Appendix F –
Updated Fire Evacuation Analysis
Prepared by Linscott Law & Greenspan dated May 9, 2014

LINSCOTT LAW & GREENSPAN
engineers

Engineers & Planners
Traffic
Transportation
Parking

Linscott, Law & Greenspan, Engineers
2 Executive Circle
Suite 250
Irvine, CA 92614
949.825.6175 T
949.825.6173 F
www.llgengineers.com

Pasadena
Irvine
San Diego
Woodland Hills

May 9, 2014

Mr. Douglas Wymore, Esq.
Yorba Linda Estates, LLC
7114 East Stetson Drive, Suite 350
Scottsdale, AZ 85251

LLG Reference: 2.13.3281.1

Subject: ***Updated*** **Fire Evacuation Analysis for the Proposed Esperanza Hills Development**
County of Orange, California

Dear Mr. Wymore:

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit this Fire Evacuation Analysis for the proposed Esperanza Hills development located in the County of Orange. The proposed Esperanza Hills project site is located on approximately 469 acres of vacant land east of the terminus of Aspen Way and north of Stonehaven Drive in Unincorporated County of Orange. The proposed project consists of up to 378 single-family residential units (340 proposed units for Esperanza Hills and 38 future potential units for Bridal Hills, LLC) with the main access roadway provided via two options; Option 1 via Stonehaven Drive, Option 2 via San Antonio Road at Aspen Way, Option 2A via San Antonio Road approximately 1,850 feet south of Aspen Way, and Option 2B, which consists of providing public access via both San Antonio Road approximately 1,850 feet south of Aspen Way and Stonehaven Drive. ***Figure 1*** presents the existing evacuation routes and number of existing homes in the vicinity of the Project site. ***Figure 2*** presents the existing/proposed evacuation routes and number of existing homes in the vicinity of the Project site combined with the Option 1 Esperanza Hills development scenario. ***Figure 3*** presents the existing/proposed evacuation routes and number of existing homes in the vicinity of the Project site combined with the Option 2 Esperanza Hills development scenario. ***Figure 4*** presents the existing/proposed evacuation routes and number of existing homes in the vicinity of the Project site combined with the Option 2A and 2B Esperanza Hills development scenarios.

This Fire Evacuation Analysis addresses the estimated duration it would take to evacuate the entire Esperanza Hills development for all four access options described above. This analysis also includes the existing residential developments in the vicinity of the Project site that may also need to evacuate during the same incident plus the proposed 112 single-family residential unit Cielo Vista project and eleven (11) potential future homes in the Casino Ridge development. It should be noted that the basis for the evacuation routes are consistent with the Emergency Access Plans (*Figures 11-2: Option 1* & *Figure 17-2: Option 2*) contained in the approved TIA, prepared by LLG (March 18, 2013). The following list summarizes the assumptions used in the analysis:

- Existing development in the Project vicinity considered in this analysis consists of 771 homes.
- Option 1 fire evacuation path via main Project access to Stonehaven Drive and via secondary emergency access to Via Del Agua (TIA *Figure 11-2*).
- Of the 378 proposed homes, 65% (246 DU) will evacuate via Via Del Agua and 35% (132 DU) via Stonehaven Drive (Option 1).
- Option 2 evacuation path via main Project access to Aspen Way/San Antonio Road and via secondary emergency access to Stonehaven Drive (TIA *Figure 17-2*).
- Of the 378 proposed homes, 65% will evacuate via San Antonio Road, 24% (91 DU) via Via Del Agua, and 11% (41 DU) via Stonehaven Drive (Option 2, 2A, & 2B).
- Based on the ADT on Via Del Agua, San Antonio Road, and Stonehaven Drive, approximately 87 existing homes will evacuate via Via Del Agua, 410 existing homes via San Antonio Road, 56 existing homes will evacuate via Dorinda Road, and 218 existing homes via Stonehaven Drive (not including the proposed Project).
- Each home will evacuate via two vehicles, which assumes every home is occupied at the time of evacuation notice.
- Each resident is directed to depart their home (evacuate) at the same time.
- Lane capacity of 1,600 vehicles per hour per lane (vphpl) with 75% green time at the intersections with Yorba Linda Boulevard [effective capacity of 1,200 vphpl, which is based on 1,600 vphpl x 0.75 (75%)].
- Manned traffic control at the intersections of Via Del Agua, San Antonio Road, Dorinda Road, and Stonehaven Drive with Yorba Linda Boulevard.
- 112 single-family DU's as part of the proposed Cielo Vista Project are assumed in the analysis with 95 DU directed to Stonehaven Drive and 17 DU directed to San Antonio Road via Aspen Way.
- 11 potential future single-family DU's as part of the proposed Casino Ridge development are assumed in the analysis and are directed to San Antonio Road

Figure 5 presents the fire evacuation traffic volumes and estimated evacuation time to clear every vehicle to Yorba Linda Boulevard for existing conditions. As presented in *Figure 5*, based on an effective roadway capacity of 1,200 vphpl on Via Del Agua, San Antonio Road, Dorinda Road, and Stonehaven Drive, all of the approximately 771 homes in the study area could optimally evacuated to Yorba Linda Boulevard within 45 minutes. However, assuming that all residents depart their home within the

first 30 minutes, which results in a peak hour factor of 0.50, full evacuation of the study area may practically take up to 90 minutes.

Figure 6 presents the fire evacuation traffic volumes and estimated evacuation time to clear every vehicle to Yorba Linda Boulevard for the proposed Option 1 development access scenario, which directs Project traffic to Via Del Agua and Stonehaven Drive only. As presented in *Figure 6*, based on an effective roadway capacity of 1,200 vphpl on Via Del Agua, San Antonio Road, Dorinda Road, and Stonehaven Drive, all of the approximately 1,272 homes in the study area could optimally evacuated to Yorba Linda Boulevard within 45 minutes. However, assuming that all residents depart their home within the first 30 minutes, which results in a peak hour factor of 0.50, full evacuation of the study area may practically take up to 90 minutes.

Figure 7 presents the fire evacuation traffic volumes and estimated evacuation time to clear every vehicle to Yorba Linda Boulevard for the proposed Option 2, 2A, and 2B development access scenario, which directs Project traffic to San Antonio Road, Via Del Agua, and Stonehaven Drive. As presented in *Figure 7*, based on an effective roadway capacity of 1,200 vphpl on Via Del Agua, San Antonio Road, Dorinda Road, and Stonehaven Drive, all of the approximately 1,272 homes in the study area could optimally be evacuated to Yorba Linda Boulevard within 75 minutes. However, assuming that all residents depart their home within the first 30 minutes, which results in a peak hour factor of 0.50, full evacuation of the study area may practically take up to 2.5 hours via San Antonio Road and up to 60 minutes via Stonehaven Drive.

Conclusion

Based on this Fire Evacuation Analysis for the proposed Esperanza Hills Project, depending on the development access scenario, it should optimally take no longer than 1 hour and practically no longer than 2.5 hours to fully evacuate the approximately 1,272 existing and proposed homes (including Cielo Vista) in the vicinity of the Project site once the alert is given.

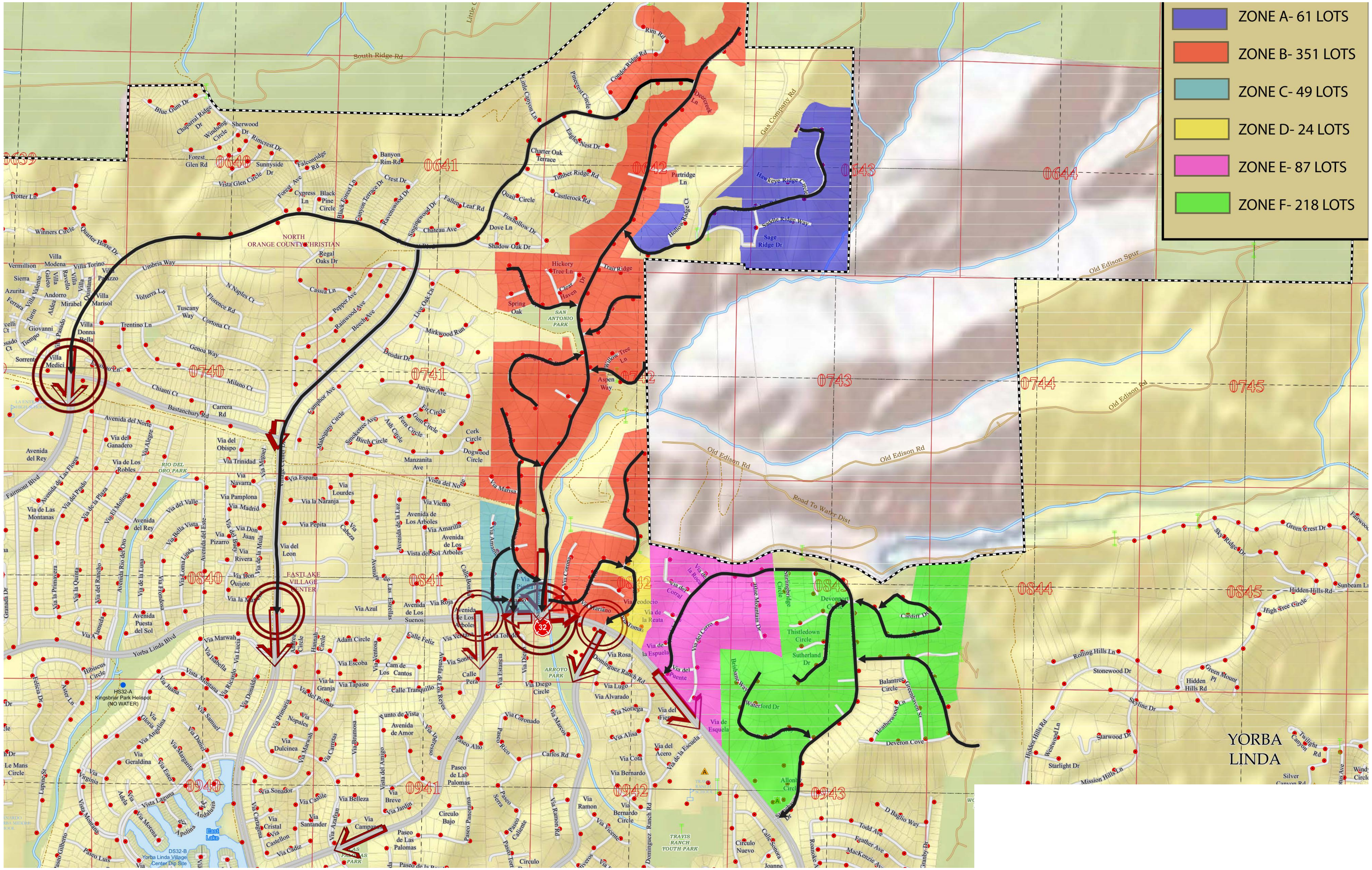
We appreciate the opportunity to provide this updated fire evacuation analysis. Should you have any questions, please call me at (949) 825-6175.

