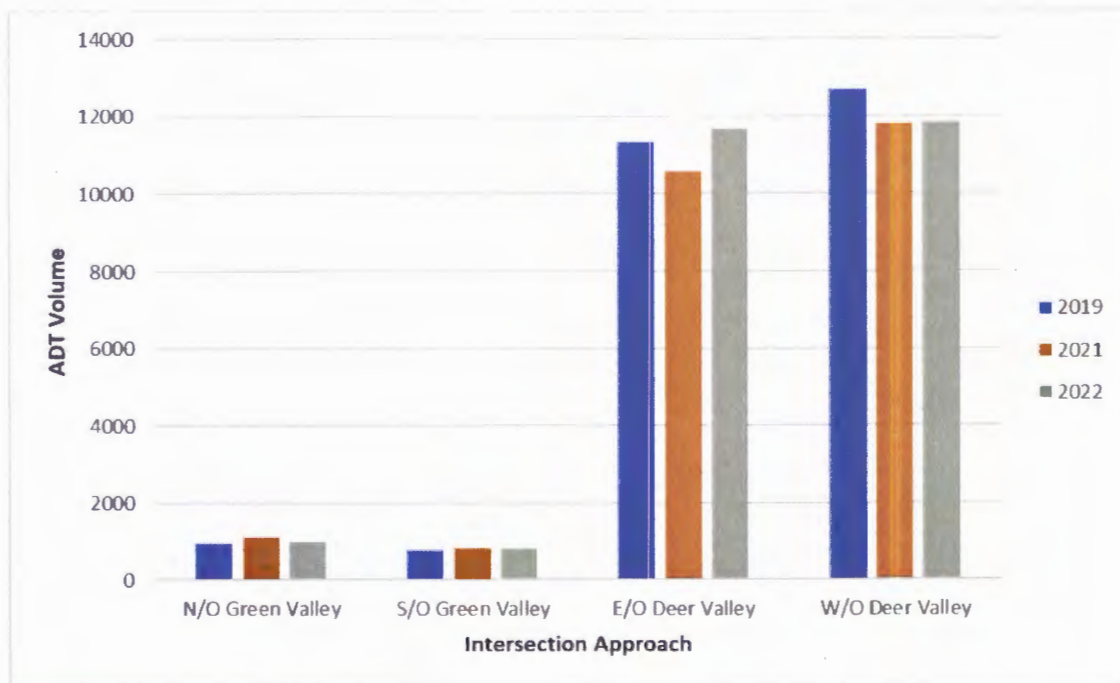
To better understand the broader context of the various analysis scenarios presented herein, Existing (2022) intersection turning movement counts collected as part of this effort were compared against intersection data utilized to perform HCM analysis and CA MUTCD signal warrant evaluations for the studies mentioned previously. The intersection turning movement volume comparison is presented in Figure 1. The comparison shows that volume growth projections based on the then-current El Dorado County TDM and used to establish future year conditions in the 2007 TIA proved more robust than the recently measured data. For example, the total measured AM peak-hour volumes from 2021 and 2022 were lower than the baseline established in 2007. The comparison also shows that the revised total intersection peak-hour volume projections from 2021 using the updated, current El Dorado County TDM forecast significantly lower traffic volume in future years than volumes established from the 2007 TIA, as depicted in the graph.

Figure 1 – Intersection Peak-Hour Volume Comparison



For additional context and to better understand travel behaviors after the effects of the 2020 COVID-19 pandemic, new daily segment counts (ADT) were collected across consecutive typical weekdays in 2022 at all four approaches to the study intersection. These 2022 volumes were compared to approach segment ADT data collected in 2019 (pre-pandemic) and 2021 (post-pandemic). This comparison is presented in Figure 2.

Figure 2 – Intersection Approach Segment ADT Comparison



The comparison shows that approach segment volumes in 2022 appear to have largely rebounded to 2019 pre-pandemic conditions, indicating that the underlying 2022 baseline data used in this analysis provides a stable platform from which to draw conclusions.

Attachments:

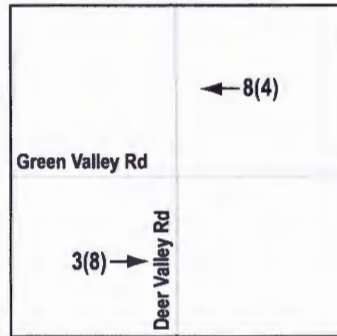
Exhibit 1 – Project Vicinity Diagram

Attachment 1 – Analysis Worksheets for Existing (2022) Conditions

Attachment 2 – Analysis Worksheets from Prior Studies

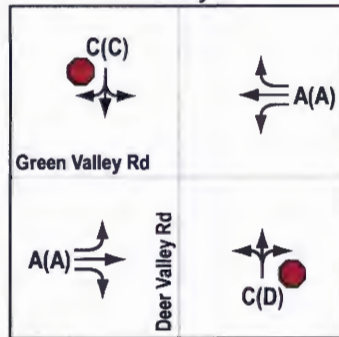
Attachment 3 – Signal Warrant Sheets for Existing (2022) Conditions

Project Trip Assignment

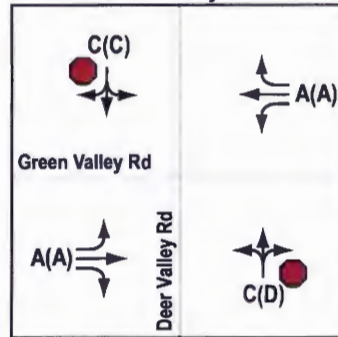


Existing (2022) Level of Service

No Project



Plus Project



LEGEND

- Project Site
- Study Intersection
- A(A)** AM(PM) Approach LOS

Intersection LOS threshold for Rural Regions is LOS D per El Dorado County *Transportation Impact Study Guidelines*

Attachment 1

Analysis Worksheets for Existing (2022) Conditions

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

2022 AM
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	10	320	7	19	551	11	10	0	26	28	0	38
Future Vol, veh/h	10	320	7	19	551	11	10	0	26	28	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	93	93	93	70	70	70	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	360	8	20	592	12	14	0	37	39	0	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	604	0	0	368	0	0	1047	1026	360	1037	1022	592
Stage 1	-	-	-	-	-	-	382	382	-	632	632	-
Stage 2	-	-	-	-	-	-	665	644	-	405	390	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	974	-	-	1191	-	-	206	235	684	209	236	506
Stage 1	-	-	-	-	-	-	640	613	-	468	474	-
Stage 2	-	-	-	-	-	-	449	468	-	622	608	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	974	-	-	1191	-	-	181	228	684	194	229	506
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	228	-	194	229	-
Stage 1	-	-	-	-	-	-	633	606	-	463	466	-
Stage 2	-	-	-	-	-	-	395	460	-	582	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	15.8	22.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	386	974	-	-	1191	-	-	301
HCM Lane V/C Ratio	0.133	0.012	-	-	0.017	-	-	0.305
HCM Control Delay (s)	15.8	8.7	-	-	8.1	-	-	22.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.3

Summer Brook Signal Evaluation
 1: Deer Valley Rd. & Green Valley Rd.

2022 PM
 Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	32	544	8	20	453	17	17	1	16	9	1	19
Future Vol, veh/h	32	544	8	20	453	17	17	1	16	9	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	86	86	86	70	70	70	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	598	9	23	527	20	24	1	23	12	1	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	547	0	0	607	0	0	1264	1261	598	1258	1250	527
Stage 1	-	-	-	-	-	-	668	668	-	573	573	-
Stage 2	-	-	-	-	-	-	596	593	-	685	677	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1022	-	-	971	-	-	146	170	502	148	173	551
Stage 1	-	-	-	-	-	-	448	456	-	505	504	-
Stage 2	-	-	-	-	-	-	490	493	-	438	452	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1022	-	-	971	-	-	133	160	502	134	163	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	160	-	134	163	-
Stage 1	-	-	-	-	-	-	433	440	-	488	492	-
Stage 2	-	-	-	-	-	-	456	481	-	402	437	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.4			27.9			20.6		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	1022	-	-	971	-	-	269
HCM Lane V/C Ratio	0.237	0.034	-	-	0.024	-	-	0.14
HCM Control Delay (s)	27.9	8.6	-	-	8.8	-	-	20.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.1	-	-	0.5

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

2022 AM plus Project
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	10	323	7	19	559	11	10	0	26	28	0	38
Future Vol, veh/h	10	323	7	19	559	11	10	0	26	28	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	93	93	93	70	70	70	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	363	8	20	601	12	14	0	37	39	0	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	613	0	0	371	0	0	1059	1038	363	1049	1034	601
Stage 1	-	-	-	-	-	-	385	385	-	641	641	-
Stage 2	-	-	-	-	-	-	674	653	-	408	393	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	966	-	-	1188	-	-	202	231	682	205	232	500
Stage 1	-	-	-	-	-	-	638	611	-	463	469	-
Stage 2	-	-	-	-	-	-	444	464	-	620	606	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	966	-	-	1188	-	-	177	225	682	190	226	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	225	-	190	226	-
Stage 1	-	-	-	-	-	-	631	604	-	458	461	-
Stage 2	-	-	-	-	-	-	390	456	-	580	599	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	16	22.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	380	966	-	-	1188	-	-	295
HCM Lane V/C Ratio	0.135	0.012	-	-	0.017	-	-	0.311
HCM Control Delay (s)	16	8.8	-	-	8.1	-	-	22.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.3

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

2022 PM plus Project
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	32	552	8	20	457	17	17	1	16	9	1	19
Future Vol, veh/h	32	552	8	20	457	17	17	1	16	9	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	86	86	86	70	70	70	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	35	607	9	23	531	20	24	1	23	12	1	25

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	551	0	0	616
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1019	-	-	964
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1019	-	-	964
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.4	28.5	20.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	1019	-	-	964	-	-	265
HCM Lane V/C Ratio	0.242	0.035	-	-	0.024	-	-	0.142
HCM Control Delay (s)	28.5	8.7	-	-	8.8	-	-	20.8
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0.1	-	-	0.5

Attachment 2

Analysis Worksheets from Prior Studies

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term Baseline
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	17	320	15	32	545	14	27	1	38	34	1	42
Future Vol, veh/h	17	320	15	32	545	14	27	1	38	34	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	352	16	37	626	16	39	1	55	47	1	58

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	642	0	0	368
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	943	-	-	1191
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	943	-	-	1191
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	24.6	29.3
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	278	943	-	-	1191	-	-	253
HCM Lane V/C Ratio	0.344	0.02	-	-	0.031	-	-	0.423
HCM Control Delay (s)	24.6	8.9	-	-	8.1	-	-	29.3
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	2

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term Baseline
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	34	626	14	33	397	28	18	2	25	11	1	23
Future Vol, veh/h	34	626	14	33	397	28	18	2	25	11	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	688	15	38	456	32	26	3	36	15	1	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	488	0	0	703	0	0	1327	1326	688	1321	1309	456
Stage 1	-	-	-	-	-	-	762	762	-	532	532	-
Stage 2	-	-	-	-	-	-	565	564	-	789	777	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1075	-	-	895	-	-	132	156	446	134	159	604
Stage 1	-	-	-	-	-	-	397	414	-	531	526	-
Stage 2	-	-	-	-	-	-	510	508	-	384	407	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1075	-	-	895	-	-	117	144	446	114	147	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	144	-	114	147	-
Stage 1	-	-	-	-	-	-	384	400	-	513	504	-
Stage 2	-	-	-	-	-	-	461	487	-	338	393	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.7	31.3	23
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	1075	-	-	895	-	-	248
HCM Lane V/C Ratio	0.324	0.035	-	-	0.042	-	-	0.196
HCM Control Delay (s)	31.3	8.5	-	-	9.2	-	-	23
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	0.7

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term plus Project
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	17	323	15	32	553	14	27	1	38	34	1	42
Future Vol, veh/h	17	323	15	32	553	14	27	1	38	34	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	355	16	37	636	16	39	1	55	47	1	58

