Stantec Consulting Services Inc.
38 Technology Drive, Suite 100, Irvine CA 92618-5312

August 12, 2014
File: 2073006790

Attention: Anthony Curzi
Department of Regional Planning
Los Angeles County
320 West Temple Street, Room 1348
Los Angeles, CA 90012

Dear Mr. Curzi,

Reference: Big Rock Creek – Aggregate Mining Plan DEIR – Response to Caltrans Comments

In response to Caltrans' concerns expressed in their April 2, 2014 letter, May 20, 2014 email, and discussions in the meetings April 30 and July 1, 2014 about existing congestion at the intersection of Fort Tejon Road, Pearblossom Highway, and Avenue T, particularly the northbound left-turn and eastbound right-turn movements, additional observations and analysis of this intersection were performed.

As discussed in the traffic study, project traffic consists of employee and haul truck trips. Employee shifts and haul truck deliveries would be scheduled so that the project would generate the vast majority of its trips outside of the typical AM and PM peak periods (i.e., outside of 7:00 – 9:00 AM and 4:00 – 6:00 PM) with only a small amount of unscheduled haul truck trips to outside customers (approximately 7 haul trucks per hour) travelling through the intersection of Fort Tejon Road/Pearblossom Highway/Avenue T during the AM peak period (7:00 – 9:00 AM). The schedules for the haul truck traffic and employee traffic would be arranged so that the regular delivery haul truck traffic would leave the site between 5:00 AM and 5:30 AM, allowing these haul trucks to be through the area intersections and on the freeway (SR-14) before the start of the typical AM peak period.

The haul truck trips consist of daily scheduled deliveries Monday through Saturday to ten other owner-operated plants, as well as a small amount of deliveries to outside customers determined by market demand. The regularly scheduled haul truck trips would occur before the typical AM peak hour; however, the outside customer delivery haul truck trips may occur during the typical AM peak hour. The daily scheduled haul trucks would make their first deliveries of the day then return to the site after the AM peak period for subsequent deliveries. The daily scheduled haul trucks' return trips through the area intersections and subsequent second and third deliveries of the day would be spread throughout the day, but would specifically avoid the AM peak period (7:00 – 9:00 AM). Deliveries and return trips would be completed prior to the start of the PM peak period (4:00 – 6:00 PM), and another daily delivery would be scheduled after the PM peak period.

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During the AM peak hour, approximately 7 haul trucks would make deliveries to outside customers and would travel through the intersection in question, which averages to one haul truck every four signal cycles (based on 120-second cycle length). In the intersection delay analysis, this equates to 14 passenger car equivalents (PCE) assuming a PCE factor of 2.0. No project trips are estimated during the PM peak hour because the employee and haul truck delivery schedule would be arranged to avoid it. No deliveries would be made on Sundays.

The level of service for the intersection of Fort Tejon Road, Pearblossom Highway, and Avenue T was presented in the Traffic Study based on Caltrans' preferred Highway Capacity Manual (HCM) delay methodology. The intersection is currently operating at LOS B during the AM peak hour and LOS C during the PM peak hour, and with the proposed project and cumulative projects the intersection would continue to operate at LOS B and LOS C. However, the cycle length used in the original analysis was 60 seconds, and Caltrans uses a 120-second cycle length throughout most of the day at this location. Therefore, the HCM delay analysis was re-calculated using a 120-second cycle length. The intersection operates at LOS C during the AM peak hour and LOS D during the PM peak hour using 120-second cycle length and the actual observed splits. Caltrans guidelines specify that Caltrans strives to maintain its facilities at the threshold between LOS C and LOS D. This intersection is currently operating at acceptable LOS C during the AM peak hour. Addition of project truck trips (adjusted to PCE trips) results in less than one-half second of increased delay during the AM peak hour, and the project has no significant impact on this intersection based on Caltrans preferred intersection analysis methodology.

Caltrans has commented that this intersection is congested throughout the day, from 6:00 AM to 10:00 PM, based on the reasoning that they use a 120-second cycle length during that time frame and that queues were observed by Caltrans staff on a Friday evening (eastbound right-turn) and a Sunday afternoon (northbound left-turn).

Video recordings of the critical northbound left-turn pocket and the eastbound right-turn pocket were collected on a weekday to determine the congested time periods that the haul trucks should be scheduled to avoid. Video observations were made from 5:00 AM until 10:00 PM on Tuesday June 3, 2014. The original Traffic Study analysis was based on peak hour counts collected in 2008 which were verified in 2012, and the volumes collected from the video recordings in June 2014 are consistent with the previous counts. Therefore, there is not an error or irregularity in the counts in the Traffic Study upon which the conclusions are based.

Hourly northbound left-turn and eastbound right-turn volumes counted from the video recordings from 5:00 AM to 10:00 PM are summarized in the attached table. The northbound left-turn volume is between 200 and 250 vehicles per hour for most of the day (from 5:00 AM – 10:00 AM, 12:00 PM - 2:00 PM, and 3:00 PM – 6:00 PM). Caltrans staff has indicated that their threshold for installing a second left-turn lane is 200 vehicles per hour (vph), although Caltrans Highway Design Manual Section 405.2(3) specifies that double left-turn lanes should be considered when the left-turn demand is 300 vehicles per hour or more. The existing northbound left-turn queue was observed at 5-minute intervals from 5:00 AM to 10:00 PM, and the results are summarized in Table 2. As this table shows, the queue is 5 vehicles or less for the majority of the day, while queues of 10 to 14

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vehicles were observed only 4 times during the 17 hours between 5:00 AM and 10:00 PM. Large trucks are included in this queue count. Caltrans is basing their significance determination on design criteria that calls for a 200-foot left-turn lane; however, the existing left-turn lane is 375 feet in length, which is sufficient to accommodate the typical weekday left-turn demand, including that of the Project.