Very truly yours,
Linscott, Law & Greenspan, Engineers

Keil D. Maberry, P.E.
Principal

Attachments

N:\3200\2123281 - Yorba Linda Estates, Yorba Linda\Letters & Faxes\Evacuation Analysis\Final Letter\Esperanza Hills Estates Updated Evacuation Analysis Letter, 05-09-14.doc



n:\3200\2123281 – yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-1.dwg LDP 13:52:51 05-07-2014 aguilar

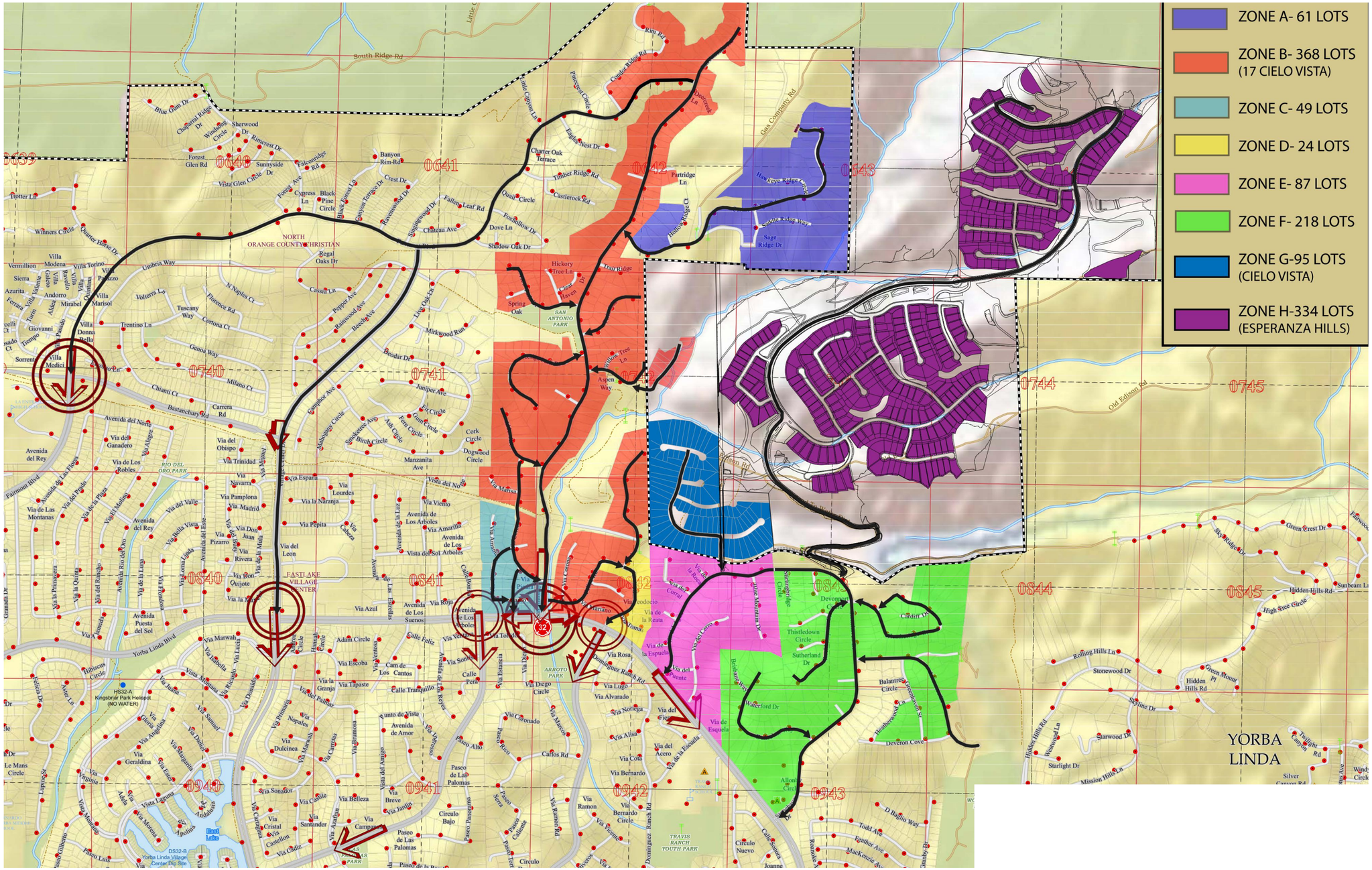
LINSCOTT
LAW &
GREENSPAN
engineers

N
NO SCALE

FIGURE 1

FIRE EVACUATION ROUTES (EXISTING)

ALBERHILL RANCH ELEMENTARY SCHOOL (LEUSD #17), LAKE ELSINORE



n:\3200\2123281 – yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-2.dwg LDP 13:55:1 05-07-2014 aguilar

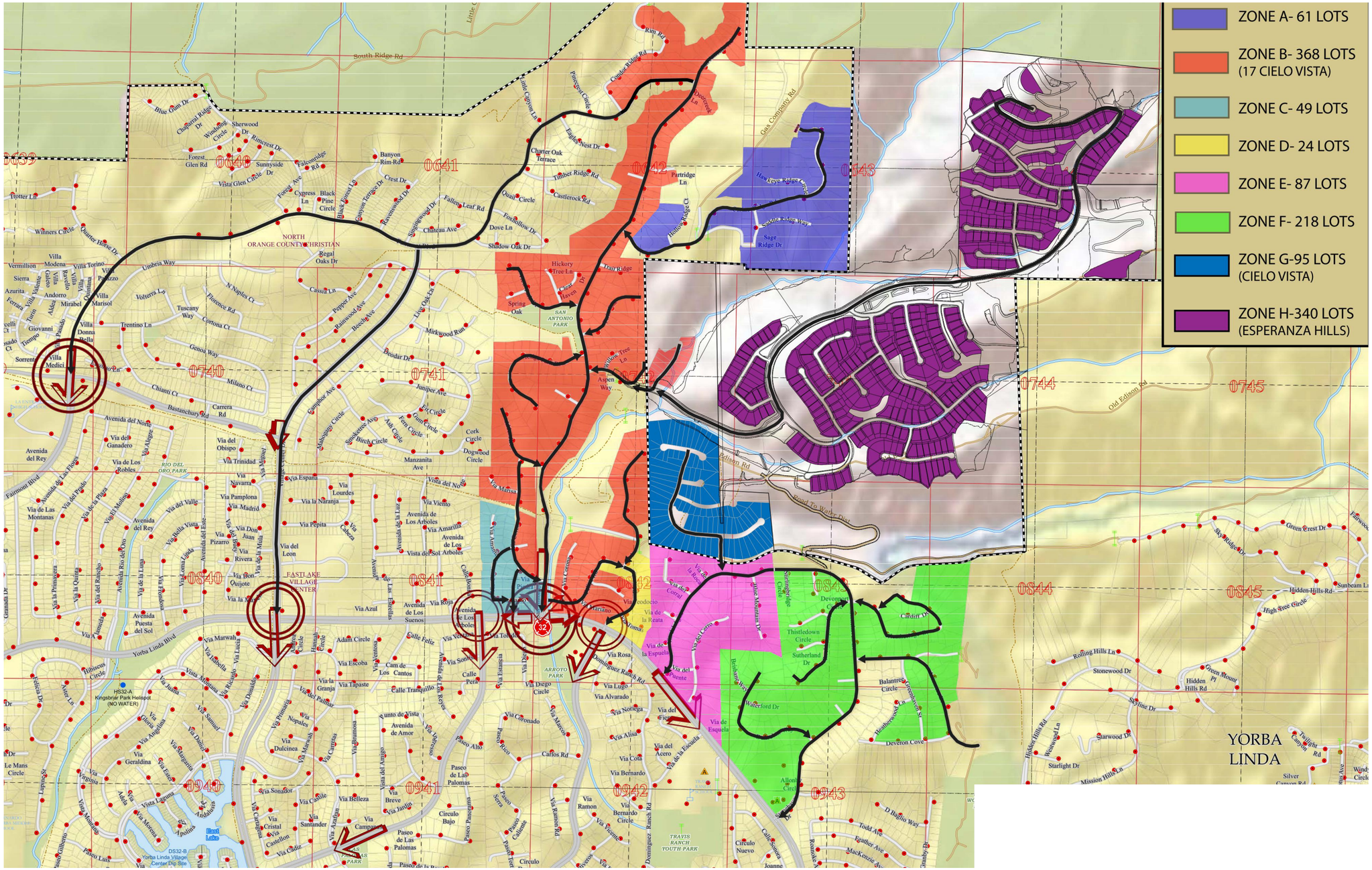
LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 2

FIRE EVACUATION ROUTES (OPTION 1)

ALBERHILL RANCH ELEMENTARY SCHOOL (LEUSD #17), LAKE ELSINORE



n:\3200\2123281 - yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-3.dwg LDP 13:59:31 05-07-2014 aguilar