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	652	0	0	371	0	0	1141	1119	355	1139	1119	636
Stage 1	-	-	-	-	-	-	393	393	-	710	710	-
Stage 2	-	-	-	-	-	-	748	726	-	429	409	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	935	-	-	1188	-	-	178	207	689	178	207	478
Stage 1	-	-	-	-	-	-	632	606	-	424	437	-
Stage 2	-	-	-	-	-	-	404	430	-	604	596	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	935	-	-	1188	-	-	149	197	689	156	197	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	149	197	-	156	197	-
Stage 1	-	-	-	-	-	-	619	594	-	416	423	-
Stage 2	-	-	-	-	-	-	343	417	-	543	584	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	25.1	30.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	935	-	-	1188	-	-	248
HCM Lane V/C Ratio	0.35	0.02	-	-	0.031	-	-	0.431
HCM Control Delay (s)	25.1	8.9	-	-	8.1	-	-	30.1
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	2

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term plus Project
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	34	634	14	33	401	28	18	2	25	11	1	23
Future Vol, veh/h	34	634	14	33	401	28	18	2	25	11	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	697	15	38	461	32	26	3	36	15	1	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	493	0	0	712	0	0	1341	1340	697	1335	1323	461
Stage 1	-	-	-	-	-	-	771	771	-	537	537	-
Stage 2	-	-	-	-	-	-	570	569	-	798	786	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1071	-	-	888	-	-	129	153	441	131	156	600
Stage 1	-	-	-	-	-	-	393	410	-	528	523	-
Stage 2	-	-	-	-	-	-	506	506	-	380	403	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1071	-	-	888	-	-	114	141	441	111	144	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	141	-	111	144	-
Stage 1	-	-	-	-	-	-	379	396	-	510	501	-
Stage 2	-	-	-	-	-	-	457	484	-	334	389	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.7	32.1	23.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	1071	-	-	888	-	-	242
HCM Lane V/C Ratio	0.331	0.035	-	-	0.043	-	-	0.201
HCM Control Delay (s)	32.1	8.5	-	-	9.2	-	-	23.6
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.1	-	-	0.7

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative Baseline
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖		↕			↕	
Traffic Vol, veh/h	19	339	20	48	571	16	32	1	51	40	2	46
Future Vol, veh/h	19	339	20	48	571	16	32	1	51	40	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	373	22	55	656	18	46	1	74	56	3	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	674	0	0	395	0	0	1224	1199	373	1230	1203	656
Stage 1	-	-	-	-	-	-	415	415	-	766	766	-
Stage 2	-	-	-	-	-	-	809	784	-	464	437	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	917	-	-	1164	-	-	156	185	673	154	184	465
Stage 1	-	-	-	-	-	-	615	592	-	395	412	-
Stage 2	-	-	-	-	-	-	374	404	-	578	579	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	917	-	-	1164	-	-	126	172	673	129	171	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	172	-	129	171	-
Stage 1	-	-	-	-	-	-	601	578	-	386	393	-
Stage 2	-	-	-	-	-	-	305	385	-	501	566	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.6	32.3	44
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	250	917	-	-	1164	-	-	209
HCM Lane V/C Ratio	0.487	0.023	-	-	0.047	-	-	0.585
HCM Control Delay (s)	32.3	9	-	-	8.2	-	-	44
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	3.3

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative Baseline
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	4.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↘	↘	↗	↘		↗			↕	
Traffic Vol, veh/h	34	660	14	50	434	41	23	2	37	13	1	25
Future Vol, veh/h	34	660	14	50	434	41	23	2	37	13	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	725	15	57	499	47	33	3	54	18	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	546	0	0	740	0	0	1454	1459	725	1448	1427	499
Stage 1	-	-	-	-	-	-	799	799	-	613	613	-
Stage 2	-	-	-	-	-	-	655	660	-	835	814	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1023	-	-	867	-	-	108	129	425	109	135	572
Stage 1	-	-	-	-	-	-	379	398	-	480	483	-
Stage 2	-	-	-	-	-	-	455	460	-	362	391	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1023	-	-	867	-	-	93	116	425	86	122	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	116	-	86	122	-
Stage 1	-	-	-	-	-	-	365	384	-	463	451	-
Stage 2	-	-	-	-	-	-	398	430	-	303	377	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.9			45			31		
HCM LOS	E			E			E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	176	1023	-	-	867	-	-	192
HCM Lane V/C Ratio	0.511	0.037	-	-	0.066	-	-	0.282
HCM Control Delay (s)	45	8.7	-	-	9.4	-	-	31
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.2	-	-	1.1

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative plus Project
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖		↕			↕	
Traffic Vol, veh/h	19	342	20	48	578	16	32	1	51	40	2	46
Future Vol, veh/h	19	342	20	48	578	16	32	1	51	40	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	376	22	55	664	18	46	1	74	56	3	64
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	682	0	0	398	0	0	1235	1210	376	1241	1214	664
Stage 1	-	-	-	-	-	-	418	418	-	774	774	-
Stage 2	-	-	-	-	-	-	817	792	-	467	440	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	911	-	-	1161	-	-	153	183	670	152	182	461
Stage 1	-	-	-	-	-	-	612	591	-	391	408	-
Stage 2	-	-	-	-	-	-	370	401	-	576	578	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	911	-	-	1161	-	-	123	170	670	127	169	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	170	-	127	169	-
Stage 1	-	-	-	-	-	-	598	577	-	382	389	-
Stage 2	-	-	-	-	-	-	301	382	-	499	565	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.6			33.4			45.2		
HCM LOS							D			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	245	911	-	-	1161	-	-	206				
HCM Lane V/C Ratio	0.497	0.023	-	-	0.048	-	-	0.593				
HCM Control Delay (s)	33.4	9	-	-	8.3	-	-	45.2				
HCM Lane LOS	D	A	-	-	A	-	-	E				
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	3.3				

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative plus Project
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↖			↕	
Traffic Vol, veh/h	34	668	14	50	438	41	23	2	37	13	1	25
Future Vol, veh/h	34	668	14	50	438	41	23	2	37	13	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	734	15	57	503	47	33	3	54	18	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	550	0	0	749	0	0	1467	1472	734	1461	1440	503
Stage 1	-	-	-	-	-	-	808	808	-	617	617	-
Stage 2	-	-	-	-	-	-	659	664	-	844	823	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1020	-	-	860	-	-	106	127	420	107	133	569
Stage 1	-	-	-	-	-	-	375	394	-	477	481	-
Stage 2	-	-	-	-	-	-	453	458	-	358	388	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1020	-	-	860	-	-	91	114	420	85	120	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	114	-	85	120	-
Stage 1	-	-	-	-	-	-	362	380	-	460	449	-
Stage 2	-	-	-	-	-	-	396	428	-	299	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.9	46.3	31.3
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	173	1020	-	-	860	-	-	190
HCM Lane V/C Ratio	0.519	0.037	-	-	0.067	-	-	0.285
HCM Control Delay (s)	46.3	8.7	-	-	9.5	-	-	31.3
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.6	0.1	-	-	0.2	-	-	1.1

Attachment 3

Signal Warrant Sheets for Existing (2022) Conditions

PEAK HOUR SIGNAL WARRANT ANALYSIS (Warrant #3, California MUTCD 2014 Edition, Rev 6)

INT #1

PROJECT NAME: *Summer Brook*

SCENARIO: *Existing Conditions PP*

COMMENTS:

MAJOR STREET: *Green Valley Road* NB/SB EB/WB # OF APPROACH LANES

MINOR STREET: *Deer Valley Road* NB/SB EB/WB # OF APPROACH LANES

THE STUDY INTERSECTION HAS MORE THAN THREE APPROACHES (Y OR N):

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

WORST CASE DELAY FOR MINOR STREET APPROACH:	AM		PM	
	22.6	sec/veh	28.5	sec/veh
	0.41	veh-hr	0.27	veh-hr

	MAJOR STREET		Total	MINOR STREET		Heavy Leg	Total	Intersection Total
	EB	WB		NB	SB			
	Approach	Approach		Approach	Approach			
06:00 AM TO 07:00 AM			0			0	0	0
07:00 AM TO 08:00 AM	340	589	929	36	66	66	102	1031
08:00 AM TO 09:00 AM			0			0	0	0
09:00 AM TO 10:00 AM			0			0	0	0
10:00 AM TO 11:00 AM			0			0	0	0
11:00 AM TO 12:00 PM			0			0	0	0
12:00 PM TO 01:00 PM			0			0	0	0
01:00 PM TO 02:00 PM			0			0	0	0
02:00 PM TO 03:00 PM			0			0	0	0
03:00 PM TO 04:00 PM			0			0	0	0
04:00 PM TO 05:00 PM			0			0	0	0
05:00 PM TO 06:00 PM	593	494	1087	34	29	34	63	1150
06:00 PM TO 07:00 PM			0			0	0	0
07:00 PM TO 08:00 PM			0			0	0	0
08:00 PM TO 09:00 PM			0			0	0	0
09:00 PM TO 10:00 PM			0			0	0	0

MAJOR STREET		MINOR STREET		INTERSECTION	
	Total	Heavy Leg	Total		Total
AM MAX	929	66	102	AM MAX	1031
PM MAX	1087	34	63	PM MAX	1150

Traffic Signal Warrants Worksheet

Warrant 3: Peak Hour

Source: California MUTCD 2014 Edition, Rev 6

Scenario: Existing Conditions PP AM

Intersection: Green Valley Road AND Deer Valley Road

Comments:

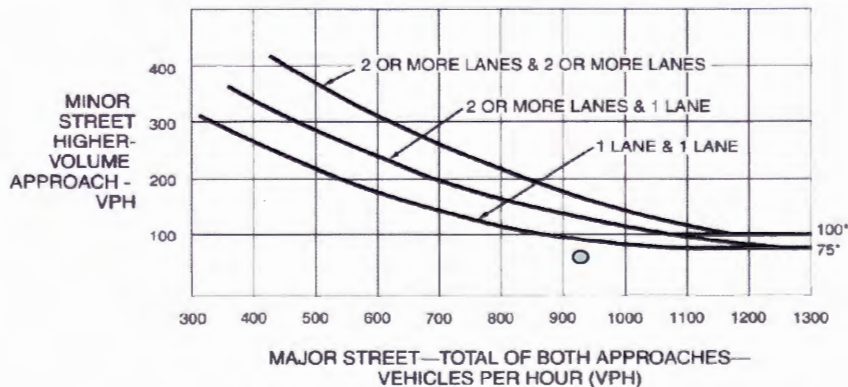
	PART A or PART B	SATISFIED	NO
PART A			
(All parts 1, 2, and 3 below must be satisfied)		SATISFIED	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; <u>AND</u>			No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>			No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.			Yes

PART B	SATISFIED	No
--------	-----------	----

APPROACH LANES	2 or More	
	One	More
Both Approaches - Major Street	929	
Highest Approach - Minor Street	66	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-3.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
 Warrant 3: Peak Hour
 Source: California MUTCD 2014 Edition, Rev 6

Scenario: Existing Conditions PP PM
 Intersection: Green Valley Road AND Deer Valley Road
 Comments:

PART A or PART B SATISFIED NO

PART A

(All parts 1, 2, and 3 below must be satisfied)

SATISFIED NO

- 1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach;
AND
- 2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes;
AND
- 3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.

