HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

To: Mr. Chris Davenport, Trumark Companies

From: Ralph Garcia

Gary Black

Date: October 4, 2011

Subject: Traffic Operational Analysis for the Proposed Residential Development at 300 Montague Expressway in Milpitas, California

Introduction

Hexagon Transportation Consultants, Inc. has completed a traffic operational analysis for the proposed residential development at 300 Montague Expressway located in Milpitas, California. The residential development would be located on the northeast corner of the Montague Expressway and McCandless Drive/Trade Zone Boulevard intersection (see Figure 1). The project as proposed would replace a vacant office building (see Figure 2) into a residential development with a total of 134 dwelling units: 92 townhomes and 42 single-family dwelling units (see Figure 3). Currently, access to the site is provided by a full access driveway at the intersection of Trade Zone Boulevard and Ringwood Avenue and right-in/right-out only driveways on Montague Expressway and Trade Zone Boulevard. The proposed site plan shows that the right-in/right-out driveway on Montague Expressway will be removed.

Scope of Study

According to City staff, California Environmental Quality Act (CEQA) clearance for transportation impacts was obtained through prior studies. Therefore, the purpose of the traffic operations study is to determine whether additional traffic improvements are needed to support the proposed development on the streets near the project site. The operations analysis is focused on three nearby signalized intersections:

- Trade Zone Boulevard/Montague Expressway (CMP intersection)
- Trade Zone Boulevard/Ringwood Avenue
- Trade Zone Boulevard/Lundy Avenue

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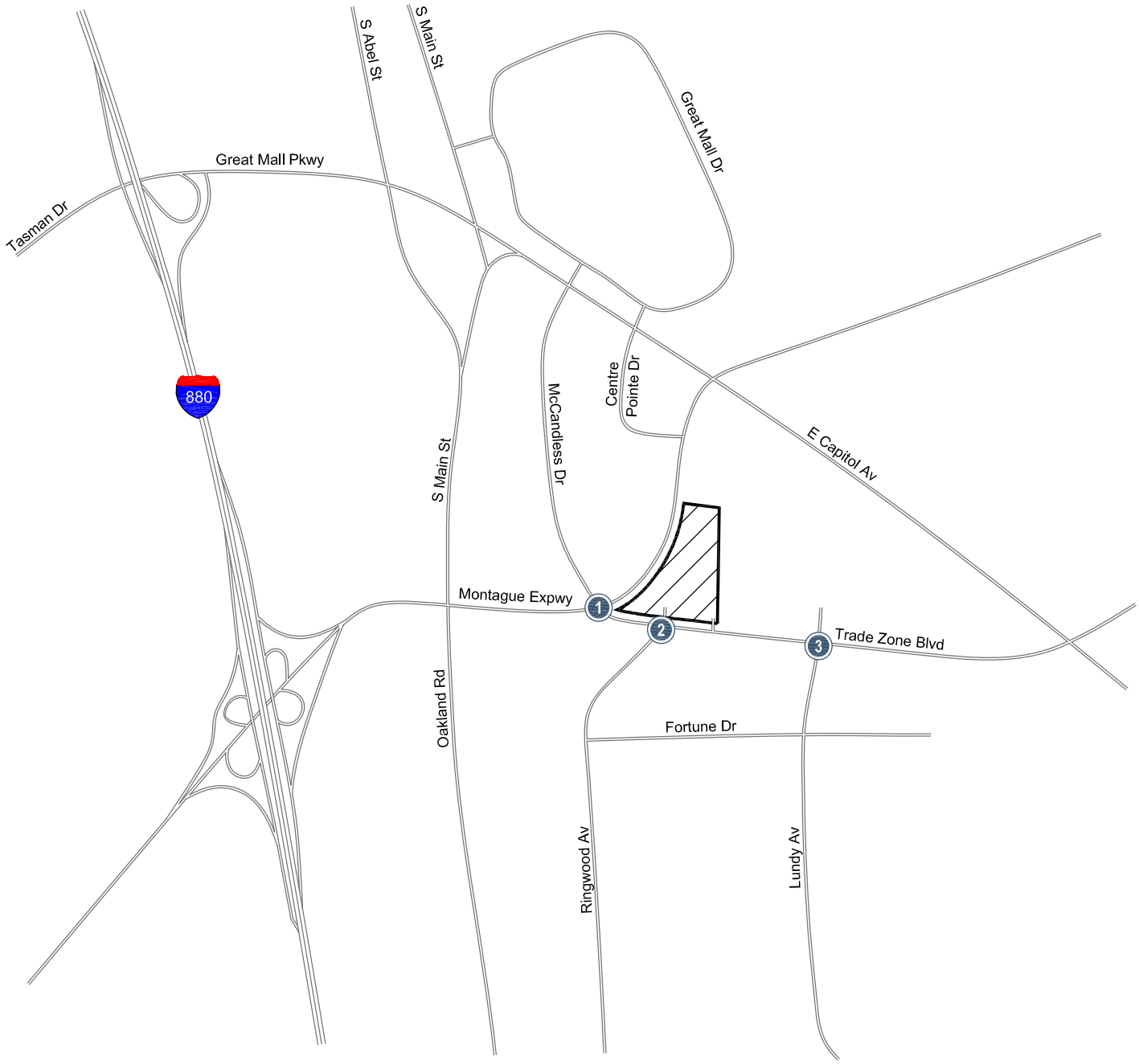