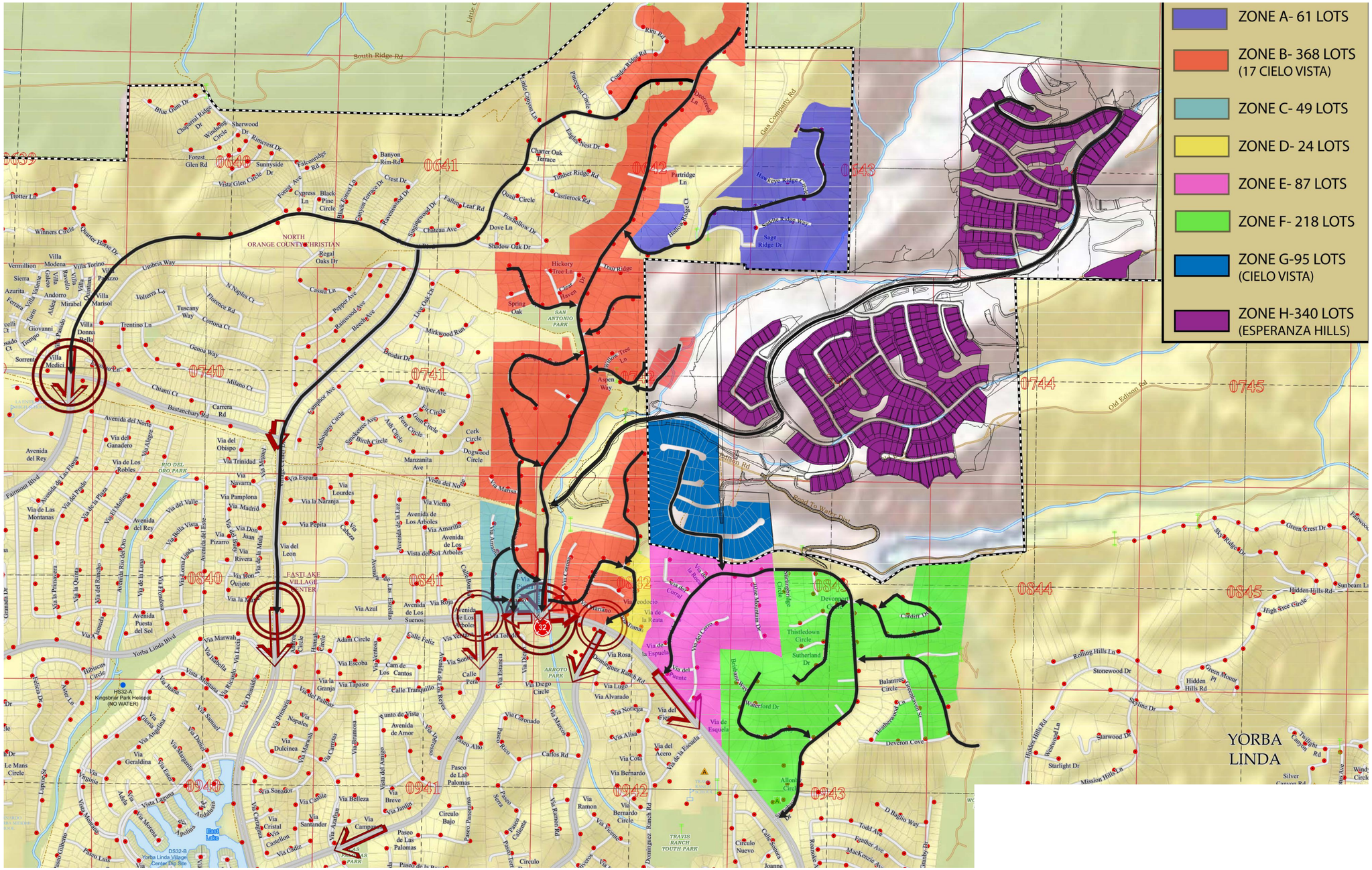
LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 3

FIRE EVACUATION ROUTES (OPTION 2)

ALBERHILL RANCH ELEMENTARY SCHOOL (LEUSD #17), LAKE ELSINORE



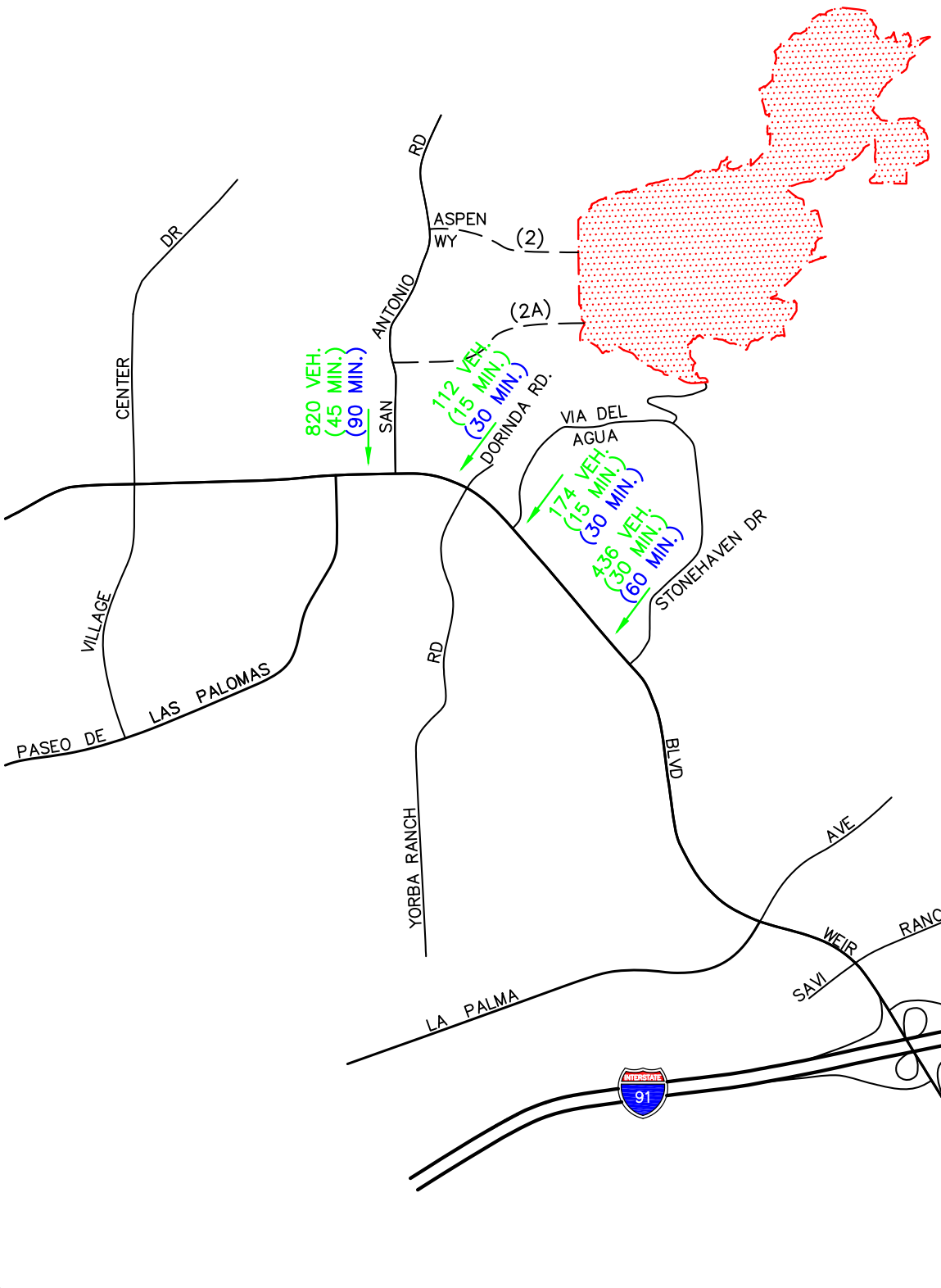
n:\3200\2123281 - yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-4.dwg LDP 14:02:4 05-07-2014 aguilar

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 4

FIRE EVACUATION ROUTES (OPTION 2A & 2B)
ALBERHILL RANCH ELEMENTARY SCHOOL (LEUSD #17), LAKE ELSINORE



n:\3200\2123281 - yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-5.dwg LDP 13:34:29 05-07-2014 aguilar

LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

KEY

= PROJECT SITE

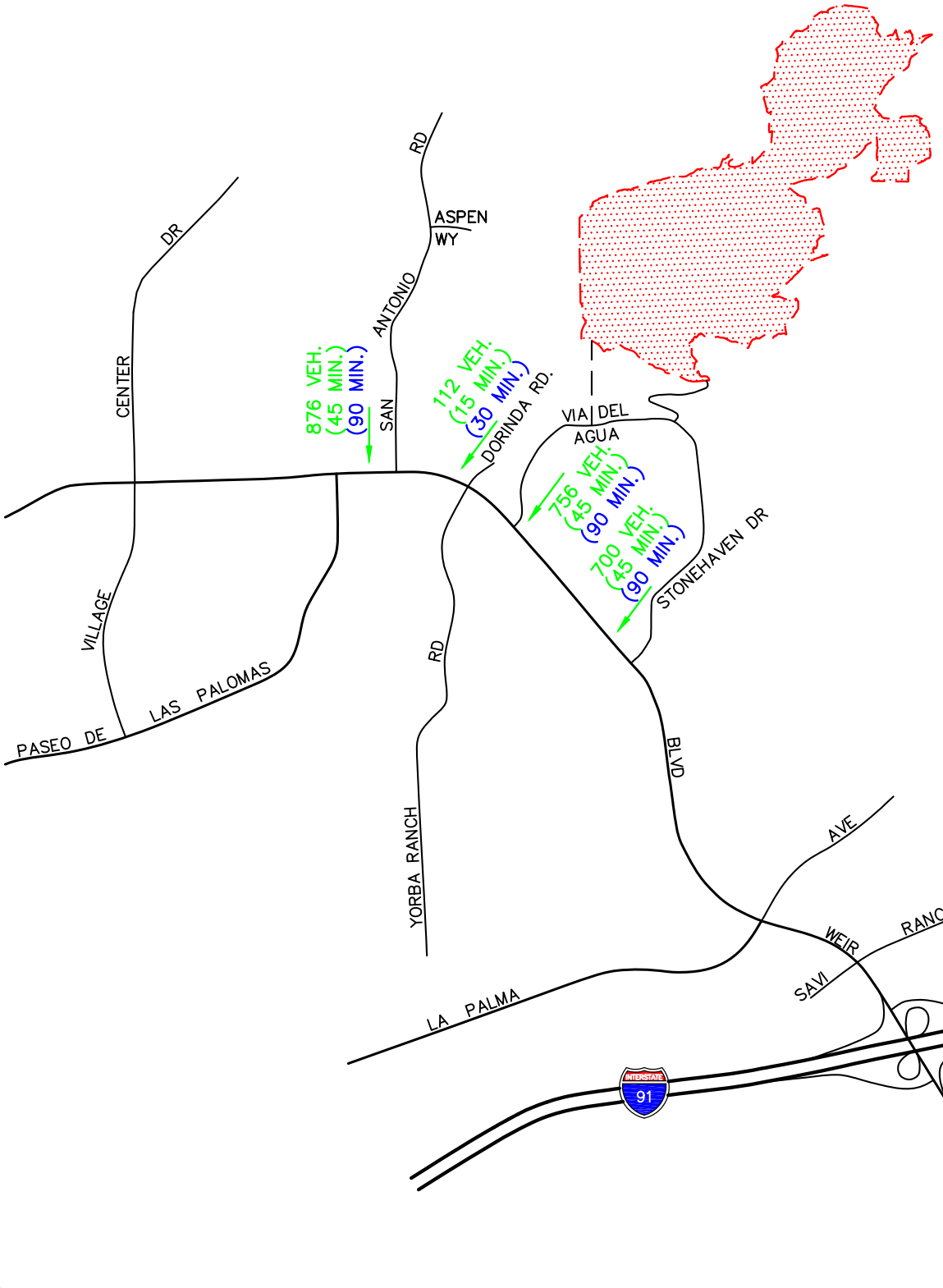
(XX MIN.) = OPTIMAL TIME

(YY MIN.) = PRACTICAL TIME

FIGURE 5

FIRE EVACUATION TRAFFIC VOLUMES (EXISTING CONDITIONS)