The eastbound right-turn volume varies from 104 vph to 403 vph, with volumes above 200 vph from 12:00 PM to 8:00 PM. However, queues during these time periods were 7 vehicles or less based on the 5-minute observations from the video recordings. Unlike the left-turn movement, vehicles in the right-turn pocket can turn right on red when adequate gaps in the southbound traffic are available. As observed in the video and evidenced by the observed queues of 7 vehicles or less, numerous gaps occur in the southbound traffic during each signal cycle and lengthy queues in the right-turn lane do not develop. The existing right-turn pocket is sufficient to accommodate the typical weekday right-turn demand.

Fort Tejon Road/Pearblossom Highway (SR-138) is a designated truck route, and the project could avoid any impact to the northbound left-turn movement by requiring its haul trucks to stay on the truck route by travelling straight northbound through the intersection. However, the designated truck route would add approximately 12 minutes to each one-way trip.

Although Caltrans is concerned about congestion occurring at the Fort Tejon Road/Pearblossom Highway/Avenue T intersection, their conclusions are based on an observation during a Friday evening and a Sunday afternoon. These time periods would partially be avoided by the scheduling of the haul truck deliveries. The lengthy queues on Friday evening and Sunday afternoon do not occur during the typical weekday. Restrictions applied to the haul trucks during time periods other than the typical weekday AM peak period (7:00 – 9:00 AM) and PM peak period (4:00 – 6:00 PM) are not supported by the count data or the video recordings of the critical movements at the intersection.

Based on the Synchro analysis, the project increases the average delay by less than one-half second during the AM peak hour and has no significant impact on the intersection of Fort Tejon Road/Pearblossom Highway/Avenue T. The signal timing at the intersection could be adjusted to reduce the delay and potential northbound left-turn queues at the intersection without physically widening the intersection. The intersection could operate at LOS B with adjusted signal timing. However, despite the fact that the project does not significantly impact the intersection, Caltrans staff is requesting that the project widen the intersection to provide a second northbound left-turn lane because the left-turn volume exceeds 200 vehicles per hour. Installation of a second northbound left-turn lane at the intersection of Fort Tejon Road/Pearblossom Highway/Avenue T would result in LOS C during the AM peak hour with the addition of project trips and cumulative traffic.

Rather than schedule haul truck deliveries to avoid the 6:00 AM to 10:00 PM times that Caltrans staff has identified or condition the haul trucks to remain on the designated truck route (SR-138), the project applicant is willing to pay its fair share of the cost of a new second northbound left-turn

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lane at the intersection of Fort Tejon Road, Pearblossom Highway and Avenue T. While our analyses do not show that improvements to the intersection are warranted, we estimate the costs required to add a second northbound left-turn lane would be approximately $409,100. The estimate is attached. The project PCE trips during the AM peak hour constitute 10 percent of the anticipated AM peak hour growth at this intersection.

CONCLUSIONS

In response to Caltrans comments, we have completed a substantial amount of additional analysis of the traffic conditions, with and without the project. This work completed recently included additional counts and video recordings of the Fort Tejon Road/Pearblossom Highway/Avenue T intersection. At that intersection, Caltrans expressed concern that Significant Impacts (Cumulative and/or Project) congestion would result from the project's use of the northbound left-turn and eastbound right-turn movements (i.e., involving the non-SR-138 portion of Pearblossom Highway). Based upon the body of additional analysis and several meetings with the County and Caltrans, we conclude:

- The project will not result in a significant impact due to a change in the LOS at this intersection, whether project trucks make northbound left-turn and eastbound right-turn movements at this intersection, or continue through the intersection, using the designated truck route.

- Caltrans staff is requesting that the project widen the intersection to provide a second northbound left-turn lane because the left-turn volume currently exceeds 200 vehicles per hour. However, this request assumes a 200-foot turn pocket design standard and does not reflect the existing 375-foot length of the left-turn pocket.

  The existing 375-foot northbound left-turn pocket is sufficient to accommodate the typical weekday plus project plus cumulative left-turn demand.

  The existing eastbound right-turn pocket is sufficient to accommodate the typical weekday plus project plus cumulative right-turn demand.

- Recent counts and lengthy video recordings were conducted of the critical northbound left-turn pocket and the eastbound right-turn pocket, which were collected on a weekday to determine the congested time periods that the haul trucks should be scheduled to avoid. The results serve to confirm the findings of the earlier traffic study, which concluded this intersection is able to accommodate project truck traffic without a change in the LOS during the AM peak hours.

- Because the project would specifically schedule its regular daily haul truck deliveries to avoid both the AM and the PM peak hours, there would be no project-related effect during these hours. Per Caltrans request, the project applicant will route west bound peak

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hour local deliveries (approximately 7 haul trucks during the AM peak hour) along Avenue T rather than using Pearblossom Highway.