LEGEND

1 = Study Intersection

= Site Location

Figure 1

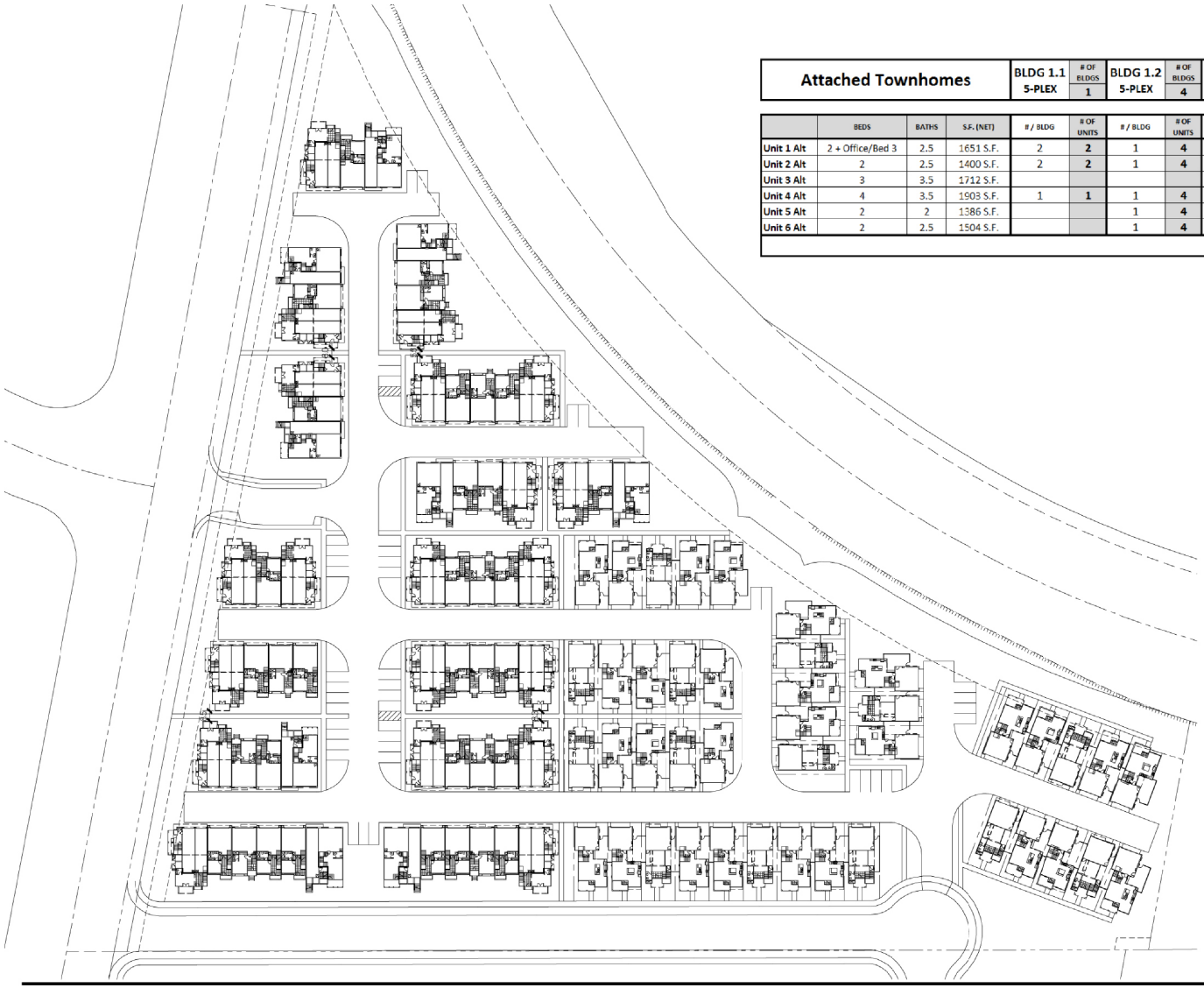
Study Area and Study Intersections

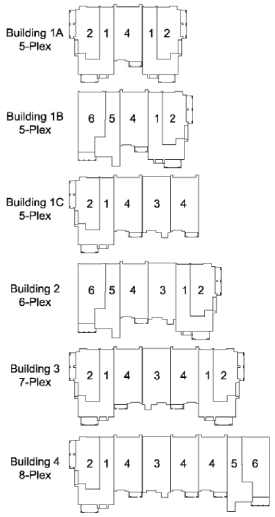
NORTH
Not to Scale

Figure 2
Existing Aerial

Attached Townhomes	BLDG 1.1 5-PLEX	# OF BLDGS 1	BLDG 1.2 5-PLEX	# OF BLDGS 4	BLDG 1.3 5-PLEX	# OF BLDGS 1	BLDG 2 6-PLEX	# OF BLDGS 3	BLDG 3 7-PLEX	# OF BLDGS 4	BLDG 4 8-PLEX	# OF BLDGS 2	TOTAL BLDGS 15

	BEDS	BATHS	S.F. (NET)	# / BLDG	# OF UNITS	# / BLDG	# OF UNITS	# / BLDG	# OF UNITS	# / BLDG	# OF UNITS	# / BLDG	# OF UNITS	# / BLDG	# OF UNITS	TOTAL UNITS
Unit 1 Alt	2 + Office/Bed 3	2.5	1651 S.F.	2	2	1	4	1	1	1	3	2	8	1	2	20
Unit 2 Alt	2	2.5	1400 S.F.	2	2	1	4	1	1	1	3	2	8	1	2	20
Unit 3 Alt	3	3.5	1712 S.F.					1	1	1	3	1	4	1	2	10
Unit 4 Alt	4	3.5	1903 S.F.	1	1	1	4	2	2	1	3	2	8	3	6	24
Unit 5 Alt	2	2	1386 S.F.			1	4			1	3			1	2	9
Unit 6 Alt	2	2.5	1504 S.F.			1	4			1	3			1	2	9
															TOTAL ATTACHED UNITS	92





0 40 160
20 80

Architectural Site Plan

June 13, 2011

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Figure 3

Site Plan

NORTH
Not to Scale

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of project generated traffic. The AM peak hour of traffic is generally between 7:00 and 9:00 AM, and the PM peak hour is typically between 4:00 and 6:00 PM. The operations of the study intersections were evaluated for the following conditions:

Condition 1: *Existing Conditions.* All existing peak-hour volumes were obtained from 2008 intersection counts except for the Trade Zone Boulevard/Montague Expressway PM peak hour count which was obtained from the 2010 CMP count. Traffic counts taken in 2008 are a better representation of normal traffic patterns before land uses became underutilized. These counts are shown in the attached appendix.

Condition 2: *Existing Plus Project Conditions.* Project conditions were estimated by adding to existing traffic volumes the additional traffic generated by the project. Project conditions were evaluated relative to existing conditions in order to determine potential improvements needed for the project.

The study intersections were evaluated for each scenario using level of service (LOS). Level of service is a qualitative measure of traffic operations, ranging from LOS A (free-flow conditions) to LOS F (congested conditions). The levels of service at the study intersections were evaluated using TRAFFIX software. This method uses the *2000 Highway Capacity Manual* methodology to estimate the average delay per vehicle in seconds. This average delay can then be correlated to a level of service as shown in Table 1.

Existing Intersection Analysis

Traffic operations at the study intersections were evaluated using TRAFFIX software to determine level of service for the AM and PM peak hours. Based on the analysis, the intersection of Trade Zone Boulevard/Montague Expressway operates poorly at LOS E during the AM peak hour and LOS F during the PM peak hour. It should be noted that in the future, Montague Expressway may be widened from three lanes to four lanes in each direction at this intersection. This would improve the level of service at the intersection. The level of service during the AM peak hour at the other two study intersections operate at LOS D or better. The TRAFFIX calculation sheets are included in the attached appendix.

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field. The field observations revealed that the level of service analysis accurately reflects actual existing traffic conditions. It is apparent that the high volume on Montague Expressway during the peak hours causes congestion and poor peak hour level of service at the Trade Zone Boulevard/Montague Expressway intersection. This also causes a back-up on Trade Zone Boulevard and long queues that affect the operation of the Trade Zone Boulevard/Ringwood Avenue intersection. The queues, which will occasionally stretch back to Lundy Avenue, often block vehicles on Ringwood Avenue from making left turns onto Trade Zone Boulevard at the intersection. Although the queue may stretch back to Lundy Avenue, the queue length dissipates during the Trade Zone Boulevard green phase at Montague Expressway and it does not appear to affect the operation of the Trade Zone Boulevard/Lundy Avenue intersection.

Table 1
Signalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lenghts, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.

Trip Generation and Project Assignment

Trip generation estimates were calculated for the weekday AM and PM peak hours of traffic. The trip rates used for this study were obtained from the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation*, Eighth Edition. The trip generation rates used for the proposed residential development are based on the rates published for “Residential Condominium/Townhouse” (ITE Code 230) and “Single-Family Detached Housing” (ITE Code 210). Based on these rates, the proposed project would generate 87 trips during the AM peak hour and 104 trips during the PM peak hour (see Table 2).

For the purpose of this analysis, the traffic that would be generated by the existing office building was ignored since the building was vacant at the time of the intersection counts. However, for comparison purposes, the trips that would be generated if the existing vacant office buildings were re-occupied are also shown in the trip generation table. If fully occupied, the existing office buildings would generate 323 trips in the AM peak hour (236 more trips than the proposed project) and 405 trips in the PM peak hour (301 more trips than the proposed project).