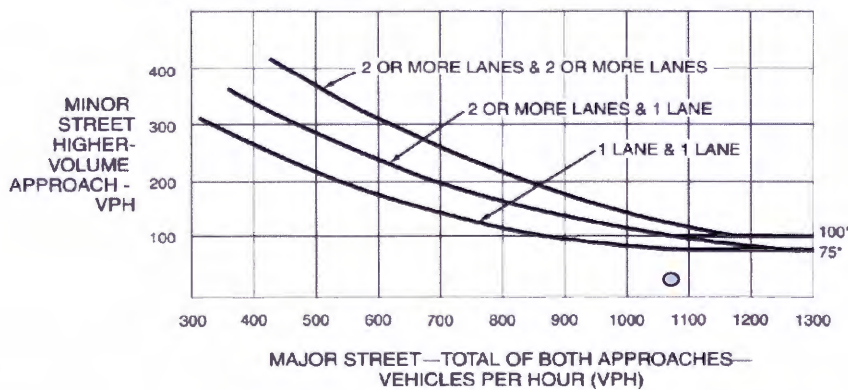
PART B

SATISFIED No

APPROACH LANES	2 or More	
	One	More
Both Approaches - Major Street	1087	
Highest Approach - Minor Street	34	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-3.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
 (COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Memorandum

To: Adam Bane, El Dorado County
From: Stephen Dillon, E.I.T.
Robert Paderna, P.E., RSP₁
Re: **Summer Brook**
Green Valley Road/Deer Valley Road Intersection Operations Analysis
Date: April 12, 2022

RECEIVED

MAR 20 2023

EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT

The purpose of this memorandum is to document anticipated intersection operations at Green Valley Road and Deer Valley Road (the “study intersection”) under both Near Term (2031) and Cumulative (2041) conditions, with and without the Summer Brook residential development project trips. Kimley-Horn previously conducted an analysis of this intersection as part of the Traffic Impact Analysis prepared for the Summer Brook development in February 2007. This supplemental analysis is intended to inform recent conversations between Blue Mountain Inc., (the “Client”) and County regarding current operating conditions of the study intersection and the project’s conditions of approval (COA).

Analysis Background

The project proposes to construct a total of 29 single-family (detached) homes. Access to the site will be provided via two full-access driveways along Green Valley Road, east of the study intersection. As part of the development review process, a traffic impact analysis (TIA) for the proposed project was completed by Kimley-Horn in February 2007. The 2007 TIA established 2025 as the Cumulative condition year for evaluation and concluded the study intersection satisfied California Manual on Uniform Traffic Control Devices (CA MUTCD) peak-hour signal warrants during both the AM and PM peak-hours under both no project and plus project conditions. Contributions to the project’s fair share for signaling the study intersection was established as a Condition of Approval (COA) by the County for the project.

As future year conditions established using El Dorado County’s Travel Demand Model (TDM) have been updated since the 2007 TIA, the Client desired to reexamine the previously established signalization COA. As part of the COA, traffic volume-based warrants presented in the CA MUTCD were reviewed by Kimley-Horn utilizing traffic counts from January 2019 and May 2021 for the purpose of comparing results against the Cumulative 2025 peak-hour warrants produced for the 2007 TIA. The updated signal warrant evaluation using January 2019 and May 2021 data concluded that a traffic signal was not warranted for both no project and plus project scenarios at the study intersection under current traffic conditions.

In order to inform conversations with the County regarding consideration of traffic signalization of the study intersection in the future, the Client requested an updated traffic operations analysis be conducted under both no project and plus project conditions for Near Term (2031) and Cumulative (2041) scenarios.

Analysis Methodology

Level of Service Definitions

The level of service (LOS) of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A, which represents minimal delay, to F, which represents heavy delay and a facility that is operating at or near its functional capacity. LOS for this study was determined using methods defined in the *Highway Capacity Manual (HCM) 6th Edition*.

Based on the evaluation of the abovementioned traffic signal warrants , it was determined that the warrant for a traffic signal at the Green Valley Road at Deer Valley Road intersection is not satisfied under Existing plus Project conditions. The results of the warrant evaluation is summarized in **Table 1** below. Summary sheets for the warrant evaluation are included as **Attachment B**.

Table 1: Traffic Signal Warrant Evaluation Summary

Intersection	Traffic Signal Warrant			
	Warrant 1 8-hour volume	Warrant 2 4-hour volume	Warrant 3 Peak Hour	Warrant 4 Pedestrian Volume
Green Valley Road & Deer Valley Road	Not Satisfied	Not Satisfied	Not Satisfied	Not Satisfied

Equitable Share Responsibility

Because it was determined that the traffic signal warrant is not satisfied, the County has requested that the project applicant determine the project’s fair share percentage of the construction costs to install a traffic signal at the subject intersection. The project’s fair share contribution was calculated based on the project’s proportionate traffic contribution to the overall future traffic volumes at the subject intersection. Based on the Caltrans *Guide for the Preparation of Traffic Impact Studies* (2002), the fair share calculation for impacts at an intersection is calculated using the following equation:

$$P = T / (T_B - T_E)$$

Where:

P = The equitable share for the proposed project’s traffic impact.

T = The vehicle trips generated by the project during the peak hour of subject intersection in vehicles per hour, vph.

T_B = The forecasted traffic volume on impacted intersection at the time of general plan build-out, vph.

T_E = The existing traffic volume on the impacted intersection plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

Based on proposed project trips and traffic volumes contained in the *Summer Brook Traffic Impact Analysis* (dated February 14, 2007), we calculated a fair share of 3.9% for the proposed project’s traffic impact.

Summary and Recommendations

Based on the traffic signal warrant criteria contained in the *CMUTCD*, the Warrants 1 through 4 are not satisfied at the Green Valley Road at Deer Valley Road intersection under Existing plus Project conditions. Therefore, no traffic control or other intersection control modifications are required at this time. The proposed project’s fair share contribution percentage of construction costs to install a traffic signal was calculated to be 3.9%, which is equivalent to approximately \$10,000 to \$12,000. Note that this represents an opinion of probable construction costs under current market conditions, and Kimley-Horn cannot guarantee accuracy of construction cost estimates in future years due to factors beyond our control.

Attachments:

Attachment A – Traffic Counts

Attachment B – Warrant Analysis Worksheets

Attachment A
Traffic Counts

National Data & Surveying Services Intersection Turning Movement Count

Location: Green Valley Rd & Deer Valley Rd
 City: Rescue
 Control: 2-Way Stop(EB/WB)

Project ID: 21-070070-001
 Date: 5/26/2021

Data - Total

NS/EW Streets:	Green Valley Rd				Green Valley Rd				Deer Valley Rd				Deer Valley Rd				TOTAL
	NORTHBOUND		SOUTHBOUND		EASTBOUND		WESTBOUND		NORTHBOUND		SOUTHBOUND		WESTBOUND				
NOON	1	1	0	1	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
11:00 AM	3	88	1	0	9	74	4	0	2	0	5	0	1	0	5	0	192
11:15 AM	5	85	1	0	4	85	3	0	3	0	4	0	2	1	6	0	199
11:30 AM	2	83	3	0	6	91	5	0	5	0	7	0	1	0	5	0	208
11:45 AM	3	108	2	0	2	79	4	0	3	1	5	0	4	1	8	0	220
12:00 PM	4	81	4	0	4	86	6	0	1	0	2	0	2	0	6	0	203
12:15 PM	7	96	0	2	6	93	3	0	7	0	5	0	1	0	6	0	226
12:30 PM	2	98	0	0	5	89	5	0	4	0	2	0	2	0	10	0	217
12:45 PM	4	108	4	0	5	102	4	0	6	0	3	0	0	0	9	0	245
1:00 PM	4	97	8	0	10	105	6	0	1	1	3	0	4	1	4	0	244
1:15 PM	11	93	6	0	5	113	2	0	3	0	3	0	2	0	1	0	239
1:30 PM	2	94	3	1	9	99	7	0	5	0	3	0	4	0	5	0	232
1:45 PM	8	96	1	0	11	88	5	0	4	1	6	0	1	2	1	0	224
TOTAL VOLUMES :	55	1127	33	3	76	1104	54	0	44	3	48	0	24	5	73	0	2649
APPROACH %'s :	4.52%	92.53%	2.71%	0.25%	6.16%	89.47%	4.38%	0.00%	46.32%	3.16%	50.53%	0.00%	23.53%	4.90%	71.57%	0.00%	
PEAK HR :	12:45 PM - 01:45 PM																
PEAK HR VOL :	21	392	21	1	29	419	19	0	15	1	12	0	10	1	19	0	960
PEAK HR FACTOR :	0.477	0.907	0.656	0.250	0.725	0.927	0.679	0.000	0.625	0.250	1.000	0.000	0.625	0.250	0.528	0.000	0.980
	0.938				0.965				0.778				0.833				

NS/EW Streets:	Green Valley Rd				Green Valley Rd				Deer Valley Rd				Deer Valley Rd				TOTAL
	NORTHBOUND		SOUTHBOUND		EASTBOUND		WESTBOUND		NORTHBOUND		SOUTHBOUND		WESTBOUND				
PM	1	1	0	1	1	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
2:00 PM	4	93	1	0	7	126	0	0	6	1	8	0	2	0	5	0	253
2:15 PM	9	86	7	1	7	124	9	0	3	0	3	0	1	0	4	0	254
2:30 PM	3	77	7	0	2	105	2	0	3	0	1	0	5	0	7	0	212
2:45 PM	4	90	2	0	5	127	2	0	6	0	0	0	2	0	4	0	242
3:00 PM	2	79	6	0	8	129	1	0	3	0	2	0	1	0	6	0	237
3:15 PM	5	99	2	0	8	127	3	0	6	0	8	0	0	0	4	0	262
3:30 PM	3	82	1	0	9	116	5	1	8	1	2	0	4	0	11	0	243
3:45 PM	7	99	1	0	10	128	3	0	4	0	6	0	7	0	7	0	272
4:00 PM	5	129	2	0	8	145	2	0	4	0	3	0	3	0	3	0	304
4:15 PM	5	105	3	0	7	127	4	0	5	1	6	0	3	0	6	0	272
4:30 PM	4	103	5	0	7	103	5	0	4	0	3	0	3	1	5	0	243
4:45 PM	5	86	4	0	5	134	9	0	3	0	6	1	4	0	6	0	263
5:00 PM	10	94	7	0	2	111	6	0	5	0	5	0	0	0	7	0	247
5:15 PM	1	85	5	0	7	170	5	0	2	0	1	0	4	0	6	0	286
5:30 PM	4	104	2	0	7	135	5	0	5	0	4	0	4	0	3	0	273
5:45 PM	3	99	3	0	8	122	3	0	1	0	6	0	2	0	7	0	254
6:00 PM	6	85	1	1	6	105	5	0	2	0	5	0	2	0	0	0	218
6:15 PM	5	73	4	0	6	77	3	0	3	0	5	0	1	0	5	0	182
6:30 PM	0	65	3	0	5	97	2	0	3	0	2	0	0	0	5	0	182
6:45 PM	2	38	3	0	4	93	3	0	2	0	5	0	0	1	2	0	153
TOTAL VOLUMES :	87	1771	69	2	128	2401	77	1	78	3	81	1	48	2	103	0	4852
APPROACH %'s :	4.51%	91.81%	3.58%	0.10%	4.91%	92.10%	2.95%	0.04%	47.85%	1.84%	49.69%	0.61%	31.37%	1.31%	67.32%	0.00%	
PEAK HR :	03:45 PM - 04:45 PM																
PEAK HR VOL :	21	436	11	0	32	503	14	0	17	1	18	0	16	1	21	0	1091
PEAK HR FACTOR :	0.750	0.845	0.550	0.000	0.800	0.867	0.700	0.000	0.850	0.250	0.750	0.000	0.571	0.250	0.750	0.000	0.897
	0.860				0.885				0.750				0.679				

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Green Valley Rd & Deer Valley Rd