- The project PCE trips during the AM peak hour constitute 10 percent of the anticipated AM peak hour growth at this intersection, and any mitigation determined necessary for this intersection should be based on that percentage.

Copies of the video files have been provided to County and Caltrans staff.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Cathy Lawrence, PE
Phone: (949) 923-6064
Cathy.Lawrence@stantec.com

Attachment: Table 1 – Hourly Count Summary
Table 2 – 5-Minute Queue Summary
HCM Delay Calculation Worksheets
Cost Estimate

c. Daryl Zerfass, Stantec Consulting Services Inc.
Jim McGee, McGee & Associates
John Hecht, Sespe Consulting, Inc.

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Table 1
Hourly Count Summary

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Palmdale
N/S: Fort Tejon Road (SR-138)
E/W: Pearblossom Highway / Avenue T
Weather: Clear

File Name : PDE_Fort Tejon_Pearblossom
Site Code : 00000000
Start Date : 6/6/2014
Page No : 1

Groups Printed- Total Volume

	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	0	0	0	0	0	0	0	0	45	0	0	45	0	0	18	18	63
05:15 AM	0	0	0	0	0	0	0	0	55	0	0	55	0	0	26	26	81
05:30 AM	0	0	0	0	0	0	0	0	60	0	0	60	0	0	28	28	88
05:45 AM	0	0	0	0	0	0	0	0	72	0	0	72	0	0	32	32	104
Total	0	0	0	0	0	0	0	0	232	0	0	232	0	0	104	104	336
06:00 AM	0	0	0	0	0	0	0	0	59	0	0	59	0	0	30	30	89
06:15 AM	0	0	0	0	0	0	0	0	74	0	0	74	0	0	37	37	111
06:30 AM	0	0	0	0	0	0	0	0	48	0	0	48	0	0	41	41	89
06:45 AM	0	0	0	0	0	0	0	0	67	0	0	67	0	0	40	40	107
Total	0	0	0	0	0	0	0	0	248	0	0	248	0	0	148	148	396
07:00 AM	0	0	0	0	0	0	0	0	49	0	0	49	0	0	48	48	97
07:15 AM	0	0	0	0	0	0	0	0	61	0	0	61	0	0	36	36	97
07:30 AM	0	0	0	0	0	0	0	0	82	0	0	82	0	0	47	47	129
07:45 AM	0	0	0	0	0	0	0	0	56	0	0	56	0	0	62	62	118
Total	0	0	0	0	0	0	0	0	248	0	0	248	0	0	193	193	441
08:00 AM	0	0	0	0	0	0	0	0	51	0	0	51	0	0	47	47	98
08:15 AM	0	0	0	0	0	0	0	0	56	0	0	56	0	0	42	42	98
08:30 AM	0	0	0	0	0	0	0	0	54	0	0	54	0	0	49	49	103
08:45 AM	0	0	0	0	0	0	0	0	42	0	0	42	0	0	49	49	91
Total	0	0	0	0	0	0	0	0	203	0	0	203	0	0	187	187	390
09:00 AM	0	0	0	0	0	0	0	0	37	0	0	37	0	0	45	45	82
09:15 AM	0	0	0	0	0	0	0	0	72	0	0	72	0	0	38	38	110
09:30 AM	0	0	0	0	0	0	0	0	65	0	0	65	0	0	51	51	116
09:45 AM	0	0	0	0	0	0	0	0	58	0	0	58	0	0	54	54	112
Total	0	0	0	0	0	0	0	0	232	0	0	232	0	0	188	188	420
10:00 AM	0	0	0	0	0	0	0	0	43	0	0	43	0	0	57	57	100
10:15 AM	0	0	0	0	0	0	0	0	61	0	0	61	0	0	45	45	106
10:30 AM	0	0	0	0	0	0	0	0	43	0	0	43	0	0	53	53	96
10:45 AM	0	0	0	0	0	0	0	0	47	0	0	47	0	0	36	36	83
Total	0	0	0	0	0	0	0	0	194	0	0	194	0	0	191	191	385
11:00 AM	0	0	0	0	0	0	0	0	48	0	0	48	0	0	58	58	106
11:15 AM	0	0	0	0	0	0	0	0	47	0	0	47	0	0	47	47	94
11:30 AM	0	0	0	0	0	0	0	0	54	0	0	54	0	0	40	40	94
11:45 AM	0	0	0	0	0	0	0	0	36	0	0	36	0	0	45	45	81
Total	0	0	0	0	0	0	0	0	185	0	0	185	0	0	190	190	375
12:00 PM	0	0	0	0	0	0	0	0	57	0	0	57	0	0	71	71	128
12:15 PM	0	0	0	0	0	0	0	0	62	0	0	62	0	0	51	51	113
12:30 PM	0	0	0	0	0	0	0	0	65	0	0	65	0	0	52	52	117
12:45 PM	0	0	0	0	0	0	0	0	45	0	0	45	0	0	55	55	100
Total	0	0	0	0	0	0	0	0	229	0	0	229	0	0	229	229	458
01:00 PM	0	0	0	0	0	0	0	0	59	0	0	59	0	0	42	42	101
01:15 PM	0	0	0	0	0	0	0	0	49	0	0	49	0	0	62	62	111
01:30 PM	0	0	0	0	0	0	0	0	50	0	0	50	0	0	45	45	95
01:45 PM	0	0	0	0	0	0	0	0	42	0	0	42	0	0	64	64	106
Total	0	0	0	0	0	0	0	0	200	0	0	200	0	0	213	213	413
02:00 PM	0	0	0	0	0	0	0	0	37	0	0	37	0	0	58	58	95
02:15 PM	0	0	0	0	0	0	0	0	45	0	0	45	0	0	65	65	110
02:30 PM	0	0	0	0	0	0	0	0	67	0	0	67	0	0	74	74	141
02:45 PM	0	0	0	0	0	0	0	0	46	0	0	46	0	0	75	75	121
Total	0	0	0	0	0	0	0	0	195	0	0	195	0	0	272	272	467