Table 2
Trip Generation Estimates

Land Use	Size	AM Peak Hour Peak-Hour Rate[1]	AM In	AM Out	AM Total Trips	PM Peak Hour Peak-Hour Rate[1]	PM In	PM Out	PM Total Trips
Existing Use (Fully Occupied)									
Building 1 (Office)[2]	43 k.s.f.	2.22	84	11	95	2.96	22	105	127
Building 2 (Office)[2]	56 k.s.f.	2.10	104	14	118	2.52	24	118	142
Building 3 (Office)[2]	51 k.s.f.	2.14	97	13	110	2.65	23	113	136
Total Trips for Vacant Office Buildings if Re-occupied			**285**	**38**	**323**		**69**	**336**	**405**
Proposed Project									
Residential Condominium/Townhouse[3]	92 d.u.	0.52	8	40	48	0.61	38	18	56
Single-family Detached Housing[4]	42 d.u.	0.93	10	29	39	1.15	30	18	48
Total Project Trips[5]			**18**	**69**	**87**		**68**	**36**	**104**

1. All rates based on "Fitted Curve Equation." Rates expressed in trips per 1,000 s.f. or dwelling unit.
2. "General Office Building" (710) rate from ITE Trip Generation, 8th edition.
3. "Residential Condominium/Townhouse" (230) rate from ITE Trip Generation, 8th edition.
4. "Single-Family Detached Housing" (210) rate from ITE Trip Generation, 8th edition.
5. Since existing office buildings were vacant when counts were taken, no credit for existing use was applied to project trips.

The traffic generated by the proposed project was assigned to nearby roadways based on traffic distribution patterns from recently completed traffic studies for residential projects in the area. Figure 4 shows the proposed project's trip distribution and assignment.

Existing Plus Project Intersection Analysis

Existing plus project conditions are defined as existing traffic volumes plus the addition of project traffic (see Figure 5). The results of the level of service analysis show that there will be a slight increase in average delay compared with existing conditions (see Table 3). However, most of the intersection levels of service would be similar to existing conditions. Thus, it can be stated that the study intersections would not have a noticeable decline in operation under existing plus project conditions. The level of service calculation sheets are included in the appendix.

Although the decline in operation at the study intersections would be minimal for the existing plus project conditions, it would be beneficial to make adjustments to the operation of the traffic signals after project buildout. Adjustments to the signal operation should include modifications to signal timing and intersection coordination.

These adjustments would be necessary because:

- The poor existing level of service at the Trade Zone Boulevard/Montague Expressway intersection makes the performance of the intersection sensitive to the addition of any amount of traffic
- The re-use of the existing driveway at the Trade Zone Boulevard/Ringwood Avenue intersection, which currently operates at virtually zero volume, would

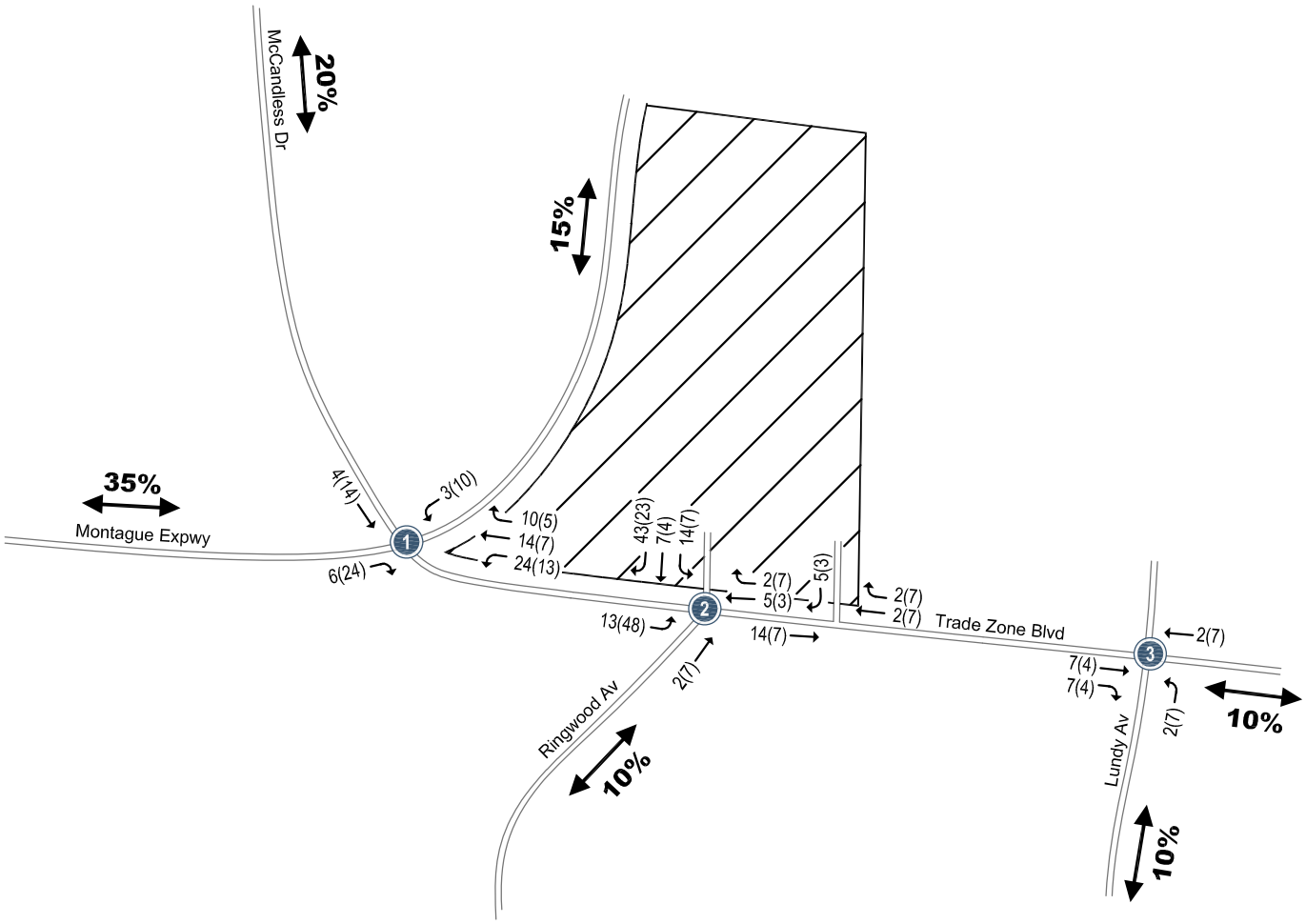
effectively change the operation of the intersection from a three-legged to a four-legged intersection

- The close proximity of the Trade Zone Boulevard/Montague Expressway and the Trade Zone Boulevard/Ringwood Avenue intersections (less than 600 ft) can cause the poor performance of one intersection to adversely affect the performance of the other

For example in the westbound direction, when vehicles on the Trade Zone Boulevard approach at the Trade Zone Boulevard/Montague Expressway intersection have a green phase, the westbound through movements on Trade Zone Boulevard at the Trade Zone Boulevard/Ringwood Avenue intersection should also have a green phase to allow the queues on Trade Zone Boulevard to dissipate. In addition, at the conclusion of the Trade Zone Boulevard green phase at the Trade Zone Boulevard/Montague Expressway intersection, the westbound through movements on Trade Zone Boulevard at the Trade Zone Boulevard/Ringwood Avenue intersection should be given a red phase to keep the queues on Trade Zone from blocking the intersection at Ringwood Avenue. This will also provide queue space on Trade Zone Boulevard at Montague Expressway for left-turn vehicles from Ringwood Avenue and right-turn vehicles from the main project driveway.