Tuesday
5/11/2021

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MP	N					O					PMP	N					O																								
	2		9		0		2		13		92		90		7		12		201																						
	2		9		0		0		11		76		104		6		12		198																						
	1		3		0		0		4		79		99		15		10		203																						
	1	6	4	25	0		1	3	6	34		81	328	90	383	5	33	5	39																						
	2		4		0		0		6		71		96		6		5		178																						
	2		3		0		0		5		83		107		8		9		207																						
	2		3		0		1		6		95		102		7		9		213																						
	0	6	2	12	0		0	1	2	19		87	336	109	414	7	28	10	33																						
	1		2		0		1		4		75		129		7		8		219																						
	1		1		0		0		2		111		119		6		9		245																						
	2		2		1		0		5		82		118		9		13		222																						
	1	5	0	5	0	1	1	2	2	13		105	373	115	481	11	33	13	43																						
	3		4		0		0		7		89		129		11		11		240																						
	2		1		0		0		3		116		165		3		6		290																						
	3		1		0		1		5		116		139		4		9		268																						
	2	10	2	8	0		0	1	4	19		89	410	132	565	6	24	14	40																						
	2		4		0		0		6		106		117		8		8		239																						
	5		1		0		3		9		98		132		11		10		251																						
	6		2		0		3		11		109		153		11		4		277																						
	10	23	5	12	0		2	8	17	43		102	415	120	522	3	33	6	28																						
	7		4		0		2		13		89		132		6		8		235																						
	25		4		0		4		33		100		172		10		6		288																						
	34		7		0		6		47		66		131		8		7		212																						
	38	104	18	33	0		3	15	59	152		53	308	119	554	9	33	14	35																						
	29		15		1		3		48		57		101		6		10		174																						
	42		17		1		2		62		64		76		6		8		154																						
	82		23		2		7		114		63		104		7		6		180																						
	61	214	42	97	5	9	12	24	120	344		55	239	104	385	3	22	11	35																						
	69		40		2		7		118		53		94		8		5		160																						
	110		48		6		11		175		41		70		1		6		118																						
	125		70		10		23		228		32		56		2		4		94																						
	120	424	93	251	12	30	17	58	242	763		35	161	77	297	2	13	2	17																						
	100		67		9		14		190		46		55		0		6		107																						
	95		69		6		8		178		23		52		1		2		78																						
	102		73		13		16		204		27		64		2		2		95																						
	114	411	93	302	7	35	13	51	227	799		25	121	81	252	3	6	1	11																						
	68		77		12		11		168		29		48		0		0		77																						
	109		72		3		4		188		24		37		2		5		68																						
	78		62		8		6		154		15		41		6		1		63																						
	80	335	78	289	3	26	12	33	173	683		9	77	40	166	0	8	1	7																						
	80		56		11		10		157		13		20		2		0		35																						
	66		67		4		9		146		9		26		1		1		37																						
	60		75		7		6		148		11		13		1		0		25																						
	84	290	58	256	5	27	7	32	154	605		5	38	21	80	1	5	0	1																						
	75		77		7		10		169		6		6		0		1		13																						
	79		81		9		9		178		3		8		0		0		11																						
	85		86		9		3		183		3		12		0		1		16																						
	88	327	86	330	4	29	11	33	189	719		4	16	9	35	0		2	4																						
O	2155					1620					157					261					O	2822					4134					238					293				
P	51.4%					38.6%					3.7%					6.2%					P	37.7%					55.2%					3.2%					3.9%				

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MP	07:15					11:45					07:45					07:15					PMP	15:15					16:30					14:15					14:15				
MP	455					379					40					65					PMP	427					577					37					46				
P	0.910					0.911					0.769					0.707					P	0.920					0.839					0.841					0.685				
	835					553					65					109						723					1076					66					63				
P	07:15					07:45					07:45					07:15					P	16:00					16:30					16:00					17:00				
P	455					302					40					65					P	415					577					33					35				
P	0.910					0.812					0.769					0.707					P	0.952					0.839					0.750					0.625				

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Green Valley Rd & Deer Valley Rd

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	5		8		1		0		0	14		98		91		5		12		206																					
	2		3		0		0		0	5		61		97		7		15		180																					
	1		1		0		0		0	2		89		101		6		6		202																					
	4	12	7	19	0	1	0		0	11	32	83	331	110	399	5	23	11	44	209	797																				
	1		4		0		0		0	5		89		101		7		13		210																					
	1		4		0		0		0	5		116		115		10		15		256																					
	4		6		0		0		0	10		87		128		15		6		236																					
	2	8	5	19	1	1	0		0	8	28	110	402	128	472	5	37	16	50	259	961																				
	4		3		0		0		0	7		83		103		8		11		205																					
	0		3		0		1		1	4		111		124		7		18		260																					
	4		1		0		0		0	5		109		139		11		12		271																					
	3	11	4	11	0		0		1	7	23	84	387	114	480	7	33	3	44	208	944																				
	1		6		0		0		0	7		95		125		9		7		236																					
	3		2		0		2		2	7		106		139		9		6		260																					
	3		3		0		0		0	6		93		147		15		18		273																					
	1	8	0	11	0		0		2	1	21	115	409	129	540	9	42	9	40	262	1031																				
	5		2		0		0		0	7		91		136		9		6		242																					
	4		3		0		3		3	10		105		157		11		3		276																					
	6		4		0		3		3	13		100		128		12		1		241																					
	9	24	6	15	0		3		9	18	48	84	380	107	528	4	36	12	22	207	966																				
	16		1		0		0		0	17		99		133		8		8		248																					
	35		8		0		5		5	48		86		138		2		13		239																					
	32		10		0		4		4	46		98		133		6		7		244																					
	30	113	9	28	0		1		10	40	151	72	355	157	561	6	22	8	36	243	974																				
	40		13		0		1		1	54		79		126		7		14		226																					
	56		30		0		5		5	91		66		106		4		7		183																					
	61		20		1		7		7	89		67		88		5		7		167																					
	74	231	40	103	5	6	4	17	17	123	357	54	266	85	405	15	31	6	34	160	736																				
	86		44		3		8		8	141		58		74		8		7		147																					
	104		48		3		9		9	164		55		81		8		6		150																					
	105		65		4		23		23	197		41		75		5		3		124																					
	129	424	105	262	15	25	16	56	56	265	767	40	194	66	296	5	26	10	26	121	542																				
	114		68		5		7		7	194		33		73		4		5		115																					
	114		68		7		8		8	197		42		83		7		7		139																					
	126		93		8		17		17	244		35		58		9		1		103																					
	100	454	107	336	3	23	8	40	40	218	853	31	141	58	272	3	23	4	17	96	453																				
	101		86		7		8		8	202		34		60		2		7		103																					
	78		60		7		18		18	163		21		43		3		2		69																					
	80		79		6		9		9	174		20		39		0		1		60																					
	97	356	63	288	11	31	11	46	46	182	721	18	93	33	175	4	9	2	12	57	289																				
	78		66		6		6		6	156		19		31		4		3		57																					
	87		62		7		8		8	164		11		31		1		0		43																					
	89		85		3		3		3	180		7		22		1		1		31																					
	71	325	78	291	7	23	5	22	22	161	661	8	45	8	92	0	6	3	7	19	150																				
	87		71		7		10		10	175		7		18		0		0		25																					
	77		78		7		12		12	174		8		11		1		0		20																					
	74		79		9		9		9	171		7		10		1		0		18																					
	84	322	81	309	8	31	15	46	46	188	708	6	28	10	49	0	2	1	1	17	80																				
O	2288					1692					141					249					O	3031					4269					290					333				
P	52.4%					38.7%					3.2%					5.7%					P	38.3%					53.9%					3.7%					4.2%				

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MP	07:45		11:45		07:45		07:00			FMP	13:45		15:30		15:30		13:45				
MP	483		370		35		56			PM P	413		569		44		57				
P	0.936		0.916		0.583		0.609			P	0.930		0.906		0.733		0.792				
	878		598		48		96				735		1089		58		58				
P	07:45		08:00		07:45		07:00			P	16:15		17:00		16:00		16:45				
P	483		336		35		56			P	388		561		36		40				
P	0.936		0.785		0.583		0.609			P	0.924		0.893		0.750		0.769				

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Green Valley Rd & Deer Valley Rd

Tuesday
5/13/2021

E Dorado Hills
CA21_070069_001

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MP	N					O	MP	N					O					
	7	5	0	0	0	12		94	81	4	9	188						
	1	7	0	0	0	8		101	107	11	11	230						
	2	4	0	0	0	6		92	96	7	13	208						
	2	12	8	24	0	10	36	66	353	99	383	10	32	5	38	806		
	2	1	0	0	0	3		84	97	6	4	191						
	5	4	0	2		11		83	97	9	9	198						
	1	0	1	0		2		90	101	2	6	199						
	4	12	2	7	0	1	0	2	78	335	97	392	9	26	3	22	187	775
	1	3	0	0		4		117	96	9	8	230						
	1	2	0	0		3		88	120	7	5	220						
	4	0	0	0		4		99	135	7	10	251						
	0	6	5	10	1	1	0	6	126	430	108	459	9	32	12	35	255	956
	2	2	0	0		4		92	157	8	9	266						
	1	6	0	0		7		107	149	12	5	273						
	4	4	0	0		8		140	153	8	8	309						
	3	10	1	13	0	1	1	5	112	451	155	614	13	41	12	34	292	1140
	6	2	0	0		8		94	127	16	14	251						
	5	2	0	2		9		112	122	10	12	256						
	6	2	0	3		11		112	149	3	9	273						
	13	30	3	9	0	3	8	19	92	410	196	594	7	36	10	45	305	1085
	19	5	0	1		25		109	142	7	14	272						
	19	5	0	3		27		103	147	10	16	276						
	40	9	0	7		56		92	152	11	11	266						
	34	112	16	35	0	5	16	55	101	405	126	567	7	35	9	50	243	1057
	38	11	0	3		52		67	99	7	8	181						
	61	31	1	6		99		80	110	11	4	205						
	68	27	1	2		98		78	101	10	3	192						
	69	236	25	94	4	6	9	20	65	290	80	390	3	31	6	21	154	732
	93	50	3	6		152		62	77	8	7	154						
	110	51	4	11		176		61	99	9	10	179						
	121	50	5	21		197		59	62	4	5	130						
	138	462	112	263	10	22	19	57	41	223	72	310	12	33	2	24	127	590
	101	63	6	8		178		41	53	11	3	108						
	115	72	7	9		203		36	71	2	4	113						
	136	88	2	13		239		43	70	4	3	120						
	117	469	103	326	6	21	9	39	36	156	70	264	4	21	2	12	112	453
	81	77	6	10		174		24	52	6	2	84						
	102	70	6	8		186		25	51	5	3	84						
	106	62	5	9		182		20	40	1	3	64						
	70	359	72	281	5	22	10	37	15	84	48	191	5	17	4	12	72	304
	80	69	6	9		164		14	38	0	0	52						
	87	63	5	8		163		13	29	1	0	43						
	82	74	1	12		169		12	25	2	1	40						
	79	328	84	290	6	18	12	41	8	47	21	113	1	4	1	2	31	166
	90	62	1	8		161		8	16	1	0	25						
	105	68	6	8		187		6	12	0	2	20						
	92	95	8	9		204		5	9	1	1	16						
	83	370	82	307	1	16	10	35	4	23	9	46	1	3	1	4	15	76
O	2406					1659	107	256	O	3207					4323	311	299	
P	54.3%					37.5%	2.4%	5.8%	P	39.4%					53.1%	3.8%	3.7%	

O N										
MP	07:45	11:45	07:30	07:15		PM P	14:45	16:45	15:15	16:45
MP	490	366	28	59		PM P	465	637	49	51
P	0.888	0.855	0.700	0.702		P	0.830	0.813	0.766	0.797
	931	589	43	96			815	1161	71	95
P	07:45	07:45	07:30	07:15		P	16:15	16:45	16:00	16:45
P	490	335	28	59		P	425	637	36	51
P	0.888	0.748	0.700	0.702		P	0.949	0.813	0.563	0.797