Counts Unlimited, Inc.
PO Box 1178
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City of Palmdale
N/S: Fort Tejon Road (SR-138)
E/W: Pearblossom Highway / Avenue T
Weather: Clear

File Name : PDE_Fort Tejon_Pearblossom
Site Code : 00000000
Start Date : 6/6/2014
Page No : 2

Groups Printed- Total Volume

	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	63	0	0	63	0	0	86	86	149
03:15 PM	0	0	0	0	0	0	0	0	47	0	0	47	0	0	83	83	130
03:30 PM	0	0	0	0	0	0	0	0	47	0	0	47	0	0	99	99	146
03:45 PM	0	0	0	0	0	0	0	0	74	0	0	74	0	0	93	93	167
Total	0	0	0	0	0	0	0	0	231	0	0	231	0	0	361	361	592
04:00 PM	0	0	0	0	0	0	0	0	51	0	0	51	0	0	106	106	157
04:15 PM	0	0	0	0	0	0	0	0	53	0	0	53	0	0	77	77	130
04:30 PM	0	0	0	0	0	0	0	0	68	0	0	68	0	0	101	101	169
04:45 PM	0	0	0	0	0	0	0	0	66	0	0	66	0	0	119	119	185
Total	0	0	0	0	0	0	0	0	238	0	0	238	0	0	403	403	641
05:00 PM	0	0	0	0	0	0	0	0	56	0	0	56	0	0	95	95	151
05:15 PM	0	0	0	0	0	0	0	0	44	0	0	44	0	0	79	79	123
05:30 PM	0	0	0	0	0	0	0	0	52	0	0	52	0	0	98	98	150
05:45 PM	0	0	0	0	0	0	0	0	55	0	0	55	0	0	72	72	127
Total	0	0	0	0	0	0	0	0	207	0	0	207	0	0	344	344	551
06:00 PM	0	0	0	0	0	0	0	0	54	0	0	54	0	0	57	57	111
06:15 PM	0	0	0	0	0	0	0	0	29	0	0	29	0	0	76	76	105
06:30 PM	0	0	0	0	0	0	0	0	40	0	0	40	0	0	83	83	123
06:45 PM	0	0	0	0	0	0	0	0	34	0	0	34	0	0	63	63	97
Total	0	0	0	0	0	0	0	0	157	0	0	157	0	0	279	279	436
07:00 PM	0	0	0	0	0	0	0	0	34	0	0	34	0	0	65	65	99
07:15 PM	0	0	0	0	0	0	0	0	24	0	0	24	0	0	55	55	79
07:30 PM	0	0	0	0	0	0	0	0	31	0	0	31	0	0	54	54	85
07:45 PM	0	0	0	0	0	0	0	0	22	0	0	22	0	0	41	41	63
Total	0	0	0	0	0	0	0	0	111	0	0	111	0	0	215	215	326
08:00 PM	0	0	0	0	0	0	0	0	31	0	0	31	0	0	36	36	67
08:15 PM	0	0	0	0	0	0	0	0	31	0	0	31	0	0	47	47	78
08:30 PM	0	0	0	0	0	0	0	0	27	0	0	27	0	0	45	45	72
08:45 PM	0	0	0	0	0	0	0	0	39	0	0	39	0	0	28	28	67
Total	0	0	0	0	0	0	0	0	128	0	0	128	0	0	156	156	284
09:00 PM	0	0	0	0	0	0	0	0	31	0	0	31	0	0	45	45	76
09:15 PM	0	0	0	0	0	0	0	0	39	0	0	39	0	0	38	38	77
09:30 PM	0	0	0	0	0	0	0	0	25	0	0	25	0	0	25	25	50
09:45 PM	0	0	0	0	0	0	0	0	20	0	0	20	0	0	38	38	58
Total	0	0	0	0	0	0	0	0	115	0	0	115	0	0	146	146	261
Grand Total	0	0	0	0	0	0	0	0	3353	0	0	3353	0	0	3819	3819	7172
Apprch %	0	0	0		0	0	0		100	0	0		0	0	100		
Total %	0	0	0	0	0	0	0	0	46.8	0	0	46.8	0	0	53.2	53.2	

Table 2

Fort Tejon Rd/Pearblossom Hwy/Ave T - Queue Summary (June 3, 2014)