In the eastbound direction, consideration of the signal timing and phasing at the Trade Zone Boulevard/Ringwood Avenue intersection should be made so that vehicles do not queue back on Trade Zone Boulevard to Montague Expressway.

As a joint effort between Santa Clara County, the City of Milpitas, and the City of San Jose, there are long-range improvements that are planned for the Trade Zone Boulevard/Montague Expressway intersection. These improvements include additional through lanes and left-turn lanes on Montague Expressway. The proposed project has dedicated right-of-way for Montague Expressway to increase the number of lanes. In addition, three northbound left-turn lanes from Trade Zone Boulevard to Montague Expressway are proposed. Currently, the City of Milpitas and the City of San Jose are collecting traffic fees to pay for these improvements. However, there has been no construction date set at this time.



LEGEND

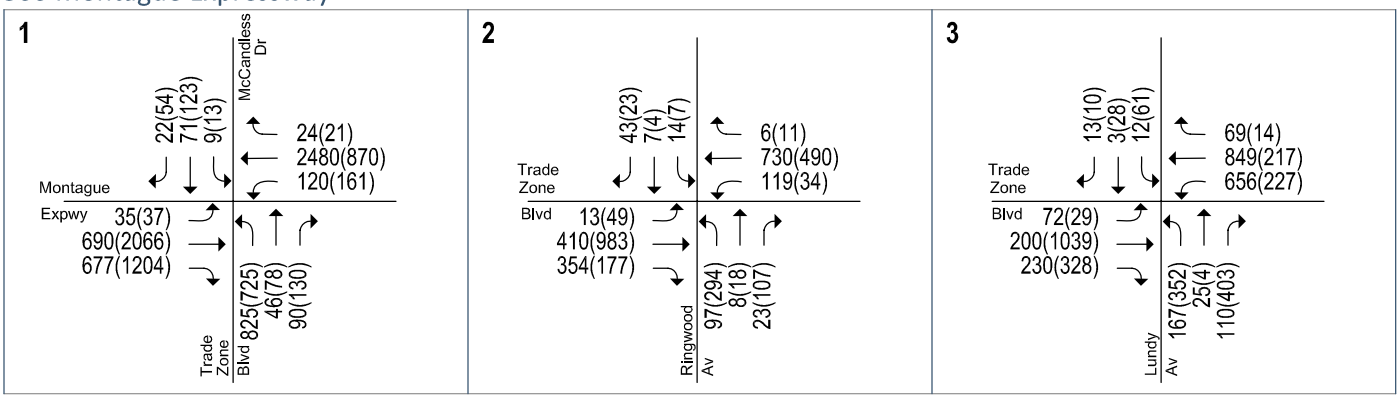
1 = Study Intersection

= Site Location

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 4
Project Trip Distribution and Assignment

NORTH
Not to Scale



LEGEND

1 = Study Intersection

= Site Location

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 5

Existing Plus Project Traffic Volumes

NORTH
Not to Scale

Table 3
Study Intersection Level of Service

	Peak Hour	Count Date	Existing Avg. Delay	Existing LOS	Existing + Project Avg. Delay	Existing + Project LOS
Lundy Avenue and Trade Zone Boulevard	AM	5/6/08	30	C	30	C
	PM	5/6/08	41	D	41	D
Ringwood Avenue and Trade Zone Boulevard	AM	5/20/08	10	B	16	B
	PM	5/20/08	16	B	20	C
McCandless Dr./Trade Zone Blvd. and Montague Expwy.*	AM	10/7/08	57	E	63	E
	PM	9/28/10	81	F	90	F

* Denotes CMP Intersection

Vehicle Queuing

A left-turn queuing analysis was performed for all left turn movements at the project intersections that would have traffic added due to the proposed project. Adequate left-turn storage should be provided at the study intersections to allow turning vehicles to not block through lanes. Vehicle queues were estimated using a Poisson probability distribution. The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement.

The results of the analysis show that for the Trade Zone Boulevard/Montague Expressway intersection the northbound through/left turn lanes have inadequate storage during the AM and PM peak hours under existing and project conditions (see Table 4). In addition, the westbound left-turn lane has inadequate storage during the PM peak hour under existing and project conditions. Field observations confirmed the results of the queuing analysis.

The long queues exist mainly because of two reasons: the long green time for Montague Expressway due to heavy volume on the expressway, and the close proximity to the Ringwood Avenue/Trade Zone Boulevard intersection. Although shortening the cycle length at the Trade Zone Boulevard/Montague Expressway intersection would shorten the northbound though/left-turn queue, it may create major problems for through traffic on Montague Expressway, until the expressway is widened. It is recommended that the pavement legend “KEEP CLEAR” be added in the westbound direction within the Ringwood Avenue/Trade Zone Boulevard intersection to allow room for vehicles on the sidestreets to maneuver through the intersection. In addition, as mentioned in the intersection level of service analysis, the traffic signals at the Trade Zone Boulevard/Montague Expressway and Trade Zone Boulevard/Ringwood Avenue intersections can be coordinated so that traffic will queue at Ringwood Avenue and not Montague Expressway which will prevent vehicles from blocking the Trade Zone Boulevard/Ringwood Avenue intersection.

Table 4
Queuing Analysis

Measurement	McCandless / Montague NBT/L AM	McCandless / Montague NBT/L PM	McCandless / Montague WBL AM	McCandless / Montague WBL PM	Ringwood / Trade Zone SBR/T/L AM	Ringwood / Trade Zone SBR/T/L PM	Ringwood / Trade Zone EBL AM	Ringwood / Trade Zone EBL PM	Lundy / Trade Zone NBT/L AM	Lundy / Trade Zone NBT/L PM
Existing										
Cycle/Delay[1] (sec)	180	190	180	190	95	95	95	95	128	128
Volume (vphpl)	417	392	117	151	0	0	0	1	95	175
Avg. Queue (veh/ln.)	20.9	20.7	5.9	8.0	0.0	0.0	0.0	0.0	3.4	6.2
Avg. Queue[2] (ft./ln)	521	517	146	199	0	0	0	1	84	156
95th %. Queue (veh/ln.)	29	28	10	13	0	0	0	0	7	11
95th %. Queue (ft./ln)	725	700	250	325	0	0	0	0	175	275
Storage (ft./ ln.)	515 [3]	515 [3]	280	280	100 [4]	100 [4]	90	90	600 [3]	600 [3]
Adequate (Y/N)	**N**	**N**	Y	**N**	Y	Y	Y	Y	Y	Y
Existing + Project										
Cycle/Delay[1] (sec)	180	190	180	190	95	95	95	95	128	128
Volume (vphpl)	436	402	120	161	64	34	13	49	96	178
Avg. Queue (veh/ln.)	21.8	21.2	6.0	8.5	1.7	0.9	0.3	1.3	3.4	6.3
Avg. Queue[2] (ft./ln)	545	530	150	212	42	22	9	32	85	158
95th %. Queue (veh/ln.)	30	29	10	14	4	3	1	3	7	11
95th %. Queue (ft./ln)	750	725	250	350	100	75	25	75	175	275
Storage (ft./ ln.)	515 [3]	515 [3]	280	280	100 [4]	100 [4]	90	90	600 [3]	600 [3]
Adequate (Y/N)	**N**	**N**	Y	**N**	Y	Y	Y	Y	Y	Y

Notes:
[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 Feet Per Vehicle Queued.
[3] This is a shared thru-left lane, so volume and storage capacity are calculated for both of these movements.
[4] This is a shared right-thru-left lane, so volume and storage capacity are calculated for all movements.