P N
O M
Green Valley Rd & Deer Valley Rd

Friday
5/14/2021

El Dorado Hills
CA21_070069_001

O										N																															
MP	N					O					PM P	N					O																								
	6	7	0	0	0	13					70	99	3	14	186																										
	5	12	0	0	0	17					86	89	4	13	192																										
	6	8	0	0	0	14					88	94	9	14	205																										
	5	22	6	33	2	2	2	2	15	59	84	328	117	399	10	26	13	54	224	807																					
	0	4	0	0	0	4					85	113	5	4	207																										
	6	6	0	0	0	12					88	143	6	8	245																										
	4	2	0	0	1	7					84	117	2	10	213																										
	2	12	3	15	0	0	1	1	5	28	106	363	131	504	10	23	12	34	259	924																					
	0	3	0	0	0	3					102	103	8	11	224																										
	1	4	0	0	0	5					103	128	6	9	246																										
	1	3	0	0	0	4					124	132	11	10	277																										
	3	5	2	12	1	1	0	0	6	18	103	432	124	487	11	36	12	42	250	997																					
	1	2	0	0	0	3					110	123	12	12	257																										
	0	4	0	0	0	4					125	170	11	13	319																										
	5	0	0	0	0	5					117	171	10	7	305																										
	2	8	2	8	0	1	1	1	5	17	118	470	124	588	6	39	9	41	257	1138																					
	5	2	0	0	1	8					93	166	9	10	278																										
	4	1	0	2	2	7					109	157	8	5	279																										
	8	2	0	2	2	12					101	125	10	5	241																										
	7	24	6	11	1	1	2	7	16	43	103	406	151	599	7	34	5	25	266	1064																					
	16	2	0	2	2	20					92	122	5	8	227																										
	26	4	1	2	2	33					107	146	6	7	266																										
	39	9	2	7	7	57					99	146	8	11	264																										
	48	129	9	24	1	4	2	13	60	170	90	388	125	539	4	23	14	40	233	990																					
	52	14	2	2	2	70					86	110	7	15	218																										
	51	37	2	7	7	97					63	107	10	4	184																										
	65	25	2	2	2	94					72	86	9	11	178																										
	59	227	38	114	10	16	3	14	110	371	61	282	99	402	5	31	9	39	174	754																					
	86	40	2	6	6	134					54	81	4	2	141																										
	95	43	9	11	11	158					37	81	2	7	127																										
	126	60	10	23	23	219					46	94	2	2	144																										
	157	464	90	233	8	29	15	55	270	781	40	177	76	332	3	11	8	19	127	539																					
	117	72	9	12	12	210					40	66	3	6	115																										
	111	51	8	7	7	177					43	67	3	2	115																										
	118	90	20	9	9	237					41	56	2	3	102																										
	113	459	73	286	9	46	13	41	208	832	35	159	56	245	1	9	2	13	94	426																					
	90	87	10	9	9	196					41	55	3	3	102																										
	88	67	6	8	8	169					24	42	5	2	73																										
	117	58	7	9	9	191					22	31	2	2	57																										
	89	384	78	290	6	29	1	27	174	730	23	110	47	175	4	14	0	7	74	306																					
	95	75	11	9	9	190					32	56	0	2	90																										
	103	73	10	8	8	194					14	46	0	2	62																										
	104	73	7	8	8	192					15	43	1	1	60																										
	84	386	82	303	6	34	5	30	177	753	11	72	23	168	0	1	1	6	35	247																					
	93	63	10	8	8	174					11	23	1	1	36																										
	94	87	7	11	11	199					11	26	0	0	37																										
	117	90	6	13	13	226					13	18	1	0	32																										
	80	384	101	341	9	32	13	45	203	802	4	39	17	84	0	2	1	2	22	127																					
O	2504					1670					194					236					O	3226					4522					249					322				
P	54.4%					36.3%					4.2%					5.1%					P	38.8%					54.4%					3.0%					3.9%				

O										N											
MP	07:30	11:45	08:15	07:15							PM P	15:00	15:15	14:30	12:00						
MP	511	383	47	61							PM P	470	631	45	54						
P	0.814	0.948	0.588	0.663							P	0.940	0.923	0.938	0.964						
	923	519	75	96								794	1138	57	65						
P	07:30	07:45	08:00	07:15							P	16:00	16:00	16:00	17:00						
P	511	303	46	61							P	406	599	34	40						
P	0.814	0.842	0.575	0.663							P	0.931	0.902	0.850	0.714						

P N
O M
Green Valley Rd & Deer Valley Rd

Monday
5/15/2021

El Dorado Hills
CA21_070069_001

O N										O N																													
MP	N									O										PM P	N									O									
	5	12	0	0						17											96	97	6	7						206									
	5	14	0	1						20											87	146	6	9						248									
	7	7	1	1						16											96	110	6	15						227									
	2	19	7	40	0	1	0	2		9	62										95	374	102	455	6	24	14	45		217	898								
	4	5	0	0						9											96	121	2	5						224									
	2	8	0	0						10											108	110	4	15						237									
	5	9	0	0						14											103	96	6	5						210									
	3	14	6	28	0	0	0			9	42										95	402	123	450	5	17	15	40		238	909								
	2	1	1	1						5											85	102	6	4						197									
	1	3	0	1						5											96	119	7	7						229									
	2	4	0	0						6											100	100	7	7						214									
	1	6	3	11	0	1	0	2		4	20										100	381	122	443	9	29	16	34		247	887								
	3	3	1	0						7											85	126	5	12						228									
	3	1	0	0						4											69	130	7	10						216									
	2	4	0	0						6											93	101	1	12						207									
	0	8	1	9	0	1	0			1	18										70	317	101	458	2	15	5	39		178	829								
	3	3	0	0						6											93	103	7	7						210									
	5	1	0	0						6											94	102	5	7						208									
	6	3	0	1						10											79	142	11	12						244									
	5	19	4	11	0	0	1			9	31										72	338	108	455	9	32	10	36		199	861								
	7	1	0	2						10											81	93	8	7						189									
	10	5	0	0						15											93	83	7	14						197									
	10	7	0	2						19											67	79	6	15						167									
	22	49	7	20	1	1	2	6		32	76										67	308	70	325	8	29	15	51		160	713								
	21	11	1	2						35											74	100	2	12						188									
	19	8	1	3						31											62	88	2	9						161									
	29	12	2	2						45											59	73	11	9						152									
	31	100	18	49	0	4	3	10		52	163										53	248	79	340	4	19	7	37		143	644								
	29	18	2	3						52											52	83	4	5						144									
	48	26	6	5						85											50	67	6	8						131									
	58	26	3	8						95											39	58	5	3						105									
	50	185	29	99	6	17	8	24		93	325										42	183	50	258	7	22	5	21		104	484								
	49	39	5	5						98											41	55	4	4						104									
	55	43	9	5						112											34	62	4	6						106									
	81	49	9	11						150											34	60	6	5						105									
	68	253	67	198	10	33	8	29		153	513										30	139	50	227	1	15	6	21		87	402								
	67	68	9	12						156											29	57	3	2						91									
	78	49	6	7						140											31	40	1	1						73									
	96	66	6	10						178											29	53	2	3						87									
	91	332	67	250	7	28	8	37		173	647										30	119	63	213	3	9	1	7		97	348								
	83	90	7	8						188											32	44	0	6						82									
	100	72	7	9						188											20	29	2	4						55									
	100	78	4	8						190											27	25	1	1						54									
	115	398	84	324	5	23	9	34		213	779										18	97	31	129	0	3	1	12		50	241								
	106	90	12	10						218											10	24	2	1						37									
	104	68	6	10						188											14	32	2	3						51									
	120	94	5	12						231											9	31	2	3						45									
	89	419	100	352	10	33	9	41		208	845										6	39	11	98	2	8	2	9		21	154								
O	1802	1391	142	186																O	2945	3851	222	352															
P	51.2%	39.5%	4.0%	5.3%																P	40.0%	52.3%	3.0%	4.8%															

O N										O N									
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MP	10:45	11:45	08:15	10:45						PM P	12:45	12:15	16:30	17:15					
MP	445	453	37	41						PM P	402	479	35	56					
P	0.927	0.776	0.925	0.854						P	0.931	0.820	0.795	0.933					
	438	297	50	53							646	780	61	87					
P	08:00	08:00	08:00	07:45						P	16:00	16:00	16:30	17:00					
P	253	198	33	29							338	455	35	51					
P	0.781	0.739	0.825	0.659						P	0.899	0.801	0.795	0.850					

P N
O M
Green Valley Rd & Deer Valley Rd

unday
5/16/2021

E Dorado Hills
CA21_070069_001

O										N																															
MP	N					O					PMP	N					O																								
	7		19		1		0		0	27		88		101		10		10	209																						
	12		14		0		0		0	26		82		85		3		6	176																						
	6		13		0		2		2	21		86		109		5		8	208																						
	7	32	4	50	0	1	2	4	4	13	87	99	355	93	388	6	24	9	33	800																					
	2		5		0		0		0	7		83		109		7		10	209																						
	2		7		0		1		1	10		85		86		9		9	189																						
	3		12		0		1		1	16		87		96		10		6	199																						
	1	8	5	29	0	0	0	2	2	6	39	83	338	90	381	5	31	6	31	781																					
	0		8		0		0		0	8		78		114		2		3	197																						
	4		7		0		0		0	11		78		94		4		10	186																						
	0		2		0		0		0	2		81		99		6		6	192																						
	4	8	2	19	0	0	0		0	6	27	80	317	97	404	5	17	8	27	765																					
	1		1		0		0		0	2		59		80		4		10	153																						
	5		1		0		2		2	8		71		112		2		6	191																						
	0		2		0		0		0	2		85		106		3		10	204																						
	4	10	1	5	0	0	0	2	2	5	17	68	283	109	407	5	14	12	38	742																					
	1		1		0		0		0	2		85		83		4		5	177																						
	3		3		0		1		1	7		61		109		2		9	181																						
	1		1		0		1		1	3		75		77		5		10	167																						
	4	9	3	8	0	3	5	10	22	10	22	71	292	98	367	1	12	7	31	702																					
	3		0		0		1		1	4		65		95		7		11	178																						
	9		3		0		0		0	12		70		88		3		6	167																						
	9		5		0		2		2	16		64		86		6		7	163																						
	18	39	5	13	1	1	4	7	28	60	60	48	247	61	330	4	20	7	31	628																					
	13		5		0		3		3	21		63		65		4		7	139																						
	12		6		1		2		2	21		51		57		3		5	116																						
	11		10		1		2		2	24		49		61		6		7	123																						
	15	51	11	32	3	5	3	10	32	98	98	37	200	63	246	3	16	9	28	490																					
	28		6		0		4		4	38		35		70		4		6	115																						
	28		14		2		3		3	47		42		60		8		7	117																						
	42		21		3		3		3	69		38		46		0		7	91																						
	35	133	34	75	4	9	5	15	78	232	232	30	145	68	244	1	13	7	27	429																					
	29		29		5		3		3	66		34		55		1		8	98																						
	43		26		4		15		15	88		50		36		2		1	89																						
	43		34		7		3		3	87		31		68		0		2	101																						
	63	178	29	118	4	20	11	32	107	348	348	20	135	45	204	4	7	1	12	358																					
	64		29		6		8		8	107		32		31		5		2	70																						
	65		38		7		9		9	119		23		29		1		0	53																						
	90		58		8		10		10	166		17		28		0		1	46																						
	89	308	51	176	4	25	5	32	149	541	541	10	82	29	117	0	6	0	3	208																					
	73		66		5		4		4	148		12		24		1		0	37																						
	86		73		9		12		12	180		12		24		1		1	38																						
	88		75		8		13		13	184		11		15		0		0	26																						
	90	337	75	289	2	24	17	46	184	696	696	10	45	14	77	0	2	1	2	126																					
	80		84		2		5		5	171		10		9		0		1	20																						
	90		84		4		7		7	185		7		8		0		0	15																						
	89		99		7		11		11	206		4		12		0		0	16																						
	89	348	100	367	8	21	8	31	205	767	767	7	28	11	40	0		0	1	69																					
O	1461					1181					106					186					O	2467					3205					162					264				
P	49.8%					40.3%					3.6%					6.3%					P	40.5%					52.6%					2.7%					4.3%				

O										N									
MP	11:15	11:45	11:15	10:15						PMP	12:00	15:15	12:45	15:00					
MP	356	395	29	47						PMP	355	410	32	38					
P	0.989	0.906	0.725	0.691						P	0.896	0.915	0.800	0.792					
	311	193	29	47							539	697	32	62					
P	08:00	07:45	07:45	08:00						P	16:00	16:15	17:00	16:15					
P	178	123	20	32						P	292	379	20	37					
P	0.706	0.904	0.714	0.533						P	0.859	0.869	0.714	0.841					