ESPARANZA HILLS, YORBA LINDA



n:\3200\2123281 - yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\3281f-6.dwg LDP 13:40:4 05-07-2014 aguilar

LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

KEY

= PROJECT SITE

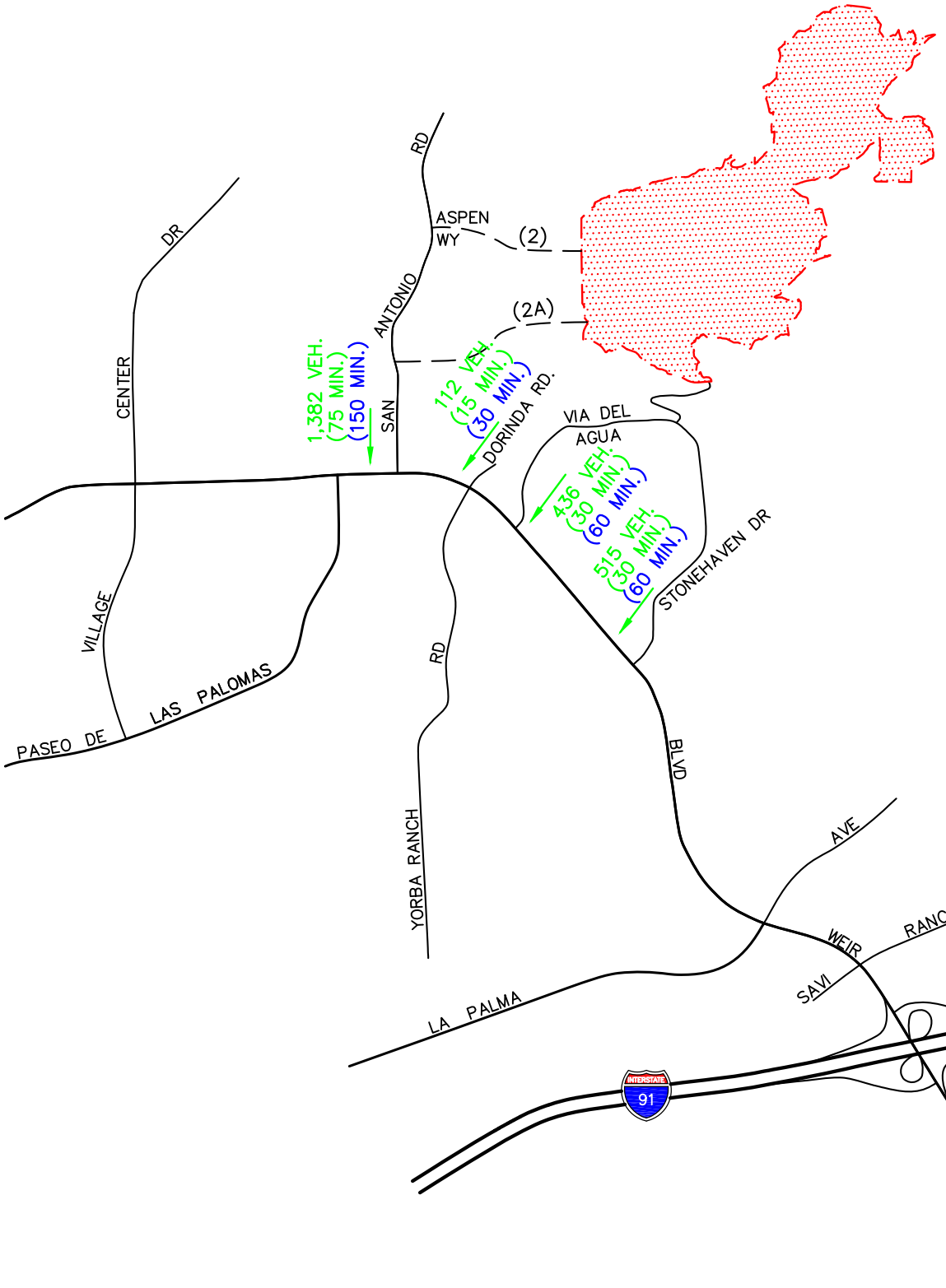
(XX MIN.) = OPTIMAL TIME

(YY MIN.) = PRACTICAL TIME

FIGURE 6

FIRE EVACUATION TRAFFIC VOLUMES (OPTION 1)

ESPARANZA HILLS, YORBA LINDA



n:\3200\2123281 - yorba linda estates, yorba linda\dwg\fire evacuation figs\yl 5-7-14\32811-7.dwg LDP 13:44:3 05-07-2014 aguilar

LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

KEY

= PROJECT SITE

(XX MIN.) = OPTIMAL TIME

(YY MIN.) = PRACTICAL TIME

FIGURE 7

FIRE EVACUATION TRAFFIC VOLUMES (OPTION 2, 2A, & 2B)

ESPARANZA HILLS, YORBA LINDA

Transportation Studies, Inc.

2640 Walnut Avenue, Ste H

Tustin, CA. 92780

Location: : SAN ANTONIO ROAD — Site: YORBA LINDA

Segment: : N/O YORBA LINDA BOULEVARD — Date: 02/20/14

Client: : LL&G — Day: Thursday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	2	11	21	109	3	8	16	103	5	19	37	212
12:15	1		18		2		24		3		42	
12:30	3		44		1		36		4		80	
12:45	5		26		2		27		7		53	
01:00	1	2	26	99	1	1	16	80	2	3	42	179
01:15	1		23		0		12		1		35	
01:30	0		26		0		27		0		53	
01:45	0		24		0		25		0		49	
02:00	0	0	23	131	0	0	25	120	0	0	48	251
02:15	0		27		0		27		0		54	
02:30	0		22		0		38		0		60	
02:45	0		59		0		30		0		89	
03:00	0	0	33	151	0	4	34	128	0	4	67	279
03:15	0		29		0		29		0		58	
03:30	0		44		0		43		0		87	
03:45	0		45		4		22		4		67	
04:00	0	3	35	156	2	15	44	144	2	18	79	300
04:15	2		42		2		36		4		78	
04:30	0		42		6		25		6		67	
04:45	1		37		5		39		6		76	
05:00	0	5	40	176	12	53	30	157	12	58	70	333
05:15	2		42		16		41		18		83	
05:30	2		44		14		48		16		92	
05:45	1		50		11		38		12		88	
06:00	4	45	48	157	23	123	34	104	27	168	82	261
06:15	6		35		32		26		38		61	
06:30	17		40		36		30		53		70	
06:45	18		34		32		14		50		48	
07:00	14	74	30	128	48	214	12	53	62	288	42	181
07:15	10		34		72		14		82		48	
07:30	16		28		54		11		70		39	
07:45	34		36		40		16		74		52	
08:00	22	99	30	101	72	210	21	57	94	309	51	158
08:15	32		22		66		18		98		40	
08:30	26		23		44		14		70		37	
08:45	19		26		28		4		47		30	
09:00	22	56	30	76	30	112	5	32	52	168	35	108
09:15	11		20		24		12		35		32	
09:30	14		20		33		12		47		32	
09:45	9		6		25		3		34		9	
10:00	20	79	8	30	32	109	2	18	52	188	10	48
10:15	22		6		26		4		48		10	
10:30	15		8		28		0		43		8	
10:45	22		8		23		12		45		20	
11:00	22	65	10	18	28	102	2	12	50	167	12	30
11:15	15		4		20		4		35		8	
11:30	14		2		26		2		40		4	
11:45	14		2		28		4		42		6	
Totals	439		1,332		951		1,008		1,390		2,340	
Split%	31.6		56.9		68.4		43.1					
Day Totals		1,771				1,959				3,730		
Day Splits		47.5				52.5						
Peak Hour	07:45		05:15		07:15		05:15		07:30		05:15	
Volume	114		184		238		161		336		345	
Factor	0.84		0.92		0.83		0.84		0.86		0.94	

Data File : D1402243

LINSCOTT LAW & GREENSPAN engineers

TABLE 1
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS – CALTRANS
ESPERANZA HILLS, COUNTY OF ORANGE

Key Intersection	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact
		Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
14. Weir Canyon Road at SR-91 WB Ramps	AM	11.7	B	11.8	B	No
	PM	10.3	B	10.6	B	No
15. Weir Canyon Road at SR-91 EB Ramps	AM	8.7	A	8.8	A	No
	PM	22.1	C	24.8	C	No

Note:

- s/v = seconds per vehicle

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	284	0	558	0	1310	0	0	936	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				199	0	694	0	1379	0	0	985	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				509	0	909	0	2659	0	0	2659	0
Arrive On Green				0.29	0.00	0.29	0.00	0.17	0.00	0.00	0.52	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				199	0	694	0	1379	0	0	985	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				3.8	0.0	8.4	0.0	10.4	0.0	0.0	4.8	0.0
Cycle Q Clear(g_c), s				3.8	0.0	8.4	0.0	10.4	0.0	0.0	4.8	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				509	0	909	0	2659	0	0	2659	0
V/C Ratio(X)				0.39	0.00	0.76	0.00	0.52	0.00	0.00	0.37	0.00
Avail Cap(c_a), veh/h				633	0	1129	0	2659	0	0	2659	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.73	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				12.0	0.0	13.7	0.0	12.6	0.0	0.0	5.9	0.0
Incr Delay (d2), s/veh				0.5	0.0	2.5	0.0	0.5	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	4.0	0.0	5.0	0.0	0.0	2.3	0.0
LnGrp Delay(d),s/veh				12.5	0.0	16.2	0.0	13.1	0.0	0.0	6.3	0.0
LnGrp LOS				B		B		B			A	
Approach Vol, veh/h					893			1379			985	
Approach Delay, s/veh					15.4			13.1			6.3	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		28.9				28.9		16.1
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		22.0				22.0		15.0
Max Q Clear Time (g_c+I1), s		12.4				6.8		10.4
Green Ext Time (p_c), s		8.2				12.2		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	657	0	561	0	0	0	0	1341	0	0	871	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	876	0	394				0	1412	0	0	917	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1211	0	540				0	2358	0	0	2358	0
Arrive On Green	0.34	0.00	0.34				0.00	0.46	0.00	0.00	0.93	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	876	0	394				0	1412	0	0	917	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	8.9	0.0	8.9				0.0	8.4	0.0	0.0	0.8	0.0
Cycle Q Clear(g_c), s	8.9	0.0	8.9				0.0	8.4	0.0	0.0	0.8	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1211	0	540				0	2358	0	0	2358	0
V/C Ratio(X)	0.72	0.00	0.73				0.00	0.60	0.00	0.00	0.39	0.00
Avail Cap(c_a), veh/h	1558	0	695				0	2358	0	0	2358	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.92	0.00
Uniform Delay (d), s/veh	11.8	0.0	11.8				0.0	8.2	0.0	0.0	0.8	0.0
Incr Delay (d2), s/veh	1.2	0.0	2.8				0.0	1.1	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	4.3				0.0	4.2	0.0	0.0	0.4	0.0
LnGrp Delay(d),s/veh	13.0	0.0	14.7				0.0	9.3	0.0	0.0	1.3	0.0
LnGrp LOS	B		B					A			A	
Approach Vol, veh/h		1270						1412			917	
Approach Delay, s/veh		13.5						9.3			1.3	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		27.0		18.0		27.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		19.0		18.0		19.0		
Max Q Clear Time (g_c+I1), s		10.4		10.9		2.8		
Green Ext Time (p_c), s		7.3		3.0		12.7		

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	525	0	704	0	1486	0	0	1222	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				813	0	463	0	1564	0	0	1286	0
Adj No. of Lanes				2	0	1	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				1340	0	598	0	2261	0	0	2261	0
Arrive On Green				0.38	0.00	0.38	0.00	0.59	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3548	0	1583	0	5421	0	0	5421	0
Grp Volume(v), veh/h				813	0	463	0	1564	0	0	1286	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				8.3	0.0	11.6	0.0	9.6	0.0	0.0	8.5	0.0
Cycle Q Clear(g_c), s				8.3	0.0	11.6	0.0	9.6	0.0	0.0	8.5	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				1340	0	598	0	2261	0	0	2261	0
V/C Ratio(X)				0.61	0.00	0.77	0.00	0.69	0.00	0.00	0.57	0.00
Avail Cap(c_a), veh/h				1735	0	774	0	2261	0	0	2261	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.40	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.3	0.0	12.3	0.0	7.1	0.0	0.0	9.3	0.0
Incr Delay (d2), s/veh				0.4	0.0	3.7	0.0	0.7	0.0	0.0	1.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.1	0.0	5.6	0.0	4.4	0.0	0.0	4.1	0.0
LnGrp Delay(d),s/veh				11.8	0.0	16.0	0.0	7.8	0.0	0.0	10.3	0.0
LnGrp LOS				B		B		A			B	
Approach Vol, veh/h					1276			1564			1286	
Approach Delay, s/veh					13.3			7.8			10.3	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		29.0				29.0		21.0
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		20.0				20.0		22.0
Max Q Clear Time (g_c+I1), s		11.6				10.5		13.6
Green Ext Time (p_c), s		7.8				8.8		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	565	0	1015	0	0	0	0	1801	0	0	1788	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	397	0	1281				0	1896	0	0	1882	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	745	0	1330				0	2136	0	0	2136	0
Arrive On Green	0.42	0.00	0.42				0.00	0.42	0.00	0.00	0.28	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	397	0	1281				0	1896	0	0	1882	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	8.4	0.0	19.7				0.0	17.2	0.0	0.0	17.7	0.0
Cycle Q Clear(g_c), s	8.4	0.0	19.7				0.0	17.2	0.0	0.0	17.7	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	745	0	1330				0	2136	0	0	2136	0
V/C Ratio(X)	0.53	0.00	0.96				0.00	0.89	0.00	0.00	0.88	0.00
Avail Cap(c_a), veh/h	745	0	1330				0	2136	0	0	2136	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	0.67	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.77	0.00
Uniform Delay (d), s/veh	10.8	0.0	14.1				0.0	13.4	0.0	0.0	16.8	0.0
Incr Delay (d2), s/veh	0.7	0.0	16.6				0.0	6.0	0.0	0.0	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	11.6				0.0	9.1	0.0	0.0	9.1	0.0
LnGrp Delay(d),s/veh	11.6	0.0	30.8				0.0	19.4	0.0	0.0	21.2	0.0
LnGrp LOS	B		C					B			C	
Approach Vol, veh/h		1678						1896			1882	
Approach Delay, s/veh		26.2						19.4			21.2	
Approach LOS		C						B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		21.0		21.0		21.0		
Max Q Clear Time (g_c+I1), s		19.2		21.7		19.7		
Green Ext Time (p_c), s		1.7		0.0		1.3		

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

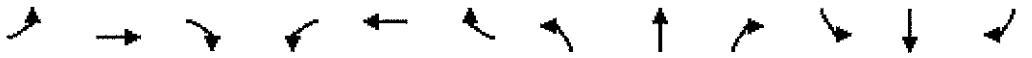
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	284	0	569	0	1320	0	0	981	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				199	0	706	0	1389	0	0	1033	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				514	0	917	0	2649	0	0	2649	0
Arrive On Green				0.29	0.00	0.29	0.00	0.17	0.00	0.00	0.52	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				199	0	706	0	1389	0	0	1033	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				3.8	0.0	8.6	0.0	10.5	0.0	0.0	5.2	0.0
Cycle Q Clear(g_c), s				3.8	0.0	8.6	0.0	10.5	0.0	0.0	5.2	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				514	0	917	0	2649	0	0	2649	0
V/C Ratio(X)				0.39	0.00	0.77	0.00	0.52	0.00	0.00	0.39	0.00
Avail Cap(c_a), veh/h				630	0	1125	0	2649	0	0	2649	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.72	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				12.0	0.0	13.7	0.0	12.7	0.0	0.0	6.1	0.0
Incr Delay (d2), s/veh				0.5	0.0	2.7	0.0	0.5	0.0	0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	4.1	0.0	5.1	0.0	0.0	2.5	0.0
LnGrp Delay(d),s/veh				12.5	0.0	16.4	0.0	13.3	0.0	0.0	6.5	0.0
LnGrp LOS				B		B		B			A	
Approach Vol, veh/h					905			1389			1033	
Approach Delay, s/veh					15.5			13.3			6.5	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		28.8				28.8		16.2
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		22.0				22.0		15.0
Max Q Clear Time (g_c+I1), s		12.5				7.2		10.6
Green Ext Time (p_c), s		8.2				12.1		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	11.8
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	663	0	561	0	0	0	0	1345	0	0	884	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	882	0	394				0	1416	0	0	931	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1211	0	541				0	2357	0	0	2357	0
Arrive On Green	0.34	0.00	0.34				0.00	0.46	0.00	0.00	0.93	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	882	0	394				0	1416	0	0	931	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	8.9	0.0	8.9				0.0	8.5	0.0	0.0	0.9	0.0
Cycle Q Clear(g_c), s	8.9	0.0	8.9				0.0	8.5	0.0	0.0	0.9	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1211	0	541				0	2357	0	0	2357	0
V/C Ratio(X)	0.73	0.00	0.73				0.00	0.60	0.00	0.00	0.40	0.00
Avail Cap(c_a), veh/h	1558	0	695				0	2357	0	0	2357	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.91	0.00
Uniform Delay (d), s/veh	11.8	0.0	11.8				0.0	8.2	0.0	0.0	0.8	0.0
Incr Delay (d2), s/veh	1.3	0.0	2.8				0.0	1.1	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	4.3				0.0	4.2	0.0	0.0	0.4	0.0
LnGrp Delay(d),s/veh	13.1	0.0	14.6				0.0	9.3	0.0	0.0	1.3	0.0
LnGrp LOS	B		B					A			A	
Approach Vol, veh/h		1276						1416			931	
Approach Delay, s/veh		13.6						9.3			1.3	
Approach LOS		B						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		27.0		18.0		27.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		19.0		18.0		19.0		
Max Q Clear Time (g_c+I1), s		10.5		10.9		2.9		
Green Ext Time (p_c), s		7.3		3.1		12.8		