The long-range plan to add a third left-turn lane from Trade Zone Boulevard to Montague Expressway will reduce the queue length by providing an additional lane of storage. Also, the long-range plan to widen Montague Expressway to four lanes in each direction will improve the intersection levels of service, which will reduce queue lengths.

According to the queue analysis, the westbound left-turn lane would need 70 feet of additional storage to accommodate the largest peak-hour queue under the Project Conditions scenario. There is plenty of room in the median to extend the left-turn pocket 70+ feet to accommodate the calculated queue length. Observations of existing conditions confirmed that the existing left-turn storage is inadequate as the storage consistently filled up every cycle leaving a couple of cars out of the left-turn storage area. If no extensions are made to the left-turn pocket, the queues under Project Conditions would operate similarly to Existing Conditions since only one more queued vehicle is expected. Therefore, there should not be any breakdown in intersection operation due to queue lengths with the current storage capacity. Since extending the turn pocket would not significantly improve traffic conditions, it is recommended that the turn pocket not be increased.

Site Access and Circulation

This section describes the site access and circulation of the proposed project. This review is based on a project site plan dated June 13, 2011 prepared by KTGY (see Figure 3).

Site Access

Site access was evaluated to determine the adequacy of the project driveway with regard to the following: corner sight distance, traffic volume, average delays, vehicle queuing, and truck access. Under Project Conditions, access to the site will be provided by a full access driveway at the intersection of Trade Zone Boulevard and Ringwood Avenue and a right-in/right-out only driveway on Trade Zone Boulevard approximately 360 feet east of the full access driveway.

Corner Sight Distance

Based on the site plan and field observations, adequate sight distance is provided at the full access project driveway to ensure that exiting vehicles can see vehicles on Trade Zone Boulevard. In addition, the traffic signal operation at the driveway allows drivers to make through and left-turn movements into and out of the site without much concern for sight distance. Although drivers' sight distance should be adequate at the full access driveway, consideration of the locations of new landscaping improvements such as large trees, grass hills, or signage should be taken into consideration to ensure the sight distance remains adequate after all project improvements are made.

There are a few issues with the sight distance at the right-in/right-out only driveway on Trade Zone Boulevard due to the frontage offset with the adjacent property which juts out approximately 20' into Trade Zone Boulevard. This could cause a problem for drivers entering the site because they must make a blind right turn without knowing if a pedestrian, vehicle, or other obstruction could be blocking their path into the site. In addition, drivers heading westbound on Trade Zone Boulevard will not see the driveway which could cause conflicts with other drivers entering or exiting the site. Also, the sight distance of drivers exiting the site to make a right turn on Trade Zone Boulevard is partially blocked by large trees and signage on the frontage of the adjacent property. Making turns into and out of this driveway will require that drivers use extra caution.

Traffic Volume

Under project conditions, the full access project driveway would have 17 inbound trips and 64 outbound trips during the AM peak hour and 62 inbound trips and 34 outbound trips during the PM peak hour (see Figure 4). Since the right-in/right-out only driveway on Trade Zone Boulevard will have limited turn access and is located on the edge of the project site, it is expected that there will be fewer vehicles using this driveway. It is estimated that the right-in/right-out driveway would have 2 inbound trips and 5 outbound trips during the AM peak hour and 7 inbound trips and 3 outbound trips during the PM peak hour.

Driveway Operation

At the right-in/right-out only driveway on Trade Zone Boulevard, delays would be reasonably short since only right turns are allowed. However, as discussed in the vehicle queuing section, AM and PM peak hour westbound queues on Trade Zone Boulevard often stretch from Montague Expressway past the project site driveways to Lundy Avenue. During this time, it would be difficult for outbound vehicles to merge with traffic on Trade Zone Boulevard.

It should be noted that the only barrier preventing left turns in and out of the right-in/right-out driveway are two double yellow lines, which drivers are not legally able to cross. However, drivers may choose to make left turns out of the site to avoid heavy congestion on Trade Zone Boulevard and Montague Expressway. There are four possible options to address the operation of this driveway, each with its own pros and cons:

Leave As-Is – Leaving the driveway operation control and striping as-is would require no additional treatment. However, it should be expected that some drivers would make illegal left turns in and out of this driveway.

Install a Left Turn Obstacle – Installing a left turn obstacle such as “chatter” bars or delineators would reduce the number of illegal left turns, although they would not be completely eliminated. The area is too small to install a raised median, which would almost completely eliminate left turns.

Allow Left Turns as a Legal Movement – Allowing left turns can be accomplished by removing a portion of the double yellow line adjacent to eastbound traffic leaving one double yellow line, which legally can be crossed. By allowing left turns in and out of the site, the driveway would operate similar to other driveways on Trade Zone Boulevard. However, the limited sight distance at this driveway may make this option inappropriate.

Close Right-in/Right-out Driveway – By completely closing this driveway, the problems with sight distance and illegal left turns would be eliminated. However, this would force all vehicles to use one driveway, slightly increasing delays and queues at the full access intersection. It would also eliminate the driveway redundancy that could be needed in emergency situations. As an option, the project could include this driveway as an emergency access but leave it closed for residents until the frontage on the adjacent parcel matches the other parcels. This would improve the sight distance at the driveway, and a determination could be made at that time for the left turn operation.

Hexagon recommends that the right-in/right-out driveway and access road be constructed for emergency vehicles and on-street parking but the driveway should be closed to residents until improvements are made at the adjacent parcel. The driveway can be closed near Trade Zone Boulevard with delineators or a gate. The entrance to the access road at the north end of the site should be left open. This would allow residents or visitors to use the on-street parking on the access road.

The full access driveway located at the intersection of Ringwood Avenue/Trade Zone Boulevard would operate at level of service C or better, even carrying all project traffic.

Driveway Queuing

Based on the site plan, there would be at least 100 feet of driveway queue space available at the main access driveway. The longest queue calculated for this driveway is 100 feet, which can be accommodated by the proposed queue storage.

It is unlikely that there would be a problem with queuing at the right-in/right-out driveway on Trade Zone Boulevard since only right turns would be allowed. Also, very few vehicles would use this driveway; the driveway has a long queue storage space (600+ feet), and cars queuing on the access road would not block any garages or parking spaces.

Truck Access

An analysis was conducted to determine the adequacy of driveway access for the truck category SU 30, which includes small buses, fire trucks, garbage trucks, and other single unit trucks. According to this analysis, trucks would be able to negotiate the driveways. Therefore, the proposed design is adequate to handle the anticipated level of truck traffic.

On-Site Circulation

The onsite circulation was reviewed in accordance with generally accepted traffic engineering standards. Generally, the proposed plan provides adequate connectivity throughout the site for each parking garage and parking areas for vehicles. The project would provide 90-degree guest parking throughout the site with on-street parking available on the access road leading to the right-in/right out driveway. The drive aisles proposed are 22 to 24 feet in width.