P N
O M
Green Valley Rd & Deer Valley Rd

Monday
5/17/2021

B Dorado Hills
CA21_070069_001

O N																																	
MP	N				O				PMP	N				O																			
	3		5		0		0		8		66		100		8		9		183														
	3		6		0		0		9		69		78		2		7		156														
	2		8		0		1		11		85		86		6		10		187														
	3	11	3	22	0		0	1	6	34	78	298	99	363	9	25	3	29	189														
	5		4		0		0		9		91		88		9		7		195														
	2		8		0		0		10		74		96		4		9		183														
	2		2		0		0		4		67		94		10		15		186														
	3	12	1	15	0		0		4	27	86	318	91	369	12	35	10	41	199														
	1		2		0		0		3		78		120		8		10		216														
	3		3		0		2		8		108		108		7		12		235														
	4		0		0		0		4		97		123		9		5		234														
	5	13	2	7	0		0	2	7	22	95	378	131	482	10	34	4	31	240														
	0		2		0		0		2		86		135		6		6		233														
	1		4		0		0		5		95		136		6		11		248														
	1		3		0		1		5		109		134		13		15		271														
	3	5	0	9	0		0	1	3	15	71	361	148	553	6	31	9	41	234														
	6		2		0		0		8		99		131		6		8		244														
	6		2		0		1		9		99		125		6		10		240														
	7		3		0		2		12		83		108		14		8		213														
	12	31	4	11	0		3	6	19	48	97	378	130	494	11	37	8	34	246														
	10		4		0		1		15		89		129		10		7		235														
	31		6		0		4		41		76		117		4		5		202														
	28		6		0		2		36		77		133		9		14		233														
	37	106	9	25	1	1	6	13	53	145	65	307	123	502	8	31	4	30	200														
	45		16		1		5		67		49		98		3		5		155														
	46		28		1		3		78		74		99		13		6		192														
	66		25		0		2		93		39		72		2		6		119														
	60	217	18	87	0	2	13	23	91	329	56	218	78	347	9	27	8	25	151														
	77		37		1		12		127		56		58		5		4		123														
	102		49		2		7		160		54		55		5		5		119														
	117		71		6		25		219		36		52		5		7		100														
	121	417	90	247	10	19	14	58	235	741	28	174	64	229	6	21	4	20	102														
	103		60		11		16		190		37		69		4		4		114														
	108		63		8		5		184		33		64		3		1		101														
	134		73		7		12		226		33		53		5		3		94														
	113	458	64	260	3	29	5	38	185	785	25	128	46	232	5	17	4	12	80														
	78		80		5		10		173		29		44		3		3		79														
	79		53		6		11		149		24		45		2		1		72														
	107		62		8		7		184		10		23		2		4		39														
	79	343	57	252	6	25	12	40	154	660	10	73	26	138	1	8	0	8	37														
	79		79		6		6		170		14		23		0		1		38														
	91		61		2		13		167		6		20		0		1		27														
	87		65		5		12		169		7		14		1		0		22														
	101	358	81	286	7	20	6	37	195	701	7	34	18	75	0	1	3	5	28														
	88		82		3		2		175		7		21		1		0		29														
	77		94		6		17		194		11		8		1		0		20														
	83		99		14		7		203		4		12		0		0		16														
	94	342	78	353	5	28	7	33	184	756	3	25	10	51	0	2	0		13														
O	2313				1574				124				252				O	2692				3835				269				276			
P	54.3%				36.9%				2.9%				5.9%				P	38.1%				54.2%				3.8%				3.9%			

O N									
MP	07:45	11:15	07:45	07:15	PMP	14:15	15:00	16:15	13:30
MP	466	371	36	62	PM P	386	553	41	47
P	0.869	0.928	0.818	0.620	P	0.894	0.934	0.732	0.783
	875	507	48	96		685	996	68	64
P	07:45	07:45	07:45	07:15	P	16:00	16:45	16:15	16:00
P	466	286	36	62	P	378	509	41	34
P	0.869	0.794	0.818	0.620	P	0.955	0.957	0.732	0.850

Attachment B
Warrant Analysis Worksheet

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2012 MUTCD)

MAJOR STREET: Green Valley Road NB SB # OF APPROACH LANES:

MINOR STREET: Dear Valley Road EB WB # OF APPROACH LANES:

CITY, STATE: El Dorado County, CA

COMMENTS: Existing Conditions

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	WARRANT 4	
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			Ped Volume (Four-hour)	Ped Volume (Peak-hour)
THRESHOLD VALUES				350	105		525	53		280	84		420	42		60	75	100	190
02:00 AM TO 03:00 AM																			
03:00 AM TO 04:00 AM																			
04:00 AM TO 05:00 AM																			
05:00 AM TO 06:00 AM																			
06:00 AM TO 07:00 AM																			
07:00 AM TO 08:00 AM																			
08:00 AM TO 09:00 AM																			
09:00 AM TO 10:00 AM																			
10:00 AM TO 11:00 AM																			
11:00 AM TO 12:00 PM	750	35	0	Y			Y			Y			Y						
12:00 PM TO 01:00 PM	818	43	0	Y			Y			Y			Y	Y	Y				
01:00 PM TO 02:00 PM	884	30	0	Y			Y			Y			Y						
02:00 PM TO 03:00 PM	900	31	0	Y			Y			Y			Y						
03:00 PM TO 04:00 PM	934	40	0	Y			Y			Y			Y						
04:00 PM TO 05:00 PM	1,012	36	0	Y			Y			Y			Y						
05:00 PM TO 06:00 PM	998	33	0	Y			Y			Y			Y						
06:00 PM TO 07:00 PM	692	27	0	Y			Y			Y			Y						
07:00 PM TO 08:00 PM																			
08:00 PM TO 09:00 PM																			
09:00 PM TO 10:00 PM																			
	6,988	275		8	0	0	8	0	0	8	0	0	8	1	1	0	0	0	0
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED	4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						NOT SATISFIED	NOT SATISFIED	NOT SATISFIED	NOT SATISFIED

To: Adam Bane, El Dorado County
From: Stephen Dillon, E.I.T.
Robert Paderna, P.E., RSP₁
Re: *Summer Brook*
Green Valley Road/Deer Valley Road Intersection Operations Analysis
Date: April 12, 2022

The purpose of this memorandum is to document anticipated intersection operations at Green Valley Road and Deer Valley Road (the “study intersection”) under both Near Term (2031) and Cumulative (2041) conditions, with and without the Summer Brook residential development project trips. Kimley-Horn previously conducted an analysis of this intersection as part of the Traffic Impact Analysis prepared for the Summer Brook development in February 2007. This supplemental analysis is intended to inform recent conversations between Blue Mountain Inc., (the “Client”) and County regarding current operating conditions of the study intersection and the project’s conditions of approval (COA).

Analysis Background

The project proposes to construct a total of 29 single-family (detached) homes. Access to the site will be provided via two full-access driveways along Green Valley Road, east of the study intersection. As part of the development review process, a traffic impact analysis (TIA) for the proposed project was completed by Kimley-Horn in February 2007. The 2007 TIA established 2025 as the Cumulative condition year for evaluation and concluded the study intersection satisfied California Manual on Uniform Traffic Control Devices (CA MUTCD) peak-hour signal warrants during both the AM and PM peak-hours under both no project and plus project conditions. Contributions to the project’s fair share for signaling the study intersection was established as a Condition of Approval (COA) by the County for the project.

As future year conditions established using El Dorado County’s Travel Demand Model (TDM) have been updated since the 2007 TIA, the Client desired to reexamine the previously established signalization COA. As part of the COA, traffic volume-based warrants presented in the CA MUTCD were reviewed by Kimley-Horn utilizing traffic counts from January 2019 and May 2021 for the purpose of comparing results against the Cumulative 2025 peak-hour warrants produced for the 2007 TIA. The updated signal warrant evaluation using January 2019 and May 2021 data concluded that a traffic signal was not warranted for both no project and plus project scenarios at the study intersection under current traffic conditions.

In order to inform conversations with the County regarding consideration of traffic signalization of the study intersection in the future, the Client requested an updated traffic operations analysis be conducted under both no project and plus project conditions for Near Term (2031) and Cumulative (2041) scenarios.

Analysis Methodology

Level of Service Definitions

The level of service (LOS) of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A, which represents minimal delay, to F, which represents heavy delay and a facility that is operating at or near its functional capacity. LOS for this study was determined using methods defined in the *Highway Capacity Manual (HCM) 6th Edition*.

Intersection Analysis

The HCM includes procedures for analyzing side-street stop controlled (SSSC) intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. **Table 1** presents intersection LOS definitions as defined in the HCM.

Table 1 - Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized
	Average Control Delay* (sec/veh)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

Source: Highway Capacity Manual, 6th Edition

* Applied to the worst lane/lane group(s) for SSSC

LOS for the study intersections was determined using the Synchro[®] traffic analysis software. Synchro is an interactive computer program that enables planners and engineers to: forecast the traffic impacts of new developments; conduct area-wide traffic forecasting studies; test different mitigation measures and compare different traffic scenarios. Synchro 11 utilizes HCM 6 methodology to analyze intersection delay and LOS. Level of service for the Intersection is evaluated against El Dorado County thresholds of LOS D for Rural Regions¹.

Analysis Results

Synchro 11 analysis was conducted for the Intersection under Near Term (2031) and Cumulative (2041) no project and plus project conditions using present day intersection geometry. The results of the analysis are reported in **Table 2**.

The Intersection operates a satisfactory level for the El Dorado County Rural Region under all no project and plus project Near Term scenarios. While the Intersection operates at a deficient level for side street stop control under plus project Cumulative conditions, the Intersection is shown to be deficient under no project conditions as well. The project is shown to add a nominal level to delay to the intersection.

¹ Transportation Impact Study Guidelines, El Dorado County Community Development Agency, November 2014.

Table 2 – Intersection Levels of Service (Green Valley Rd/Deer Valley Rd)

Scenario		LOS Threshold	Peak Hour	Delay (s)	LOS
Near Term (2031)	No Project	D	AM	4.7(29.3)	A(D)
			PM	2.8(31.3)	A(D)
	Plus Project		AM	4.7(30.1)	A(D)
			PM	2.8(32.1)	A(D)
Cumulative (2041)	No Project		AM	7.2(44.0)	A(E)
			PM	4.3(45.0)	A(E)
	Plus Project		AM	7.3(45.2)	A(E)
			PM	4.4(46.3)	A(E)

Note: **Bold** represents deficient operations.