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	525	0	740	0	1520	0	0	1251	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				831	0	482	0	1600	0	0	1317	0
Adj No. of Lanes				2	0	1	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				1369	0	611	0	2231	0	0	2231	0
Arrive On Green				0.39	0.00	0.39	0.00	0.58	0.00	0.00	0.44	0.00
Sat Flow, veh/h				3548	0	1583	0	5421	0	0	5421	0
Grp Volume(v), veh/h				831	0	482	0	1600	0	0	1317	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				8.6	0.0	12.3	0.0	10.3	0.0	0.0	8.9	0.0
Cycle Q Clear(g_c), s				8.6	0.0	12.3	0.0	10.3	0.0	0.0	8.9	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				1369	0	611	0	2231	0	0	2231	0
V/C Ratio(X)				0.61	0.00	0.79	0.00	0.72	0.00	0.00	0.59	0.00
Avail Cap(c_a), veh/h				1712	0	764	0	2231	0	0	2231	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.31	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.2	0.0	12.4	0.0	7.5	0.0	0.0	9.7	0.0
Incr Delay (d2), s/veh				0.4	0.0	4.4	0.0	0.6	0.0	0.0	1.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.2	0.0	6.0	0.0	4.8	0.0	0.0	4.4	0.0
LnGrp Delay(d),s/veh				11.7	0.0	16.8	0.0	8.1	0.0	0.0	10.8	0.0
LnGrp LOS				B		B		A			B	
Approach Vol, veh/h					1313			1600			1317	
Approach Delay, s/veh					13.5			8.1			10.8	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		28.4				28.4		21.6
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		20.0				20.0		22.0
Max Q Clear Time (g_c+I1), s		12.3				10.9		14.3
Green Ext Time (p_c), s		7.2				8.4		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	584	0	1015	0	0	0	0	1816	0	0	1796	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	410	0	1288				0	1912	0	0	1891	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	802	0	1431				0	1961	0	0	1961	0
Arrive On Green	0.45	0.00	0.45				0.00	0.39	0.00	0.00	0.39	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	410	0	1288				0	1912	0	0	1891	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	8.1	0.0	18.5				0.0	18.2	0.0	0.0	17.9	0.0
Cycle Q Clear(g_c), s	8.1	0.0	18.5				0.0	18.2	0.0	0.0	17.9	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	802	0	1431				0	1961	0	0	1961	0
V/C Ratio(X)	0.51	0.00	0.90				0.00	0.97	0.00	0.00	0.96	0.00
Avail Cap(c_a), veh/h	828	0	1478				0	1961	0	0	1961	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.76	0.00
Uniform Delay (d), s/veh	9.6	0.0	12.5				0.0	14.9	0.0	0.0	14.8	0.0
Incr Delay (d2), s/veh	0.5	0.0	7.7				0.0	15.2	0.0	0.0	11.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	9.4				0.0	11.1	0.0	0.0	10.2	0.0
LnGrp Delay(d),s/veh	10.1	0.0	20.2				0.0	30.1	0.0	0.0	25.9	0.0
LnGrp LOS	B		C					C			C	
Approach Vol, veh/h		1698						1912			1891	
Approach Delay, s/veh		17.8						30.1			25.9	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.7		26.3		23.7		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		19.0		23.0		19.0		
Max Q Clear Time (g_c+I1), s		20.2		20.5		19.9		
Green Ext Time (p_c), s		0.0		1.8		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

LINSCOTT LAW & GREENSPAN engineers

TABLE 2
YEAR 2020 PEAK HOUR INTERSECTION CAPACITY ANALYSIS – CALTRANS
ESPERANZA HILLS, COUNTY OF ORANGE

Key Intersection		Time Period	(1) Existing Traffic Conditions		(2) Year 2020 Cumulative Traffic Conditions		(3) Year 2020 Cumulative Plus Project Traffic Conditions		(4) Significant Impact
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
14.	Weir Canyon Road at SR-91 WB Ramps	AM	11.7	B	13.0	B	13.1	B	No
		PM	10.3	B	11.7	B	12.6	B	No
15.	Weir Canyon Road at SR-91 EB Ramps	AM	8.7	A	10.7	B	10.7	B	No
		PM	22.1	C	23.0	C	27.8	C	No

Note:

- s/v = seconds per vehicle

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	308	0	613	0	1435	0	0	1039	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				216	0	761	0	1511	0	0	1094	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				548	0	978	0	2636	0	0	2636	0
Arrive On Green				0.31	0.00	0.31	0.00	0.17	0.00	0.00	0.52	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				216	0	761	0	1511	0	0	1094	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				4.4	0.0	10.1	0.0	12.6	0.0	0.0	6.1	0.0
Cycle Q Clear(g_c), s				4.4	0.0	10.1	0.0	12.6	0.0	0.0	6.1	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				548	0	978	0	2636	0	0	2636	0
V/C Ratio(X)				0.39	0.00	0.78	0.00	0.57	0.00	0.00	0.41	0.00
Avail Cap(c_a), veh/h				690	0	1231	0	2636	0	0	2636	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.64	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				12.6	0.0	14.6	0.0	14.5	0.0	0.0	6.8	0.0
Incr Delay (d2), s/veh				0.5	0.0	2.5	0.0	0.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	4.7	0.0	6.1	0.0	0.0	3.0	0.0
LnGrp Delay(d),s/veh				13.1	0.0	17.1	0.0	15.1	0.0	0.0	7.3	0.0
LnGrp LOS				B		B		B			A	
Approach Vol, veh/h					977			1511			1094	
Approach Delay, s/veh					16.2			15.1			7.3	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		31.7				31.7		18.3
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		24.0				24.0		18.0
Max Q Clear Time (g_c+I1), s		14.6				8.1		12.1
Green Ext Time (p_c), s		8.3				13.4		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.0
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	726	0	606	0	0	0	0	1450	0	0	944	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	962	0	425				0	1526	0	0	994	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1340	0	598				0	2227	0	0	2227	0
Arrive On Green	0.38	0.00	0.38				0.00	0.44	0.00	0.00	0.58	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	962	0	425				0	1526	0	0	994	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	10.0	0.0	9.9				0.0	10.5	0.0	0.0	4.8	0.0
Cycle Q Clear(g_c), s	10.0	0.0	9.9				0.0	10.5	0.0	0.0	4.8	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1340	0	598				0	2227	0	0	2227	0
V/C Ratio(X)	0.72	0.00	0.71				0.00	0.69	0.00	0.00	0.45	0.00
Avail Cap(c_a), veh/h	1881	0	839				0	2227	0	0	2227	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.90	0.00
Uniform Delay (d), s/veh	11.5	0.0	11.5				0.0	9.8	0.0	0.0	6.1	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.7				0.0	1.7	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	4.5				0.0	5.2	0.0	0.0	2.2	0.0
LnGrp Delay(d),s/veh	12.3	0.0	13.1				0.0	11.5	0.0	0.0	6.7	0.0
LnGrp LOS	B		B					B			A	
Approach Vol, veh/h		1387						1526			994	
Approach Delay, s/veh		12.6						11.5			6.7	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		29.6		20.4		29.6		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		19.0		23.0		19.0		
Max Q Clear Time (g_c+I1), s		12.5		12.0		6.8		
Green Ext Time (p_c), s		5.9		4.3		10.5		

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	569	0	790	0	1659	0	0	1340	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				894	0	516	0	1746	0	0	1411	0
Adj No. of Lanes				2	0	1	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				1359	0	606	0	2208	0	0	2208	0
Arrive On Green				0.38	0.00	0.38	0.00	0.58	0.00	0.00	0.43	0.00
Sat Flow, veh/h				3548	0	1583	0	5421	0	0	5421	0
Grp Volume(v), veh/h				894	0	516	0	1746	0	0	1411	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				9.1	0.0	13.1	0.0	11.7	0.0	0.0	9.5	0.0
Cycle Q Clear(g_c), s				9.1	0.0	13.1	0.0	11.7	0.0	0.0	9.5	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				1359	0	606	0	2208	0	0	2208	0
V/C Ratio(X)				0.66	0.00	0.85	0.00	0.79	0.00	0.00	0.64	0.00
Avail Cap(c_a), veh/h				1459	0	651	0	2208	0	0	2208	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.39	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				11.1	0.0	12.4	0.0	7.7	0.0	0.0	9.7	0.0
Incr Delay (d2), s/veh				1.0	0.0	9.9	0.0	1.2	0.0	0.0	1.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.5	0.0	7.3	0.0	5.4	0.0	0.0	4.6	0.0
LnGrp Delay(d),s/veh				12.1	0.0	22.3	0.0	8.9	0.0	0.0	11.1	0.0
LnGrp LOS				B		C		A			B	
Approach Vol, veh/h					1410			1746			1411	
Approach Delay, s/veh					15.9			8.9			11.1	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		24.2				24.2		20.8
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		19.0				19.0		18.0
Max Q Clear Time (g_c+I1), s		13.7				11.5		15.1
Green Ext Time (p_c), s		5.1				7.1		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	659	0	1096	0	0	0	0	1949	0	0	1933	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	463	0	1402				0	2052	0	0	2035	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	808	0	1442				0	2317	0	0	2317	0
Arrive On Green	0.46	0.00	0.46				0.00	0.46	0.00	0.00	0.91	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	463	0	1402				0	2052	0	0	2035	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	17.3	0.0	38.9				0.0	33.1	0.0	0.0	16.0	0.0
Cycle Q Clear(g_c), s	17.3	0.0	38.9				0.0	33.1	0.0	0.0	16.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	808	0	1442				0	2317	0	0	2317	0
V/C Ratio(X)	0.57	0.00	0.97				0.00	0.89	0.00	0.00	0.88	0.00
Avail Cap(c_a), veh/h	808	0	1443				0	2317	0	0	2317	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.69	0.00
Uniform Delay (d), s/veh	18.1	0.0	23.9				0.0	22.4	0.0	0.0	2.9	0.0
Incr Delay (d2), s/veh	1.0	0.0	17.4				0.0	5.4	0.0	0.0	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	20.4				0.0	16.6	0.0	0.0	6.8	0.0
LnGrp Delay(d),s/veh	19.0	0.0	41.3				0.0	27.8	0.0	0.0	6.5	0.0
LnGrp LOS	B		D					C			A	
Approach Vol, veh/h		1865						2052			2035	
Approach Delay, s/veh		35.8						27.8			6.5	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		45.0		45.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		41.0		41.0		41.0		
Max Q Clear Time (g_c+I1), s		35.1		40.9		18.0		
Green Ext Time (p_c), s		5.8		0.1		22.3		

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	308	0	624	0	1445	0	0	1084	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				216	0	773	0	1521	0	0	1141	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				553	0	986	0	2626	0	0	2626	0
Arrive On Green				0.31	0.00	0.31	0.00	0.17	0.00	0.00	0.52	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				216	0	773	0	1521	0	0	1141	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				4.4	0.0	10.3	0.0	12.8	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s				4.4	0.0	10.3	0.0	12.8	0.0	0.0	6.5	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				553	0	986	0	2626	0	0	2626	0
V/C Ratio(X)				0.39	0.00	0.78	0.00	0.58	0.00	0.00	0.43	0.00
Avail Cap(c_a), veh/h				687	0	1226	0	2626	0	0	2626	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.64	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				12.5	0.0	14.6	0.0	14.6	0.0	0.0	7.0	0.0
Incr Delay (d2), s/veh				0.5	0.0	2.7	0.0	0.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.2	0.0	4.9	0.0	6.2	0.0	0.0	3.1	0.0
LnGrp Delay(d),s/veh				13.0	0.0	17.3	0.0	15.2	0.0	0.0	7.5	0.0
LnGrp LOS				B		B		B			A	
Approach Vol, veh/h					989			1521			1141	
Approach Delay, s/veh					16.3			15.2			7.5	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		31.5				31.5		18.5
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		24.0				24.0		18.0
Max Q Clear Time (g_c+I1), s		14.8				8.5		12.3
Green Ext Time (p_c), s		8.3				13.3		2.1