Time	Queue (vehicles)	
	EB Right	NB Left
4:58 AM	0	2
5:03	0	0
5:08	0	1
5:13	0	3
5:18	0	1
5:23	0	3
5:28	0	0
5:33	0	9
5:38	0	1
5:43	0	4
5:48	0	0
5:53	0	8
5:58	0	3
6:03	1	2
6:08	0	0
6:13	0	5
6:18	0	0
6:23	0	0
6:28	0	3
6:33	0	4
6:38	0	1
6:43	0	0
6:48	0	6
6:53	0	3
6:58	0	0
7:03	0	0
7:08	0	7
7:13	0	12
7:18	0	0
7:23	0	6
7:28	0	7
7:33	1	3
7:38	0	0
7:43	0	2
7:48	0	8
7:53	0	0
7:58	0	1
8:03	0	4
8:08	0	1
8:13	0	0
8:18	0	6
8:23	0	1

Time	Queue (vehicles)	
	EB Right	NB Left
8:28 AM	0	2
8:33	1	5
8:38	4	3
8:43	0	0
8:48	0	1
8:53	1	3
8:58	0	1
9:03	0	2
9:08	0	0
9:13	0	6
9:18	0	5
9:23	0	4
9:28	0	9
9:33	0	9
9:38	0	0
9:43	1	3
9:48	0	6
9:53	0	5
9:58	0	0
10:03	3	0
10:08	2	7
10:13	0	3
10:18	0	0
10:23	1	10
10:28	0	1
10:33	0	0
10:38	0	0
10:43	0	6
10:48	0	5
10:53	0	2
10:58	3	1
11:03	0	2
11:08	0	3
11:13	0	3
11:18	0	0
11:23	1	4
11:28	0	4
11:33	0	1
11:38	0	0
11:43	0	4
11:48	0	1
11:53	1	0

Time	Queue (vehicles)	
	EB Right	NB Left
11:58 AM	2	0
12:03 PM	1	4
12:08	7	1
12:13	0	0
12:18	1	1
12:23	0	5
12:28	1	1
12:33	0	3
12:38	2	3
12:43	5	8
12:48	1	0
12:53	0	4
12:58	0	3
13:03	0	6
13:08	2	0
13:13	0	3
13:18	0	3
13:23	0	1
13:28	0	0
13:33	1	9
13:38	0	0
13:43	2	0
13:48	0	3
13:53	0	0
13:58	2	2
14:03	0	0
14:08	0	6
14:13	0	1
14:18	0	2
14:23	0	3
14:28	0	6
14:33	0	4
14:38	1	0
14:43	0	5
14:48	0	2
14:53	0	1
14:58	0	11
15:03	1	4
15:08	0	3
15:13	0	3
15:18	0	9
15:23	0	4
15:28	0	2
15:33	0	0
15:38	0	4

Time	Queue (vehicles)	
	EB Right	NB Left
15:43 PM	0	2
15:48	6	8
15:53	0	0
15:58	0	9
16:03	0	3
16:08	2	2
16:13	0	0
16:18	0	2
16:23	0	0
16:28	0	0
16:33	0	6
16:38	0	7
16:43	1	2
16:48	7	0
16:53	7	4
16:58	0	0
17:03	0	5
17:08	0	0
17:13	0	5
17:18	0	3
17:23	2	0
17:28	0	3
17:33	0	4
17:38	1	0
17:43	5	0
17:48	1	14
17:53	0	3
17:58	0	7
18:03	0	3
18:08	0	5
18:13	0	1
18:18	0	0
18:23	1	7
18:28	0	3
18:33	0	3
18:38	0	0
18:43	0	7
18:48	0	0
18:53	0	0
18:58	6	3
19:03	0	6
19:08	0	1
19:13	0	0
19:18	0	2
19:23	0	1

Time	Queue (vehicles)	
	EB Right	NB Left
19:28 PM	3	0
19:33	1	0
19:38	0	2
19:43	0	2
19:48	0	2
19:53	1	3
19:58	0	1
20:03	0	0
20:08	0	0
20:13	3	2
20:18	0	5
20:23	0	1
20:28	1	0
20:33	0	1
20:38	0	5
20:43	0	1
20:48	0	3
20:53	0	7
20:58	0	3
21:03	0	2
21:08	0	0
21:13	0	4
21:18	1	0
21:23	0	1
21:28	0	3
21:33	0	0
21:38	0	2
21:43	0	3
21:48	0	5
21:53	0	1
21:58	1	0