Pedestrian, Bike, and Transit

Currently, pedestrian facilities at and adjacent to the proposed project site at 300 Montague Expressway are lacking or disjointed. Sidewalks are not consistently present on Trade Zone Boulevard, Ringwood Avenue, or Lundy Avenue and are completely absent on Montague Expressway near the project site. In addition, crosswalks are missing on the west leg of the Ringwood Avenue/Trade Zone Boulevard intersection, as well as the south, east, and west legs of the Trade Zone Boulevard/Montague Expressway intersection. Therefore, it is difficult and potentially unsafe for pedestrians to cross Montague Expressway at McCandless Drive/Trade Zone Boulevard. According to the site plan, sidewalks will be installed along the project frontage. In addition, it appears that sidewalks have been installed as part of improvements on other parcels in the area which could eventually provide a continuous sidewalk in the area. It is recommended that crosswalks be added to all legs at the Ringwood Avenue/Trade Zone Boulevard and Trade Zone Boulevard/Montague Expressway intersections. Note that this will require some traffic signal modifications to include pedestrian phases.

Bicycle facilities in the area consist of Class II bike lanes on McCandless Drive north of Montague Expressway and on Lundy Avenue. In addition, Montague Expressway can be used by bicyclists and has striped shoulders in some areas that bicyclists can use. There are currently no bicycle facilities on Trade Zone Boulevard or Ringwood Avenue although they could be added later if frontage and roadway improvements are made at nearby parcels in the area.

Currently, there are two transit stops adjacent to the project site, one on Trade Zone Boulevard and the other on Montague Expressway. There are also two other transit stops nearby in the opposite direction. Together they serve VTA Bus Route 77 (Eastridge to Great

Mall), VTA Limited Stop Bus Route 321 (Great Mall to Lockheed Martin), and ACE Shuttle (East Milpitas to Great America ACE Station). The two transit stops adjacent to the site are located in landscaped areas not accessible by sidewalks and lacking pedestrian amenities such as a bench or shelter. It is recommended that the project include sidewalks leading to each transit stop and, if possible, benches for pedestrians. If the current transit locations on the project frontage cannot be accessible by sidewalks, they should be moved to another location on-site that can accommodate sidewalk accessibility.

Conclusion

Based on the analysis of the proposed project at 300 Montague Expressway, the following are transportation related issues and recommendations:

Trade Zone Boulevard/Montague Expressway operates at poor level of service under Existing and Existing plus Project Conditions.

Recommendation:

It is recommended that adjustments be made to the operation of the traffic signals after project buildout. Adjustments to the signal operation should include modifications to signal timing and intersection coordination. These adjustments, such as coordinating green phases on Trade Zone Boulevard at the Trade Zone Boulevard/Montague Expressway and Trade Zone Boulevard/Ringwood Avenue intersections, will allow traffic to flow as efficiently as possible through these intersections.

The northbound through/left turn lanes at the Trade Zone Boulevard/Montague Expressway intersection have inadequate storage during both peak hours under Existing and Existing plus Project Conditions.

Recommendation:

Since there are no viable options to reduce queuing until the expressway is widened, it is recommended that the pavement legend “KEEP CLEAR” be added in the westbound direction within the Ringwood Avenue/Trade Zone Boulevard intersection to allow room for vehicles on the sidestreets to maneuver through the intersection.

There is limited sight distance at the right-in/right-out driveway on Trade Zone Boulevard due to the frontage offset with the adjacent parcel. Left turns out of the driveway are prohibited by two double yellow lines painted on Trade Zone Boulevard, which may be ineffective when the project is completed.

Recommendation:

It is recommended that the right-in/right-out driveway be constructed for emergency vehicle access only and closed to residents until improvements are made at the adjacent parcel. When the frontage matches the adjacent parcel, the sight distance will be improved. A determination could be made at that time to allow residents to use the driveway and for the operation of left turns into and out of the driveway. The on-street parking on the access road should remain open for residents and visitors via the entrance to the access road on the north end of the site.

Crosswalks are missing on the west leg of the Ringwood Avenue/Trade Zone Boulevard intersection, as well as the south, east, and west legs of the Trade Zone Boulevard/Montague Expressway intersection.

Recommendation:

It is recommended that crosswalks be added to all legs without crosswalks. This will require some traffic signal modifications to include pedestrian phases.

The two transit stops adjacent to the site are located in landscaped areas not accessible by sidewalks and lacking pedestrian amenities such as a bench or shelter.

Recommendation:

It is recommended that the project include sidewalks leading to each transit stop and, if possible, benches for pedestrians.

Appendix:

- **Traffic Counts**
- **Level of Service Calculation Sheets**

Traffic Counts

AM Peak-Hour Volume Count Worksheet

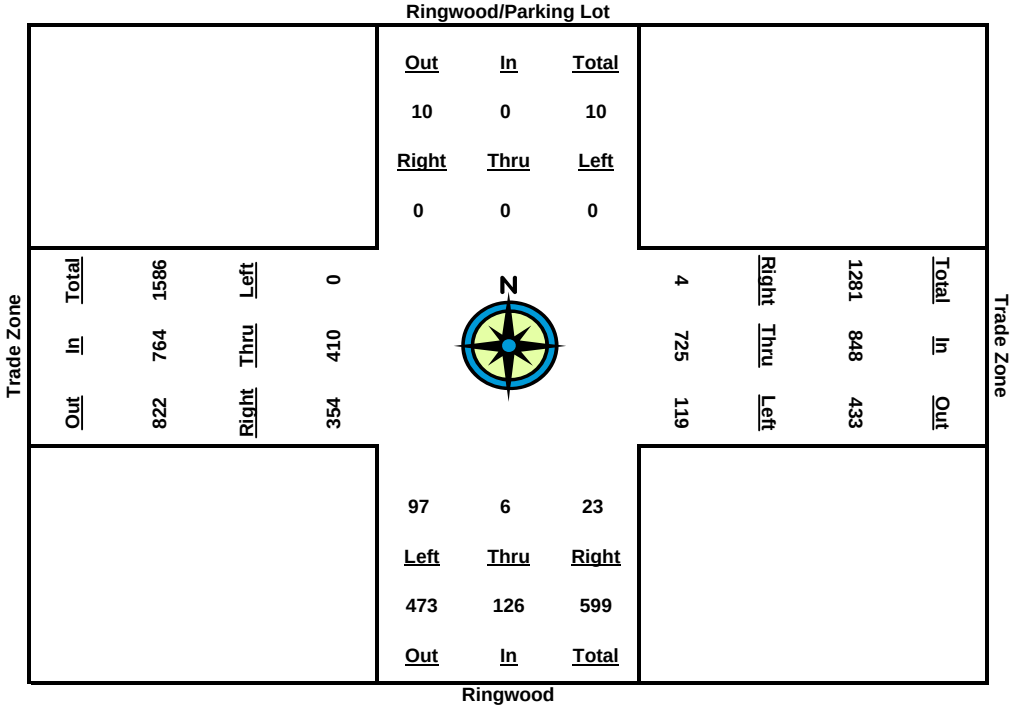
AUTO-CENSUS
Traffic Monitoring and Analysis
870 Castlewood Dr. #1
Los Gatos, CA 95032
Phone 408-826-9673 Fax 408-877-1625

Date: 5/20/08
Counter: Alvan and Claimee
Intersection Name: Trade Zone and Ringwood Milpitas
Weather: Clear