Side Street Stop Control (SSSC) reported as intersection delay followed by worst approach's delay

Attachments:

Exhibit 1 – Project Vicinity Diagram

Attachment 1 – Analysis Worksheets for Near Term Conditions

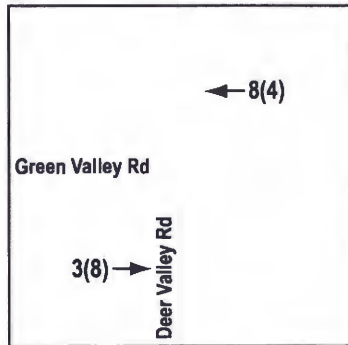
Attachment 2 – Analysis Worksheets for Near Term plus Project Conditions

Attachment 3 – Analysis Worksheets for Cumulative Conditions

Attachment 4 – Analysis Worksheets for Cumulative plus Project Conditions

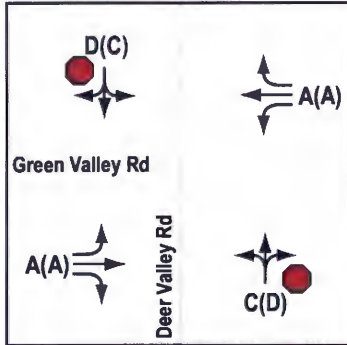
Summer Brook Intersection Analysis

Project Trip Assignment

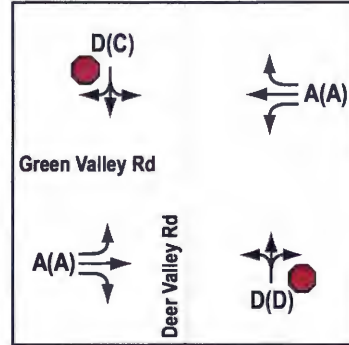


Near Term (2031) Level of Service

No Project

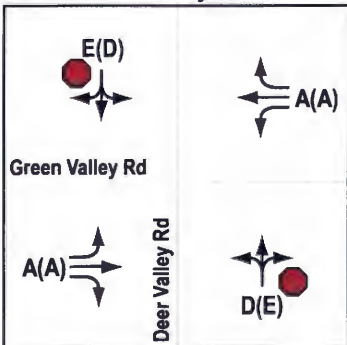


Plus Project

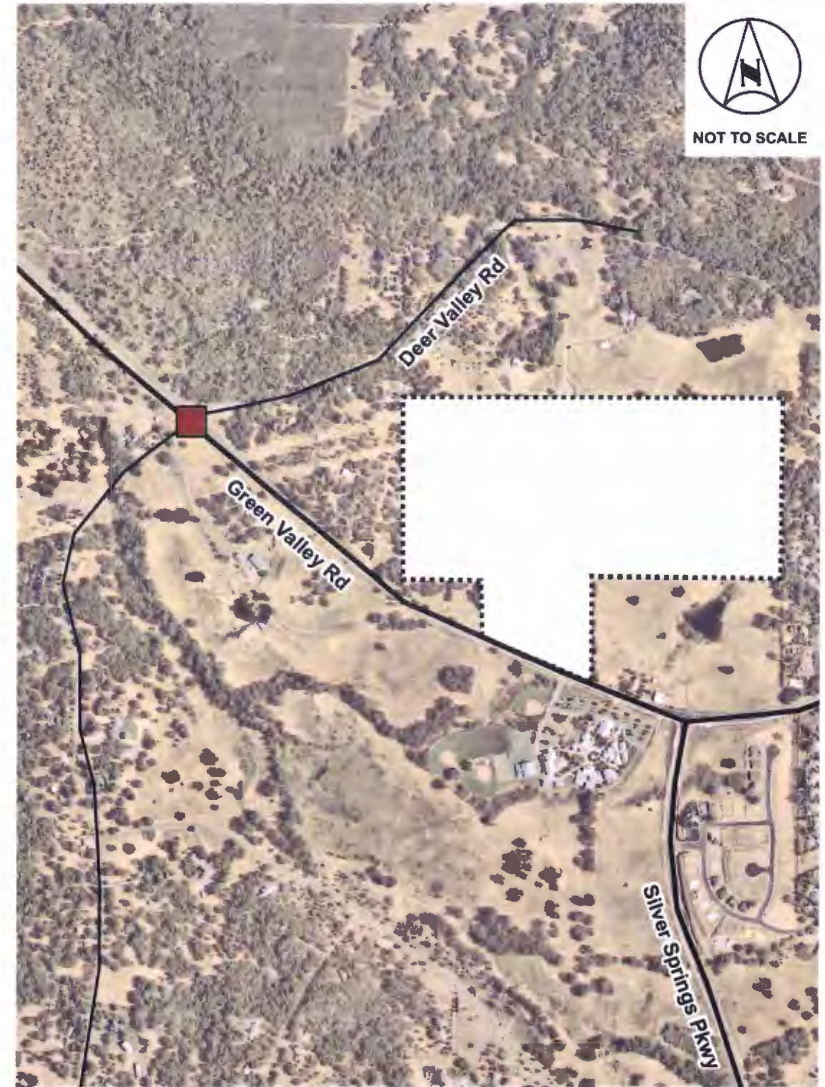
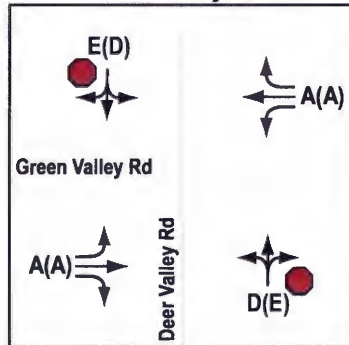


Cumulative (2041) Level of Service

No Project



Plus Project



LEGEND	
	Project Site
	Study Intersection
A(A)	AM(PM) Approach LOS

Intersection LOS threshold for Rural Regions is LOS D per El Dorado County *Transportation Impact Study Guidelines*

Attachment 1

Analysis Worksheets for Near Term Conditions

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term Baseline
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	17	320	15	32	545	14	27	1	38	34	1	42
Future Vol, veh/h	17	320	15	32	545	14	27	1	38	34	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	352	16	37	626	16	39	1	55	47	1	58

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	642	0	0	368	0	0	1128	1106	352	1126	1106	626
Stage 1	-	-	-	-	-	-	390	390	-	700	700	-
Stage 2	-	-	-	-	-	-	738	716	-	426	406	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	943	-	-	1191	-	-	181	210	692	182	210	484
Stage 1	-	-	-	-	-	-	634	608	-	430	441	-
Stage 2	-	-	-	-	-	-	410	434	-	606	598	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	943	-	-	1191	-	-	152	200	692	160	200	484
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	200	-	160	200	-
Stage 1	-	-	-	-	-	-	621	596	-	421	427	-
Stage 2	-	-	-	-	-	-	348	421	-	545	586	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			24.6			29.3		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	278	943	-	-	1191	-	-	253
HCM Lane V/C Ratio	0.344	0.02	-	-	0.031	-	-	0.423
HCM Control Delay (s)	24.6	8.9	-	-	8.1	-	-	29.3
HCM Lane LOS		C	A	-	-	A	-	D
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	2

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term Baseline
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	34	626	14	33	397	28	18	2	25	11	1	23
Future Vol, veh/h	34	626	14	33	397	28	18	2	25	11	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	688	15	38	456	32	26	3	36	15	1	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	488	0	0	703	0	0	1327	1326	688	1321	1309	456
Stage 1	-	-	-	-	-	-	762	762	-	532	532	-
Stage 2	-	-	-	-	-	-	565	564	-	789	777	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1075	-	-	895	-	-	132	156	446	134	159	604
Stage 1	-	-	-	-	-	-	397	414	-	531	526	-
Stage 2	-	-	-	-	-	-	510	508	-	384	407	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1075	-	-	895	-	-	117	144	446	114	147	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	144	-	114	147	-
Stage 1	-	-	-	-	-	-	384	400	-	513	504	-
Stage 2	-	-	-	-	-	-	461	487	-	338	393	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.7			31.3			23		
HCM LOS							D			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	1075	-	-	895	-	-	248
HCM Lane V/C Ratio	0.324	0.035	-	-	0.042	-	-	0.196
HCM Control Delay (s)	31.3	8.5	-	-	9.2	-	-	23
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	0.7

Attachment 2

Analysis Worksheets for Near Term plus Project Conditions

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term plus Project
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	17	323	15	32	553	14	27	1	38	34	1	42
Future Vol, veh/h	17	323	15	32	553	14	27	1	38	34	1	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	355	16	37	636	16	39	1	55	47	1	58

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	652	0	0	371
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	935	-	-	1188
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	935	-	-	1188
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	25.1	30.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	935	-	-	1188	-	-	248
HCM Lane V/C Ratio	0.35	0.02	-	-	0.031	-	-	0.431
HCM Control Delay (s)	25.1	8.9	-	-	8.1	-	-	30.1
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	2

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Near Term plus Project
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	34	634	14	33	401	28	18	2	25	11	1	23
Future Vol, veh/h	34	634	14	33	401	28	18	2	25	11	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	697	15	38	461	32	26	3	36	15	1	32

Major/Minor	Major1		Major2			Minor1		Minor2				
Conflicting Flow All	493	0	0	712	0	0	1341	1340	697	1335	1323	461
Stage 1	-	-	-	-	-	-	771	771	-	537	537	-
Stage 2	-	-	-	-	-	-	570	569	-	798	786	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1071	-	-	888	-	-	129	153	441	131	156	600
Stage 1	-	-	-	-	-	-	393	410	-	528	523	-
Stage 2	-	-	-	-	-	-	506	506	-	380	403	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1071	-	-	888	-	-	114	141	441	111	144	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	141	-	111	144	-
Stage 1	-	-	-	-	-	-	379	396	-	510	501	-
Stage 2	-	-	-	-	-	-	457	484	-	334	389	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.7	32.1	23.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	1071	-	-	888	-	-	242
HCM Lane V/C Ratio	0.331	0.035	-	-	0.043	-	-	0.201
HCM Control Delay (s)	32.1	8.5	-	-	9.2	-	-	23.6
HCM Lane LOS		D	A	-	A	-	-	C
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.1	-	-	0.7

Attachment 3

Analysis Worksheets for Cumulative Conditions

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative Baseline
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↕			↕	
Traffic Vol, veh/h	19	339	20	48	571	16	32	1	51	40	2	46
Future Vol, veh/h	19	339	20	48	571	16	32	1	51	40	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	373	22	55	656	18	46	1	74	56	3	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	674	0	0	395	0	0	1224	1199	373	1230	1203	656
Stage 1	-	-	-	-	-	-	415	415	-	766	766	-
Stage 2	-	-	-	-	-	-	809	784	-	464	437	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	917	-	-	1164	-	-	156	185	673	154	184	465
Stage 1	-	-	-	-	-	-	615	592	-	395	412	-
Stage 2	-	-	-	-	-	-	374	404	-	578	579	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	917	-	-	1164	-	-	126	172	673	129	171	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	172	-	129	171	-
Stage 1	-	-	-	-	-	-	601	578	-	386	393	-
Stage 2	-	-	-	-	-	-	305	385	-	501	566	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.6	32.3	44
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	250	917	-	-	1164	-	-	209
HCM Lane V/C Ratio	0.487	0.023	-	-	0.047	-	-	0.585
HCM Control Delay (s)	32.3	9	-	-	8.2	-	-	44
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	3.3

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative Baseline
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↖			↕	
Traffic Vol, veh/h	34	660	14	50	434	41	23	2	37	13	1	25
Future Vol, veh/h	34	660	14	50	434	41	23	2	37	13	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	725	15	57	499	47	33	3	54	18	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	546	0	0	740	0	0	1454	1459	725	1448	1427	499
Stage 1	-	-	-	-	-	-	799	799	-	613	613	-
Stage 2	-	-	-	-	-	-	655	660	-	835	814	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1023	-	-	867	-	-	108	129	425	109	135	572
Stage 1	-	-	-	-	-	-	379	398	-	480	483	-
Stage 2	-	-	-	-	-	-	455	460	-	362	391	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1023	-	-	867	-	-	93	116	425	86	122	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	116	-	86	122	-
Stage 1	-	-	-	-	-	-	365	384	-	463	451	-
Stage 2	-	-	-	-	-	-	398	430	-	303	377	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.9	45	31
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	176	1023	-	-	867	-	-	192
HCM Lane V/C Ratio	0.511	0.037	-	-	0.066	-	-	0.282
HCM Control Delay (s)	45	8.7	-	-	9.4	-	-	31
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.2	-	-	1.1

Attachment 4

Analysis Worksheets for Cumulative plus Project Conditions

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative plus Project
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑	↗		↕			↕	
Traffic Vol, veh/h	19	342	20	48	578	16	32	1	51	40	2	46
Future Vol, veh/h	19	342	20	48	578	16	32	1	51	40	2	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	376	22	55	664	18	46	1	74	56	3	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	682	0	0	398	0	0	1235	1210	376	1241	1214	664
Stage 1	-	-	-	-	-	-	418	418	-	774	774	-
Stage 2	-	-	-	-	-	-	817	792	-	467	440	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	911	-	-	1161	-	-	153	183	670	152	182	461
Stage 1	-	-	-	-	-	-	612	591	-	391	408	-
Stage 2	-	-	-	-	-	-	370	401	-	576	578	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	911	-	-	1161	-	-	123	170	670	127	169	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	170	-	127	169	-
Stage 1	-	-	-	-	-	-	598	577	-	382	389	-
Stage 2	-	-	-	-	-	-	301	382	-	499	565	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.6	33.4	45.2
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	911	-	-	1161	-	-	206
HCM Lane V/C Ratio	0.497	0.023	-	-	0.048	-	-	0.593
HCM Control Delay (s)	33.4	9	-	-	8.3	-	-	45.2
HCM Lane LOS		D	A	-	A	-	-	E
HCM 95th %tile Q(veh)	2.5	0.1	-	-	0.1	-	-	3.3

Summer Brook Signal Evaluation
1: Deer Valley Rd. & Green Valley Rd.