Max Queue	7	14 (>10 veh 4 times)	==> 84% of the day (5 AM - 10 PM) 5 vehicles or fewer in NB left-turn queue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	22	127	162	4	333	74	85	220	44	198	242	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3289		1656	3305	
Flt Permitted	0.21	1.00	1.00	0.59	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	370	1759	1495	1003	1759	1446	1687	3289		1656	3305	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	26	149	191	5	392	87	100	259	52	233	285	4
RTOR Reduction (vph)	0	0	138	0	0	63	0	13	0	0	1	0
Lane Group Flow (vph)	26	149	53	5	392	24	100	298	0	233	288	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	28.3	28.3	28.3	28.3	28.3	28.3	11.0	46.0		20.2	55.2	
Effective Green, g (s)	31.3	31.3	31.3	31.3	31.3	31.3	14.0	49.0		23.2	58.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.12	0.43		0.20	0.51	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	485	412	276	485	398	208	1419		338	1694	
v/s Ratio Prot		0.08			c0.22		0.06	c0.09		c0.14	0.09	
v/s Ratio Perm	0.07		0.04	0.00		0.02						
v/c Ratio	0.25	0.31	0.13	0.02	0.81	0.06	0.48	0.21		0.69	0.17	
Uniform Delay, d1	32.0	32.5	30.9	29.9	38.3	30.3	46.4	20.2		41.8	14.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4	0.1	0.0	9.6	0.1	1.7	0.3		5.8	0.2	
Delay (s)	33.3	32.9	31.0	29.9	47.9	30.3	48.1	20.5		47.6	15.0	
Level of Service	C	C	C	C	D	C	D	C		D	B	
Approach Delay (s)		31.9			44.5			27.2			29.5	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s) Analysis	113.5	Sum of lost time (s)	10.0
Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	22	127	176	4	333	74	85	220	44	212	242	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3289		1656	3305	
Flt Permitted	0.21	1.00	1.00	0.59	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	370	1759	1495	1003	1759	1446	1687	3289		1656	3305	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	26	149	207	5	392	87	100	259	52	249	285	4
RTOR Reduction (vph)	0	0	150	0	0	63	0	13	0	0	1	0
Lane Group Flow (vph)	26	149	57	5	392	24	100	298	0	249	288	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	28.3	28.3	28.3	28.3	28.3	28.3	11.0	45.4		20.8	55.2	
Effective Green, g (s)	31.3	31.3	31.3	31.3	31.3	31.3	14.0	48.4		23.8	58.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.12	0.43		0.21	0.51	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	485	412	276	485	398	208	1402		347	1694	
v/s Ratio Prot		0.08			c0.22		0.06	c0.09		c0.15	0.09	
v/s Ratio Perm	0.07		0.04	0.00		0.02						
v/c Ratio	0.25	0.31	0.14	0.02	0.81	0.06	0.48	0.21		0.72	0.17	
Uniform Delay, d1	32.0	32.5	30.9	29.9	38.3	30.3	46.4	20.5		41.7	14.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4	0.2	0.0	9.6	0.1	1.7	0.3		6.9	0.2	
Delay (s)	33.3	32.9	31.1	29.9	47.9	30.3	48.1	20.9		48.6	15.0	
Level of Service	C	C	C	C	D	C	D	C		D	B	
Approach Delay (s)		31.9			44.5			27.5			30.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	113.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	24	138	184	4	360	85	93	257	47	241	317	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3296		1656	3307	
Flt Permitted	0.18	1.00	1.00	0.57	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	315	1759	1495	972	1759	1446	1687	3296		1656	3307	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	28	162	216	5	424	100	109	302	55	284	373	4
RTOR Reduction (vph)	0	0	154	0	0	72	0	12	0	0	0	0
Lane Group Flow (vph)	28	162	62	5	424	28	109	345	0	284	377	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	29.9	29.9	29.9	29.9	29.9	29.9	11.4	44.2		22.4	55.2	
Effective Green, g (s)	32.9	32.9	32.9	32.9	32.9	32.9	14.4	47.2		25.4	58.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.12	0.41		0.22	0.50	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	89	501	425	276	501	411	210	1346		364	1666	
v/s Ratio Prot		0.09			c0.24		0.06	c0.10		c0.17	0.11	
v/s Ratio Perm	0.09		0.04	0.01		0.02						
v/c Ratio	0.31	0.32	0.14	0.02	0.85	0.07	0.52	0.26		0.78	0.23	
Uniform Delay, d1	32.4	32.5	30.8	29.7	38.9	30.1	47.3	22.6		42.4	16.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4	0.2	0.0	12.5	0.1	2.2	0.5		10.4	0.3	
Delay (s)	34.5	32.9	31.0	29.7	51.4	30.2	49.5	23.0		52.8	16.4	
Level of Service	C	C	C	C	D	C	D	C		D	B	
Approach Delay (s)		32.0			47.2			29.2			32.0	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	24	138	198	4	360	85	93	257	47	255	317	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3296		1656	3307	
Flt Permitted	0.18	1.00	1.00	0.57	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	317	1759	1495	972	1759	1446	1687	3296		1656	3307	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	28	162	233	5	424	100	109	302	55	300	373	4
RTOR Reduction (vph)	0	0	166	0	0	71	0	12	0	0	0	0
Lane Group Flow (vph)	28	162	67	5	424	29	109	345	0	300	377	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	30.0	30.0	30.0	30.0	30.0	30.0	11.4	43.7		22.9	55.2	
Effective Green, g (s)	33.0	33.0	33.0	33.0	33.0	33.0	14.4	46.7		25.9	58.2	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.12	0.40		0.22	0.50	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	502	426	277	502	412	210	1331		371	1664	
v/s Ratio Prot		0.09			c0.24		0.06	c0.10		c0.18	0.11	
v/s Ratio Perm	0.09		0.04	0.01		0.02						
v/c Ratio	0.31	0.32	0.16	0.02	0.84	0.07	0.52	0.26		0.81	0.23	
Uniform Delay, d1	32.4	32.5	30.9	29.7	38.9	30.1	47.4	22.9		42.5	16.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4	0.2	0.0	12.3	0.1	2.2	0.5		12.2	0.3	
Delay (s)	34.4	32.9	31.1	29.7	51.2	30.2	49.5	23.4		54.7	16.4	
Level of Service	C	C	C	C	D	C	D	C		D	B	
Approach Delay (s)		32.0			47.0			29.5			33.4	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Short-Range Cumulative + Project (PCE) w/2nd NL - AM Peak Hour
1: Pearblossom Hwy (SR-138)/Fort Tejon (SR-138) & Pearblossom Hwy/Ave T