	Ringwood/Parking Lot				Trade Zone				Ringwood				Trade Zone			
	North Approach				East Approach				South Approach				West Approach			
Start Time	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	167	13	180	4	0	14	18	60	72	0	132
7:30	0	0	0	0	0	297	25	322	6	1	26	33	117	136	0	253
7:45	0	0	0	0	2	502	45	549	9	1	44	54	200	233	0	433
8:00	0	0	0	0	4	694	85	783	18	2	80	100	307	359	0	666
8:15	0	0	0	0	4	853	114	971	28	3	98	129	385	460	0	845
8:30	0	0	0	0	4	1,022	144	1,170	29	7	123	159	471	546	0	1,017
8:45	0	0	0	0	5	1,147	152	1,304	40	9	146	195	537	626	0	1,163
9:00	0	0	0	0	6	1,274	162	1,442	46	10	170	226	609	694	0	1,303

Peak Hour	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**	**Right**	**Thru**	**Left**	**Total**	**PK Hour**
7:00 - 8:00	0	0	0	0	4	694	85	783	18	2	80	100	307	359	0	666	1,549
7:15 - 8:15	0	0	0	0	4	686	101	791	24	3	84	111	325	388	0	713	1,615
7:30 - 8:30	0	0	0	0	4	725	119	848	23	6	97	126	354	410	0	764	1,738
7:45 - 8:45	0	0	0	0	3	645	107	755	31	8	102	141	337	393	0	730	1,626
8:00 - 9:00	0	0	0	0	2	580	77	659	28	8	90	126	302	335	0	637	1,422
Peak Volumes:	**0**	**0**	**0**	**0**	**4**	**725**	**119**	**848**	**23**	**6**	**97**	**126**	**354**	**410**	**0**	**764**	**1,738**

Cut and Paste	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**
	97	6	23	0	0	0	0	410	354	119	725	4



PM Peak-Hour Volume Count Worksheet

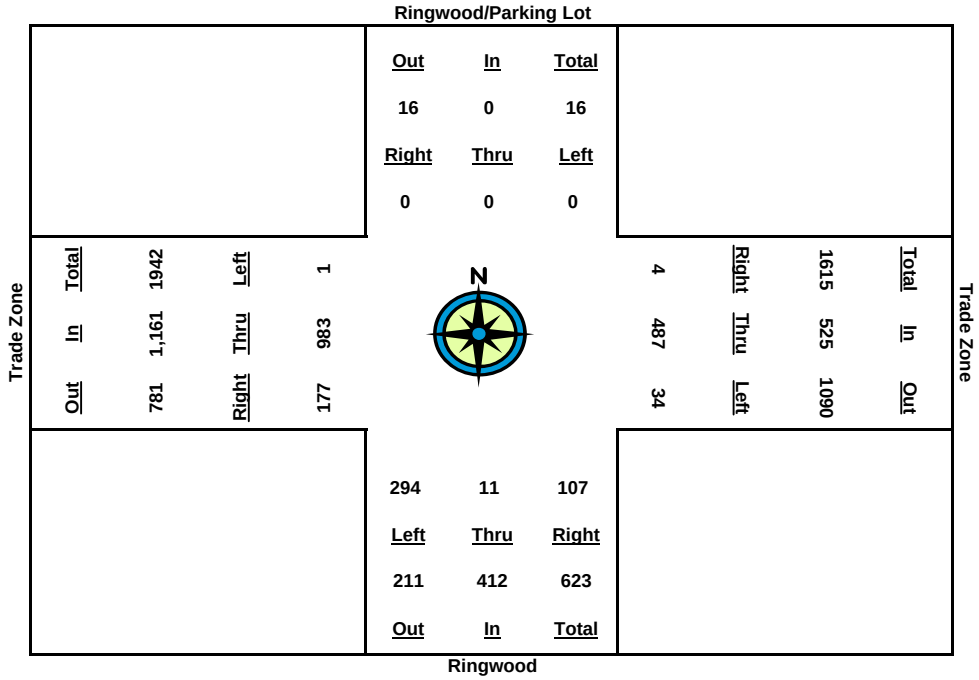
Date: 5/20/08
Counter: Alvan and Claimee
Intersection Name: Trade Zone and Ringwood Milpitas
Weather: Clear

AUTO-CENSUS
Traffic Monitoring and Analysis
870 Castlewood Dr. #1
Los Gatos, CA 95032
Phone 408-826-9673 Fax 408-877-1625

	Ringwood/Parking Lot				Trade Zone				Ringwood				Trade Zone			
	North Approach				East Approach				South Approach				West Approach			
Start Time	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15	0	0	0	0	0	101	7	108	21	0	64	85	55	275	0	330
4:30	0	0	0	0	0	200	17	217	34	0	133	167	133	528	0	661
4:45	0	0	0	0	0	305	22	327	59	3	212	274	155	760	4	919
5:00	0	0	0	0	0	397	26	423	76	4	282	362	200	1,025	4	1,229
5:15	0	0	0	0	3	515	35	553	110	7	372	489	250	1,289	4	1,543
5:30	0	0	0	0	4	654	43	701	127	12	423	562	301	1,553	5	1,859
5:45	0	0	0	0	4	792	56	852	166	14	506	686	332	1,743	5	2,080
6:00	0	0	0	0	4	866	59	929	198	14	567	779	394	1,960	5	2,359

Peak Hour	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	PK Hour
4:00 - 5:00	0	0	0	0	0	397	26	423	76	4	282	362	200	1,025	4	1,229	2,014
4:15 - 5:15	0	0	0	0	3	414	28	445	89	7	308	404	195	1,014	4	1,213	2,062
4:30 - 5:30	0	0	0	0	4	454	26	484	93	12	290	395	168	1,025	5	1,198	2,077
4:45 - 5:45	0	0	0	0	4	487	34	525	107	11	294	412	177	983	1	1,161	2,098
5:00 - 6:00	0	0	0	0	4	469	33	506	122	10	285	417	194	935	1	1,130	2,053
Peak Volumes:	**0**	**0**	**0**	**0**	**4**	**487**	**34**	**525**	**107**	**11**	**294**	**412**	**177**	**983**	**1**	**1,161**	**2,098**

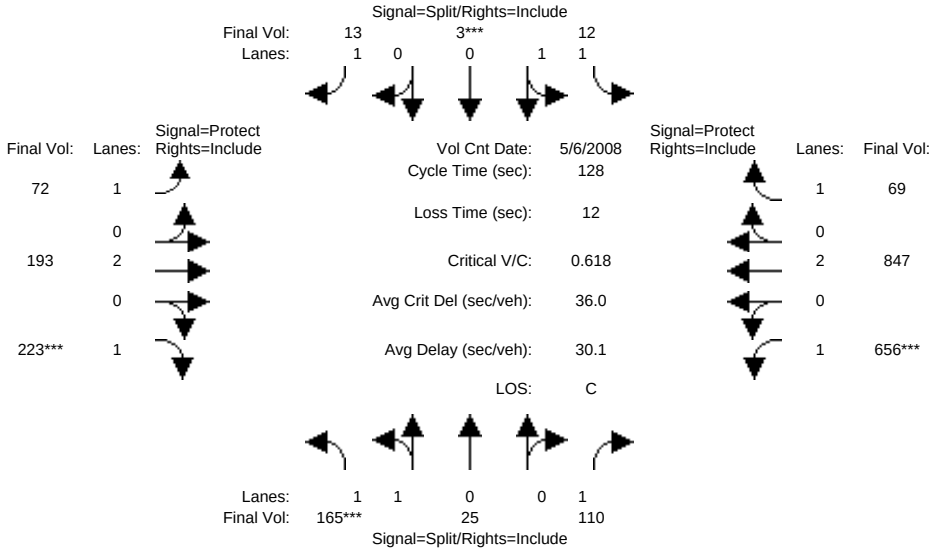
Cut and Paste	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	294	11	107	0	0	0	1	983	177	34	487	4