Intersection Summary		
HCM 2010 Ctrl Delay		13.1
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	732	0	606	0	0	0	0	1454	0	0	957	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	969	0	425				0	1531	0	0	1007	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1345	0	600				0	2222	0	0	2222	0
Arrive On Green	0.38	0.00	0.38				0.00	0.44	0.00	0.00	0.58	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	969	0	425				0	1531	0	0	1007	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	10.1	0.0	9.9				0.0	10.5	0.0	0.0	4.9	0.0
Cycle Q Clear(g_c), s	10.1	0.0	9.9				0.0	10.5	0.0	0.0	4.9	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1345	0	600				0	2222	0	0	2222	0
V/C Ratio(X)	0.72	0.00	0.71				0.00	0.69	0.00	0.00	0.45	0.00
Avail Cap(c_a), veh/h	1877	0	837				0	2222	0	0	2222	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.89	0.00
Uniform Delay (d), s/veh	11.5	0.0	11.5				0.0	9.9	0.0	0.0	6.2	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.6				0.0	1.8	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	4.5				0.0	5.2	0.0	0.0	2.4	0.0
LnGrp Delay(d),s/veh	12.4	0.0	13.1				0.0	11.6	0.0	0.0	6.8	0.0
LnGrp LOS	B		B					B			A	
Approach Vol, veh/h		1394						1531			1007	
Approach Delay, s/veh		12.6						11.6			6.8	
Approach LOS		B						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		29.5		20.5		29.5		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		19.0		23.0		19.0		
Max Q Clear Time (g_c+I1), s		12.5		12.1		6.9		
Green Ext Time (p_c), s		5.8		4.3		10.4		

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	569	0	826	0	1693	0	0	1369	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				399	0	1083	0	1782	0	0	1441	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				693	0	1237	0	2180	0	0	2180	0
Arrive On Green				0.39	0.00	0.39	0.00	0.57	0.00	0.00	0.43	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				399	0	1083	0	1782	0	0	1441	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				7.8	0.0	14.0	0.0	12.5	0.0	0.0	10.0	0.0
Cycle Q Clear(g_c), s				7.8	0.0	14.0	0.0	12.5	0.0	0.0	10.0	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				693	0	1237	0	2180	0	0	2180	0
V/C Ratio(X)				0.58	0.00	0.88	0.00	0.82	0.00	0.00	0.66	0.00
Avail Cap(c_a), veh/h				721	0	1286	0	2180	0	0	2180	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.35	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				10.6	0.0	12.5	0.0	8.1	0.0	0.0	10.1	0.0
Incr Delay (d2), s/veh				1.1	0.0	6.9	0.0	1.3	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	7.2	0.0	6.0	0.0	0.0	5.0	0.0
LnGrp Delay(d),s/veh				11.7	0.0	19.4	0.0	9.4	0.0	0.0	11.7	0.0
LnGrp LOS				B		B		A			B	
Approach Vol, veh/h					1482			1782			1441	
Approach Delay, s/veh					17.3			9.4			11.7	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.7				23.7		21.3
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		19.0				19.0		18.0
Max Q Clear Time (g_c+I1), s		14.5				12.0		16.0
Green Ext Time (p_c), s		4.4				6.7		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	678	0	1096	0	0	0	0	1964	0	0	1941	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	476	0	1409				0	2067	0	0	2043	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	824	0	1471				0	2269	0	0	2269	0
Arrive On Green	0.46	0.00	0.46				0.00	0.45	0.00	0.00	0.59	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	476	0	1409				0	2067	0	0	2043	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	17.6	0.0	38.5				0.0	34.0	0.0	0.0	31.5	0.0
Cycle Q Clear(g_c), s	17.6	0.0	38.5				0.0	34.0	0.0	0.0	31.5	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	824	0	1471				0	2269	0	0	2269	0
V/C Ratio(X)	0.58	0.00	0.96				0.00	0.91	0.00	0.00	0.90	0.00
Avail Cap(c_a), veh/h	831	0	1483				0	2269	0	0	2269	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.67	0.00
Uniform Delay (d), s/veh	17.6	0.0	23.1				0.0	23.2	0.0	0.0	16.5	0.0
Incr Delay (d2), s/veh	1.0	0.0	14.5				0.0	6.9	0.0	0.0	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	19.6				0.0	17.3	0.0	0.0	15.4	0.0
LnGrp Delay(d),s/veh	18.5	0.0	37.6				0.0	30.1	0.0	0.0	20.9	0.0
LnGrp LOS	B		D					C			C	
Approach Vol, veh/h		1885						2067			2043	
Approach Delay, s/veh		32.8						30.1			20.9	
Approach LOS		C						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		44.3		45.7		44.3		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		40.0		42.0		40.0		
Max Q Clear Time (g_c+I1), s		36.0		40.5		33.5		
Green Ext Time (p_c), s		4.0		1.2		6.5		

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

LINSCOTT LAW & GREENSPAN engineers

TABLE 3

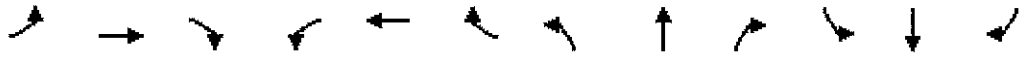
YEAR 2035 PEAK HOUR INTERSECTION CAPACITY ANALYSIS – CALTRANS

ESPERANZA HILLS, COUNTY OF ORANGE

Key Intersection	Time Period	(1) Existing Traffic Conditions		(2) Year 2035 Cumulative Traffic Conditions		(3) Year 2035 Cumulative Plus Project Traffic Conditions		(4) Significant Impact
		Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
14. Weir Canyon Road at SR-91 WB Ramps	AM	11.7	B	13.5	B	13.7	B	No
	PM	10.3	B	13.3	B	14.3	B	No
15. Weir Canyon Road at SR-91 EB Ramps	AM	8.7	A	15.3	B	15.4	B	No
	PM	22.1	C	46.8	D	47.9	D	No

Note:

- s/v = seconds per vehicle



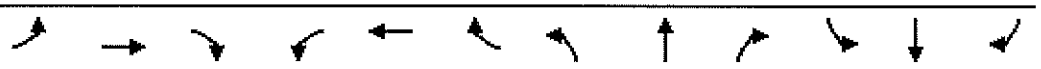
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	339	0	674	0	1771	0	0	1143	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				226	0	795	0	1771	0	0	1143	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				556	0	993	0	2756	0	0	2756	0
Arrive On Green				0.31	0.00	0.31	0.00	0.36	0.00	0.00	0.54	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				226	0	795	0	1771	0	0	1143	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				5.5	0.0	12.7	0.0	16.0	0.0	0.0	7.4	0.0
Cycle Q Clear(g_c), s				5.5	0.0	12.7	0.0	16.0	0.0	0.0	7.4	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				556	0	993	0	2756	0	0	2756	0
V/C Ratio(X)				0.41	0.00	0.80	0.00	0.64	0.00	0.00	0.41	0.00
Avail Cap(c_a), veh/h				705	0	1259	0	2756	0	0	2756	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.51	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				14.9	0.0	17.4	0.0	13.2	0.0	0.0	7.5	0.0
Incr Delay (d2), s/veh				0.5	0.0	3.0	0.0	0.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	5.9	0.0	7.7	0.0	0.0	3.5	0.0
LnGrp Delay(d),s/veh				15.4	0.0	20.4	0.0	13.8	0.0	0.0	8.0	0.0
LnGrp LOS				B		C		B			A	
Approach Vol, veh/h					1021			1771			1143	
Approach Delay, s/veh					19.3			13.8			8.0	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		38.6				38.6		21.4
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		30.0				30.0		22.0
Max Q Clear Time (g_c+I1), s		18.0				9.4		14.7
Green Ext Time (p_c), s		10.9				17.9		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	799	0	667	0	0	0	0	1873	0	0	1038	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	1007	0	445				0	1873	0	0	1038	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1333	0	595				0	2405	0	0	2405	0
Arrive On Green	0.38	0.00	0.38				0.00	0.47	0.00	0.00	0.16	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	1007	0	445				0	1873	0	0	1038	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	13.1	0.0	12.9				0.0	16.2	0.0	0.0	9.8	0.0
Cycle Q Clear(g_c), s	13.1	0.0	12.9				0.0	16.2	0.0	0.0	9.8	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1333	0	595				0	2405	0	0	2405	0
V/C Ratio(X)	0.76	0.00	0.75				0.00	0.78	0.00	0.00	0.43	0.00
Avail Cap(c_a), veh/h	1813	0	809				0	2405	0	0	2405	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.90	0.00
Uniform Delay (d), s/veh	14.4	0.0	14.3				0.0	11.6	0.0	0.0	15.9	0.0
Incr Delay (d2), s/veh	1.3	0.0	2.6				0.0	2.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	6.0				0.0	8.0	0.0	0.0	4.7	0.0
LnGrp Delay(d),s/veh	15.6	0.0	16.9				0.0	14.2	0.0	0.0	16.4	0.0
LnGrp LOS	B		B					B			B	
Approach Vol, veh/h		1452						1873			1038	
Approach Delay, s/veh		16.0						14.2			16.4	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		36.1		23.9		36.1		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		25.0		27.0		25.0		
Max Q Clear Time (g_c+I1), s		18.2		15.1		11.8		
Green Ext Time (p_c), s		6.4		4.8		12.0		