Synchro 8 Report

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	24	138	198	4	360	85	93	257	47	255	317	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3296		3213	3307	
Flt Permitted	0.18	1.00	1.00	0.57	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	315	1759	1495	972	1759	1446	1687	3296		3213	3307	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	28	162	233	5	424	100	109	302	55	300	373	4
RTOR Reduction (vph)	0	0	167	0	0	72	0	12	0	0	0	0
Lane Group Flow (vph)	28	162	66	5	424	28	109	345	0	300	377	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	29.9	29.9	29.9	29.9	29.9	29.9	11.4	51.6		15.0	55.2	
Effective Green, g (s)	32.9	32.9	32.9	32.9	32.9	32.9	14.4	54.6		18.0	58.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.12	0.47		0.16	0.50	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	89	501	425	276	501	411	210	1558		500	1666	
v/s Ratio Prot		0.09			c0.24		0.06	0.10		c0.09	c0.11	
v/s Ratio Perm	0.09		0.04	0.01		0.02						
v/c Ratio	0.31	0.32	0.16	0.02	0.85	0.07	0.52	0.22		0.60	0.23	
Uniform Delay, d1	32.4	32.5	30.9	29.7	38.9	30.1	47.3	17.9		45.4	16.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4	0.2	0.0	12.5	0.1	2.2	0.3		1.9	0.3	
Delay (s)	34.5	32.9	31.1	29.7	51.4	30.2	49.5	18.3		47.3	16.4	
Level of Service	C	C	C	C	D	C	D	B		D	B	
Approach Delay (s)		32.0			47.2			25.6			30.1	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s) Analysis	115.5	Sum of lost time (s)	10.0
Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	79	387	339	11	155	101	196	335	27	253	265	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	11	12	11	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1759	1495	1616	1759	1446	1687	3336		1656	3300	
Flt Permitted	0.56	1.00	1.00	0.20	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	994	1759	1495	336	1759	1446	1687	3336		1656	3300	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	87	425	373	12	170	111	215	368	30	278	291	7
RTOR Reduction (vph)	0	0	262	0	0	78	0	5	0	0	2	0
Lane Group Flow (vph)	87	425	111	12	170	33	215	393	0	278	296	0
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	7%	7%	7%	9%	9%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	1	0	0	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	31.2	31.2	31.2	31.2	31.2	31.2	13.0	45.0		20.1	52.1	
Effective Green, g (s)	34.2	34.2	34.2	34.2	34.2	34.2	16.0	48.0		23.1	55.1	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.14	0.42		0.20	0.48	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	294	521	443	99	521	428	234	1388		331	1577	
v/s Ratio Prot		c0.24			0.10		c0.13	c0.12		c0.17	0.09	
v/s Ratio Perm	0.09		0.07	0.04		0.02						
v/c Ratio	0.30	0.82	0.25	0.12	0.33	0.08	0.92	0.28		0.84	0.19	
Uniform Delay, d1	31.3	37.6	30.8	29.6	31.6	29.2	49.0	22.3		44.3	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	9.5	0.3	0.6	0.4	0.1	37.0	0.5		16.8	0.3	
Delay (s)	31.8	47.2	31.1	30.1	31.9	29.3	86.0	22.8		61.2	17.5	
Level of Service	C	D	C	C	C	C	F	C		E	B	
Approach Delay (s)		38.9			30.9			45.0			38.6	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s) Analysis	115.3	Sum of lost time (s)	10.0
Period (min)	15		

c Critical Lane Group

Cost Estimate to Provide Design Services for Intersection Improvements on Pearblossom Highway at SR138 City of Palmdale, CA

Task Description	Number of Sheets	Direct Cost	Total cost
1. Design Survey		$8,500	$8,500.00
2. Site Visit			$1,534
3. Preparation of PSE Documents			
a. Title Sheet	1		$2,192.00
b. Typical Sections, Construction Notes	1		$3,409.00
d. Details	1		$1,629.00
e. Planand Profile Sheets	2		$10,614.00
f. Traffic Signal Modification	1		$7,214.00
f. Special Provisions			$4,288.00
g. Quantity and Cost Estimates			$1,785.00
4. Project Management Coordination			$3,712.00
Subtotal Design Cost	6	0	$44,877.00
Reimbursables		$ 300.00	$300.00
Total Cost including Reimbursables			**$45,177.00**