Cumulative plus Project
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗		↖			↕	
Traffic Vol, veh/h	34	668	14	50	438	41	23	2	37	13	1	25
Future Vol, veh/h	34	668	14	50	438	41	23	2	37	13	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	415	-	415	415	-	415	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	87	87	87	69	69	69	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	734	15	57	503	47	33	3	54	18	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	550	0	0	749	0	0	1467	1472	734	1461	1440	503
Stage 1	-	-	-	-	-	-	808	808	-	617	617	-
Stage 2	-	-	-	-	-	-	659	664	-	844	823	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1020	-	-	860	-	-	106	127	420	107	133	569
Stage 1	-	-	-	-	-	-	375	394	-	477	481	-
Stage 2	-	-	-	-	-	-	453	458	-	358	388	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1020	-	-	860	-	-	91	114	420	85	120	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	114	-	85	120	-
Stage 1	-	-	-	-	-	-	362	380	-	460	449	-
Stage 2	-	-	-	-	-	-	396	428	-	299	374	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.9			46.3			31.3		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	173	1020	-	-	860	-	-	190
HCM Lane V/C Ratio	0.519	0.037	-	-	0.067	-	-	0.285
HCM Control Delay (s)	46.3	8.7	-	-	9.5	-	-	31.3
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.6	0.1	-	-	0.2	-	-	1.1

**ADDENDUM TO INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
A07-0005/Z07-0004/PD07-0007/TM07-1440/Summer Brook Estates**

RECEIVED

MAR 20 2023

EL DORADO COUNTY
PLANNING AND BUILDING DEPARTMENT

I. INTRODUCTION

A. DETERMINATION

This document constitutes an Addendum to the March 11, 2008, Initial Study/Mitigated Negative Declaration (2008 IS/MND) prepared for the Summer Brook Estates Tentative Subdivision Map (hereafter referred to as the Project). This Addendum evaluates whether an amendment to a condition of the Project (modification of Condition 25), consisting of the requirement to construct traffic signals at the intersection of Green Valley Road and Deer Valley Road (the "Study Intersection"), would result in any new or substantially more adverse significant effects or require any new mitigation measures not identified in the 2008 IS/MND and otherwise be consistent with the intent of the County in approving the Project. Other than the elimination of the traffic signals and installation of intersection lighting, as discussed below, there are no other modifications to the Project as approved.

Accordingly, all other aspects of the analyses and the conclusions in the 2008 IS/MND remain current and valid. The proposed minor modification to condition #25 would not cause new impacts not already identified in the MND nor increase the level of environmental effect to substantial or significant, and, hence, no new mitigation measures would be necessary to reduce significant effects. No change has occurred with respect to circumstances surrounding the Project that would cause new or substantially more severe significant environmental effects than were identified in the 2008 IS/MND. Additionally, no new information has become available that shows that the Project would cause new or substantially more severe significant environmental effects which have not already been analyzed in the 2008 IS/MND. There is, however, new information and circumstances that reveal that the effects of the Project are far less than discussed in the 2008 IS/MND. Therefore, no further environmental review is required beyond this Addendum.

B. BACKGROUND

The Project was formally evaluated in a 2008 IS/MND for the Summer Brook Estates Tentative Subdivision Map which was approved on March 11, 2008. The 2008 IS/MND was prepared pursuant to the California Environmental Quality Act (CEQA) and adopted by the County. The Project as approved consists of 29 residential lots ranging in size from 58,591 to 91,113 square feet. The tentative map for the Project was extended in 2017; a phasing plan for the Project was approved in 2018; and a final map for the first two phases of the Project were approved by the Board of Supervisors on October 11, 2022.

In support of the approval of the Project in 2008, a traffic study was performed which revealed, based on then available information, that the Study Intersection was in a failing condition, with respect to level of service, and met the warrants for signalization and that the

addition of traffic from the Project and other approved and pending projects would exacerbate the condition and thus constitute a significant impact and violate the General Plan policies relative to roadway levels of service. Accordingly, conditions of approval were imposed on the Project (Conditions 25, 27 and 28) which describe improvements to the intersection including significant widening, addition of turn and acceleration and deceleration lanes and signalization (“Intersection Improvements”).

Since the approval of the Project there have been significant changes in circumstance surrounding the Project and the Study Intersection. First and foremost, the original traffic study which identified the need for the improvements was based on assumptions and a traffic model which have been proven to be inaccurate, overstating the project traffic in the area. Further, since the adoption of the 2008 IS/MND major improvements have been made to the Study Intersection in accordance with the conditions of approval of the Silver Springs Subdivision at the Green Valley Road and Silver Springs Parkway intersection. In addition to the intersection improvements at the Study Intersection, the traffic signals at the Green Valley Road/Silver Springs Parkway intersection have been installed and energized which have had the effect of breaking up traffic and diverting much of the traffic from Green Valley Road. The result of the adoption of the updated traffic demand model and the construction of these improvements is that the conditions which were existing and projected at the intersection as presented in the 2008 IS/MND no longer exist. The intersection operates in accordance with the General Plan traffic standards and does not meet warrants for the installation of a traffic signal.

C. PURPOSE OF THIS ADDENDUM

In light of the changes in circumstance, as discussed above, the County Department of Transportation has determined that a traffic signal is no longer warranted, and the Project applicant has proposed the installation of LED intersection lighting in accordance with County standards. The Project will be responsible for the cost of electricity and maintenance of the lighting thus imposing no burdens on the County. The purpose of this Addendum is to evaluate whether a traffic signal at the intersection is needed for mitigation of the traffic impacts of the Project and would the modification of the project conditions eliminating the traffic signal and requiring the installation of pole lighting at the intersection result in any new or substantially greater significant effects or require any new mitigation measures not identified in the 2008 IS/MND for the Project. This Addendum, together with the 2008 IS/MND will be used by the County as the environmental clearance for the modification of the Project condition.

D. CEQA FRAMEWORK FOR ADDENDUM

For a proposed modified project, State CEQA Guidelines (Sections 15162 and 15164) provide that an Addendum to an adopted MND may be prepared if only minor technical changes or additions are necessary or none of the following conditions calling for the preparation of a subsequent MND have occurred:

Substantial changes in the project which require major revisions to the MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

Substantial changes with respect to the circumstances under which the project is undertaken which require major revisions to the MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time of MND adoption, shows any of the following:

i) the project will have one or more significant effects not discussed in the MND,

ii) the project will result in impacts substantially more severe than those disclosed in the MND,

iii) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponent declines to adopt the mitigation measure or alternative, or

iv) mitigation measures or alternatives that are considerably different from those analyzed in the MND would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative.

The purpose of this Addendum is to evaluate the elimination of the traffic signal as called for in the 2008 IS/MND for the Project. Based on the analysis provided below, an Addendum to the 2008 IS/MND is the appropriate CEQA document.

E. DISCUSSION

This Addendum can be very narrowly focused on its discussion as the only modification to the Project is the elimination of the traffic signals and installation of pole lights at the intersection. In considering the CEQA checklist for potential impacts the only relevant inquiries would be traffic impacts and aesthetic impacts. The elimination of the traffic signals will have no appreciable impact, or any impact different than outlined in the 2008 IS/MND on biological resources, greenhouse gas emissions, land use/planning/ population/housing, noise, agriculture; cultural resources, mineral resources, public services, utilities, air quality, geology/soils, hydrology/water quality, or recreation. Accordingly, these topics are not discussed.

Aesthetics considerations are raised in response to concern that the installation of pole lighting may have visual effects when viewed from adjacent properties, particularly at night with the introduction of light in an otherwise dark area. With respect to physical appearance of light standards and poles the appearance will not be dissimilar to the poles and standards associated with traffic signals. In fact, the lamp heads associated with LED fixtures will be smaller and less obtrusive in appearance than the mast heads for traffic signals. The biggest difference in appearance will occur in the nighttime hours, where the pole lamps will provide a constant

source of white light during the entire period of darkness, whereas the traffic signals will provide a changing light pattern associated with the red, yellow and green traffic control lights. Both pole lighting and traffic signals utilize shielding to minimize side casting light creating minimal impacts to surrounding areas. There will be little or no appreciable difference in impacts. Accordingly, it is concluded that the replacement of the traffic signals with LED light poles will not result in a new significant aesthetic impact.

To evaluate the potential the traffic impact of the elimination of the traffic signals at the Study Intersection, a supplemental traffic study and signal warrants analysis was performed by Kimley-Horn, and presented in a memorandum dated November 21, 2022, attached to this Addendum as Exhibit A (the "Supplement Study"). Kimley-Horn did the original traffic analysis in 2007, which was referenced in the 2008 IS/MND and they performed subsequent assessments of the intersection in 2019, 2021 and 2022. These additional studies were performed in response to multiple factors, very notably the fact that the County had updated its Traffic Demand Model since the 2007 study was performed, which revealed far lower projected traffic volumes than originally were assumed. This was the result of population growth assumptions and projections that had been grossly overstated in earlier studies. As a result, the Supplemental Study reveals that AM peak hour traffic volumes measured in 2021 and 2022 were actually lower than the baseline volumes assumed in 2007. Further, major improvements at the Study Intersection were performed including turning and acceleration and deceleration lanes in both directions on Green Valley Road (Conditions of Approval 27 and 28 are satisfied by these improvements). With these improvements the traffic flow through the intersection is significantly improved. The Supplemental Study concludes that with the improvements and the updated traffic information, that the intersection operates within the General Plan standards in both current conditions and projected future conditions. Further, the traffic signal warrants evaluations done with the updated information dated March 28, 2019, and June 4, 2021, concluded that a traffic signal was not warranted for both the No Project and Plus Project scenarios at the study intersection.

The importance of the conclusion that the intersection does not meet warrants is that it is acknowledged by traffic engineers and transportation planners that traffic signals should not be utilized in situations where warrants are not met. Unwarranted signalization disrupts traffic flow and may actually negatively impact the safe operation of the intersection. According to the *Caltrans Local Road Safety Manual*, lighting an intersection, as being proposed, not currently lit has a crash modification factor of forty percent (40%). In other words, lighting an intersection could reduce nighttime crashes by upwards of forty percent (40%). Although County records currently show that there have been no crashes at the intersection since the improvements, discussed above, were constructed, the substitution of traffic signals for pole lighting at the intersection will enhance the safety of the intersection.

In summary, the Supplemental Study concludes that due to the update provided for the County's Transportation Demand Model and the subsequent physical improvements to the Study Intersection, traffic signals at the intersection are not warranted or desirable. The revised condition provides for a lighted intersection in lieu of the traffic signal does not present any new or otherwise unrevealed impacts. Further, the reduced traffic projections for Green Valley Road incrementally reduce any potential impacts. The updated analysis does not identify any new or modified mitigation requirements for traffic.

F. CONCLUSION

On the basis of the discussion above, the modification of Condition of Approval #25 originally called for in the Project, will not trigger any conditions requiring further CEQA review. Thus, this Addendum satisfies the requirements of CEQA Guidelines 15162 and 15164. The modification to the Project does not introduce new significant environmental effects, substantially increase the severity of previously identified environmental effects, or show that mitigation measures or alternatives previously found not to be feasible would in fact be feasible. The analyses and conclusions in the 2008 IS/MSD remain current and valid.