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	626	0	869	0	1825	0	0	1474	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				934	0	539	0	1825	0	0	1474	0
Adj No. of Lanes				2	0	1	0	3	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				1426	0	636	0	2326	0	0	2326	0
Arrive On Green				0.40	0.00	0.40	0.00	0.61	0.00	0.00	0.46	0.00
Sat Flow, veh/h				3548	0	1583	0	5421	0	0	5421	0
Grp Volume(v), veh/h				934	0	539	0	1825	0	0	1474	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				12.1	0.0	17.5	0.0	15.3	0.0	0.0	12.6	0.0
Cycle Q Clear(g_c), s				12.1	0.0	17.5	0.0	15.3	0.0	0.0	12.6	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				1426	0	636	0	2326	0	0	2326	0
V/C Ratio(X)				0.65	0.00	0.85	0.00	0.78	0.00	0.00	0.63	0.00
Avail Cap(c_a), veh/h				1623	0	724	0	2326	0	0	2326	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.27	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				13.8	0.0	15.4	0.0	9.0	0.0	0.0	11.8	0.0
Incr Delay (d2), s/veh				0.8	0.0	8.4	0.0	0.8	0.0	0.0	1.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.0	0.0	9.1	0.0	7.1	0.0	0.0	6.2	0.0
LnGrp Delay(d),s/veh				14.6	0.0	23.8	0.0	9.8	0.0	0.0	13.1	0.0
LnGrp LOS				B		C		A			B	
Approach Vol, veh/h					1473			1825			1474	
Approach Delay, s/veh					18.0			9.8			13.1	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		33.1				33.1		26.9
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		26.0				26.0		26.0
Max Q Clear Time (g_c+I1), s		17.3				14.6		19.5
Green Ext Time (p_c), s		8.3				10.8		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

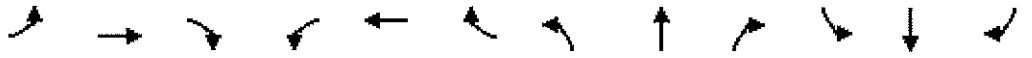
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	725	0	1485	0	0	0	0	2121	0	0	2196	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	483	0	1744				0	2121	0	0	2196	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	887	0	1583				0	2204	0	0	2204	0
Arrive On Green	0.50	0.00	0.50				0.00	0.43	0.00	0.00	0.87	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	483	0	1744				0	2121	0	0	2196	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	22.4	0.0	60.0				0.0	48.7	0.0	0.0	50.7	0.0
Cycle Q Clear(g_c), s	22.4	0.0	60.0				0.0	48.7	0.0	0.0	50.7	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	887	0	1583				0	2204	0	0	2204	0
V/C Ratio(X)	0.54	0.00	1.10				0.00	0.96	0.00	0.00	1.00	0.00
Avail Cap(c_a), veh/h	887	0	1583				0	2204	0	0	2204	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.70	0.00
Uniform Delay (d), s/veh	20.6	0.0	30.0				0.0	33.1	0.0	0.0	7.9	0.0
Incr Delay (d2), s/veh	0.7	0.0	55.8				0.0	12.2	0.0	0.0	15.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	0.0	38.2				0.0	25.1	0.0	0.0	24.2	0.0
LnGrp Delay(d),s/veh	21.3	0.0	85.8				0.0	45.2	0.0	0.0	23.1	0.0
LnGrp LOS	C		F					D			C	
Approach Vol, veh/h		2227						2121			2196	
Approach Delay, s/veh		71.8						45.2			23.1	
Approach LOS		E						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		56.0		64.0		56.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		52.0		60.0		52.0		
Max Q Clear Time (g_c+I1), s		50.7		62.0		52.7		
Green Ext Time (p_c), s		1.3		0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	46.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	339	0	685	0	1781	0	0	1188	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				226	0	806	0	1781	0	0	1188	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				561	0	1001	0	2746	0	0	2746	0
Arrive On Green				0.32	0.00	0.32	0.00	0.36	0.00	0.00	0.54	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				226	0	806	0	1781	0	0	1188	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				5.5	0.0	13.0	0.0	16.2	0.0	0.0	7.8	0.0
Cycle Q Clear(g_c), s				5.5	0.0	13.0	0.0	16.2	0.0	0.0	7.8	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				561	0	1001	0	2746	0	0	2746	0
V/C Ratio(X)				0.40	0.00	0.81	0.00	0.65	0.00	0.00	0.43	0.00
Avail Cap(c_a), veh/h				702	0	1254	0	2746	0	0	2746	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.51	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				14.9	0.0	17.4	0.0	13.3	0.0	0.0	7.7	0.0
Incr Delay (d2), s/veh				0.5	0.0	3.2	0.0	0.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	6.0	0.0	7.7	0.0	0.0	3.8	0.0
LnGrp Delay(d),s/veh				15.4	0.0	20.6	0.0	14.0	0.0	0.0	8.2	0.0
LnGrp LOS				B		C		B			A	
Approach Vol, veh/h					1032			1781			1188	
Approach Delay, s/veh					19.4			14.0			8.2	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		38.4				38.4		21.6
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		30.0				30.0		22.0
Max Q Clear Time (g_c+I1), s		18.2				9.8		15.0
Green Ext Time (p_c), s		10.8				17.7		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	805	0	667	0	0	0	0	1877	0	0	1051	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	1013	0	445				0	1877	0	0	1051	0
Adj No. of Lanes	2	0	1				0	3	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	1337	0	597				0	2400	0	0	2400	0
Arrive On Green	0.38	0.00	0.38				0.00	0.47	0.00	0.00	0.16	0.00
Sat Flow, veh/h	3548	0	1583				0	5421	0	0	5421	0
Grp Volume(v), veh/h	1013	0	445				0	1877	0	0	1051	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	13.2	0.0	12.9				0.0	16.4	0.0	0.0	9.9	0.0
Cycle Q Clear(g_c), s	13.2	0.0	12.9				0.0	16.4	0.0	0.0	9.9	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	1337	0	597				0	2400	0	0	2400	0
V/C Ratio(X)	0.76	0.00	0.75				0.00	0.78	0.00	0.00	0.44	0.00
Avail Cap(c_a), veh/h	1809	0	807				0	2400	0	0	2400	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.89	0.00
Uniform Delay (d), s/veh	14.4	0.0	14.3				0.0	11.7	0.0	0.0	16.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	2.6				0.0	2.6	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	6.0				0.0	8.1	0.0	0.0	4.8	0.0
LnGrp Delay(d),s/veh	15.7	0.0	16.9				0.0	14.3	0.0	0.0	16.5	0.0
LnGrp LOS	B		B					B			B	
Approach Vol, veh/h		1458						1877			1051	
Approach Delay, s/veh		16.0						14.3			16.5	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		36.0		24.0		36.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		25.0		27.0		25.0		
Max Q Clear Time (g_c+I1), s		18.4		15.2		11.9		
Green Ext Time (p_c), s		6.3		4.8		11.9		

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	626	0	905	0	1859	0	0	1503	0
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				186.3	186.3	186.3	0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h				417	0	1129	0	1859	0	0	1503	0
Adj No. of Lanes				1	0	2	0	3	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	0	2	0	0	2	0
Cap, veh/h				732	0	1306	0	2285	0	0	2285	0
Arrive On Green				0.41	0.00	0.41	0.00	0.60	0.00	0.00	0.45	0.00
Sat Flow, veh/h				1774	0	3167	0	5421	0	0	5421	0
Grp Volume(v), veh/h				417	0	1129	0	1859	0	0	1503	0
Grp Sat Flow(s),veh/h/ln				1774	0	1583	0	1695	0	0	1695	0
Q Serve(g_s), s				10.4	0.0	18.8	0.0	16.6	0.0	0.0	13.4	0.0
Cycle Q Clear(g_c), s				10.4	0.0	18.8	0.0	16.6	0.0	0.0	13.4	0.0
Prop In Lane				1.00		1.00	0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h				732	0	1306	0	2285	0	0	2285	0
V/C Ratio(X)				0.57	0.00	0.86	0.00	0.81	0.00	0.00	0.66	0.00
Avail Cap(c_a), veh/h				797	0	1423	0	2285	0	0	2285	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.25	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				13.1	0.0	15.5	0.0	9.7	0.0	0.0	12.5	0.0
Incr Delay (d2), s/veh				0.8	0.0	5.5	0.0	0.9	0.0	0.0	1.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	9.1	0.0	7.7	0.0	0.0	6.4	0.0
LnGrp Delay(d),s/veh				13.9	0.0	21.0	0.0	10.6	0.0	0.0	14.0	0.0
LnGrp LOS				B		C		B			B	
Approach Vol, veh/h					1546			1859			1503	
Approach Delay, s/veh					19.1			10.6			14.0	
Approach LOS					B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		32.1				32.1		27.9
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		26.0				26.0		26.0
Max Q Clear Time (g_c+I1), s		18.6				15.4		20.8
Green Ext Time (p_c), s		7.2				10.1		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	744	0	1485	0	0	0	0	2136	0	0	2204	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3				0.0	186.3	0.0	0.0	186.3	0.0
Adj Flow Rate, veh/h	496	0	1751				0	2136	0	0	2204	0
Adj No. of Lanes	1	0	2				0	3	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2				0	2	0	0	2	0
Cap, veh/h	887	0	1583				0	2204	0	0	2204	0
Arrive On Green	0.50	0.00	0.50				0.00	0.43	0.00	0.00	0.87	0.00
Sat Flow, veh/h	1774	0	3167				0	5421	0	0	5421	0
Grp Volume(v), veh/h	496	0	1751				0	2136	0	0	2204	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583				0	1695	0	0	1695	0
Q Serve(g_s), s	23.3	0.0	60.0				0.0	49.2	0.0	0.0	52.0	0.0
Cycle Q Clear(g_c), s	23.3	0.0	60.0				0.0	49.2	0.0	0.0	52.0	0.0
Prop In Lane	1.00		1.00				0.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	887	0	1583				0	2204	0	0	2204	0
V/C Ratio(X)	0.56	0.00	1.11				0.00	0.97	0.00	0.00	1.00	0.00
Avail Cap(c_a), veh/h	887	0	1583				0	2204	0	0	2204	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	0.00	0.00	0.68	0.00
Uniform Delay (d), s/veh	20.8	0.0	30.0				0.0	33.2	0.0	0.0	8.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	57.5				0.0	13.2	0.0	0.0	15.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	0.0	38.6				0.0	25.6	0.0	0.0	24.9	0.0
LnGrp Delay(d),s/veh	21.6	0.0	87.5				0.0	46.4	0.0	0.0	23.8	0.0
LnGrp LOS	C		F					D			F	
Approach Vol, veh/h		2247						2136			2204	
Approach Delay, s/veh		73.0						46.4			23.8	
Approach LOS		E						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		56.0		64.0		56.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		52.0		60.0		52.0		
Max Q Clear Time (g_c+I1), s		51.2		62.0		54.0		
Green Ext Time (p_c), s		0.7		0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	47.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.