Exclusions

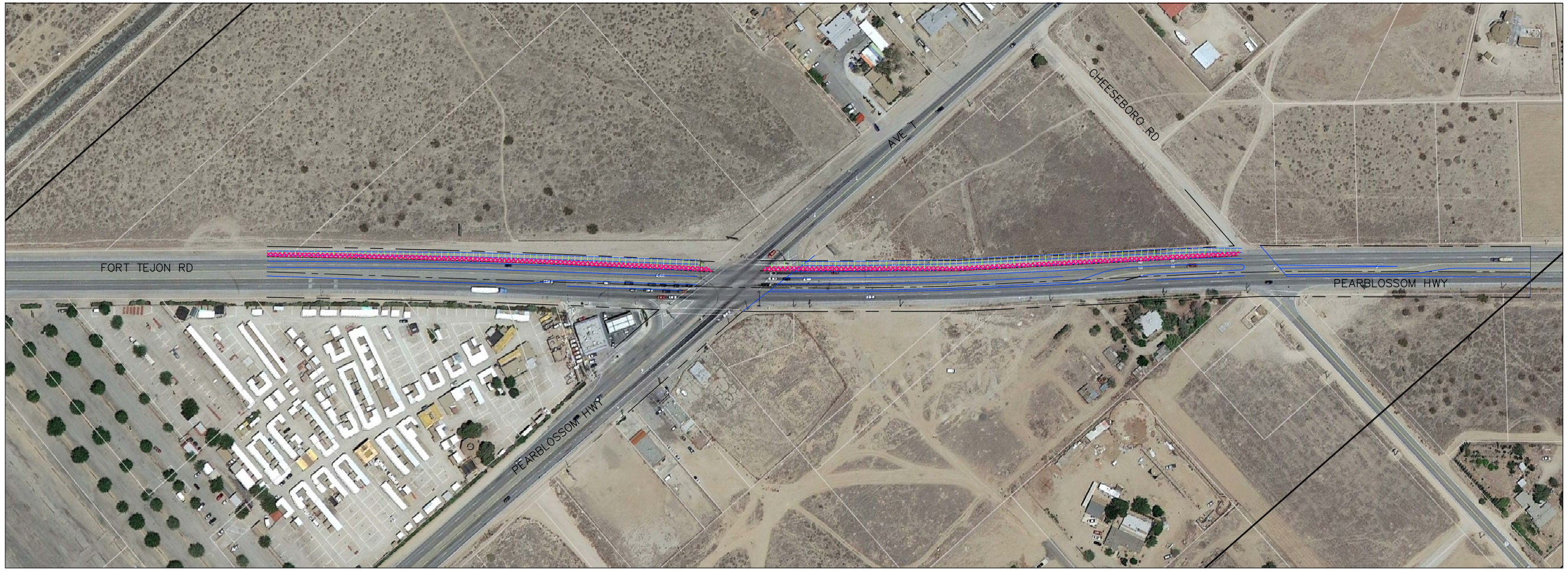
1. City Plan Check Fees
2. Geotechnical Investigations
3. Utility Relocations
3. Caltrans Processing of Documents
4. Printing of Bid Documents
5. Landscape and Irrigation Design

APPROXIMATE COST ESTIMATE FOR ADDITIONAL LEFT TURN LANE WIDENING ON SR-138 AT FORT TEJON AND PEARBLOSSOM HIGHWAY					
No.	**DESCRIPTION**	**APPROX QTY**	**UNIT**	**UNIT COST**	**TOTAL COST**
1	MOBILIZATION (5% TOTAL COST)	1	LS	$15,000	$15,000.00
2	SWPPP	1	LS	$10,000	$10,000.00
3	TRAFFIC CONTROL	1	LS	$25,000	$25,000.00
4	CLEARING AND GRUBBING	1	LS	$5,000	$5,000.00
5	UNCLASSIFIED EXCAVATION	1028	CY	$25	$25,700.00
6	ASPHALT CONCRETE PAVEMENT (TYPE B)	964	TN	$100	$96,400.00
7	AGGREGATE BASE (CLASS 2)	1285	CY	$50	$64,250.00
8	SIGNING AND STRIPING	1	LS	$10,000	$10,000.00
9	RELOCATE LIGHTING & TRAFFIC SIGNAL	1	LS	$50,000	$50,000.00
10	LOOP DETECTOR	1	LS	$10,000	$10,000.00
11	UTILITY RELOCATION	1	LS	$5,000	$5,000.00
SUB-TOTAL					$316,350.00
CONTINGENCY (15% OF TOTAL COST)					$47,500.00
TOTAL COST					**$363,900.00**

LEGEND:

PROPOSED WIDENING

EXIST PAVEMENT REMOVAL



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

NO.	DATE	REVISIONS

DESIGNED BY:
DRAFTED BY:
CHECKED BY:
DATE:

PREPARED UNDER THE SUPERVISION OF:

NAME DATE

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE, CA 92618
949.923.6000 stantec.com

PRELIMINARY EXHIBIT FOR ADDITIONAL LEFT TURN LANE AT PEARBLOSSOM HIGHWAY ANF FORT TJON INTERSECTION

PROJECT NO.

SHEET ___ OF X

DRAWING: v:\2073\active\207300679\cost\sr-138 left turn exhibit.dwg PLOTTED: 7/15/2014 2:26 PM BY: Pampora, Vijay

Table 3

Big Rock Creek Surface Mining Project
Fort Tejon Rd/Pearblossom Hwy/Ave T Fair Share

AM Peak Hour	Volume
Existing Conditions	1,514
Short-Range Cumulative Conditions	1,781
Increase	267
Project (PCE)	28
Project Fair Share	10%