City of San Jose
Citywide Traffix Database
(updated March 22, 2011)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (AM)

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 6 May 2008 << 7:45-8:45AM												
Base Vol:	165	25	110	12	3	13	72	193	223	656	847	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	165	25	110	12	3	13	72	193	223	656	847	69
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	165	25	110	12	3	13	72	193	223	656	847	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	165	25	110	12	3	13	72	193	223	656	847	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	165	25	110	12	3	13	72	193	223	656	847	69
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	165	25	110	12	3	13	72	193	223	656	847	69
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.74	0.26	1.00	1.61	0.39	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3083	467	1750	2840	710	1750	1750	3800	1750	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.06	0.00	0.00	0.01	0.04	0.05	0.13	0.37	0.22	0.04
Crit Moves:	****				****				****	****		
Green Time:	11.8	11.8	11.8	10.0	10.0	10.0	18.6	23.9	23.9	70.3	75.6	75.6
Volume/Cap:	0.58	0.58	0.68	0.05	0.05	0.10	0.28	0.27	0.68	0.68	0.38	0.07
Delay/Veh:	58.4	58.4	67.7	54.7	54.7	55.1	49.4	44.8	54.3	22.8	13.9	11.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.4	58.4	67.7	54.7	54.7	55.1	49.4	44.8	54.3	22.8	13.9	11.2
LOS by Move:	E+	E+	E	D-	D-	E+	D	D	D-	C+	B	B+
HCM2kAvgQ:	5	5	6	0	0	1	3	3	10	20	9	1

Note: Queue reported is the number of cars per lane.

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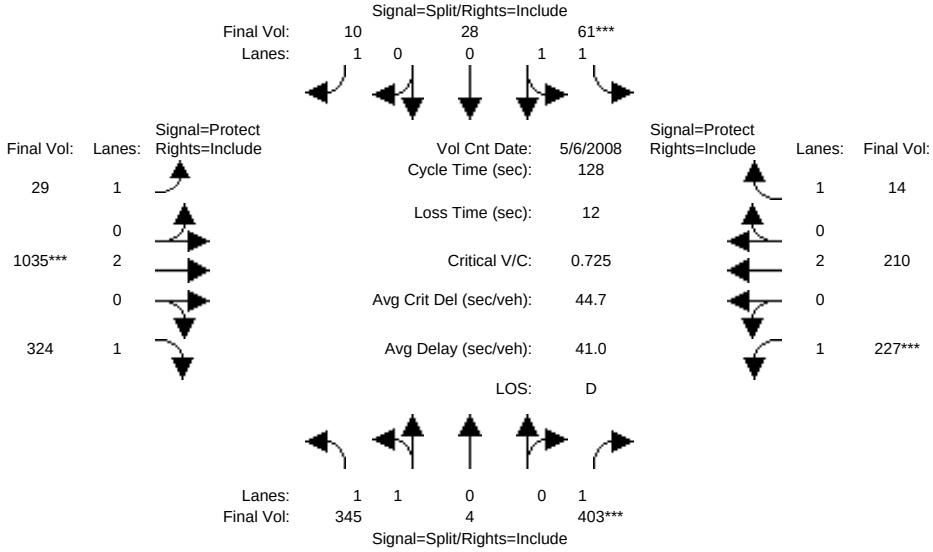
City of San Jose
Citywide Traffix Database
(updated March 22, 2011)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (PM)

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 6 May 2008 << 5:00-6:00PM												
Base Vol:	345	4	403	61	28	10	29	1035	324	227	210	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	345	4	403	61	28	10	29	1035	324	227	210	14
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	345	4	403	61	28	10	29	1035	324	227	210	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	345	4	403	61	28	10	29	1035	324	227	210	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	345	4	403	61	28	10	29	1035	324	227	210	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	345	4	403	61	28	10	29	1035	324	227	210	14
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.98	0.02	1.00	1.38	0.62	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3509	41	1750	2433	1117	1750	1750	3800	1750	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.23	0.03	0.03	0.01	0.02	0.27	0.19	0.13	0.06	0.01
Crit Moves:			****	****				****		****		
Green Time:	38.6	38.6	38.6	10.0	10.0	10.0	27.8	45.7	45.7	21.7	39.6	39.6
Volume/Cap:	0.33	0.33	0.76	0.32	0.32	0.07	0.08	0.76	0.52	0.76	0.18	0.03
Delay/Veh:	34.8	34.8	47.1	56.5	56.5	54.9	40.0	39.0	33.3	61.8	32.4	30.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.8	34.8	47.1	56.5	56.5	54.9	40.0	39.0	33.3	61.8	32.4	30.8
LOS by Move:	C-	C-	D	E+	E+	D-	D	D	C-	E	C-	C
HCM2kAvgQ:	6	6	17	2	2	0	1	19	11	11	3	0

Note: Queue reported is the number of cars per lane.

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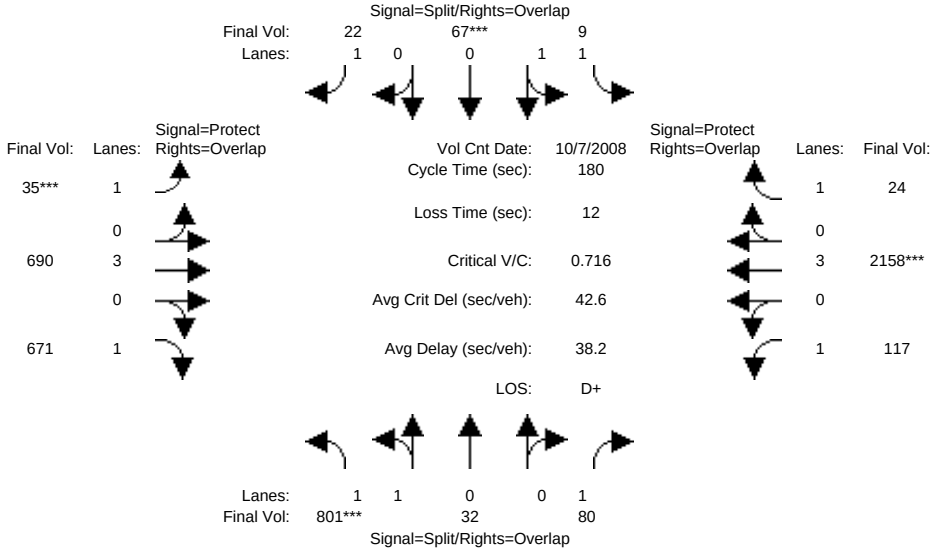
City of San Jose
Citywide Traffix Database
(updated March 22, 2011)

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (AM)

Intersection #5802: MONTAGUE/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 7 Oct 2008 << 7:45-8:45 AM												
Base Vol:	801	32	80	9	67	22	35	690	671	117	2480	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	801	32	80	9	67	22	35	690	671	117	2480	24
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ATI:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	801	32	80	9	67	22	35	690	671	117	2480	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	801	32	80	9	67	22	35	690	671	117	2158	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	801	32	80	9	67	22	35	690	671	117	2158	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	801	32	80	9	67	22	35	690	671	117	2158	24
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.92	0.08	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3414	136	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.23	0.23	0.05	0.01	0.04	0.01	0.02	0.12	0.38	0.07	0.38	0.01
Crit Moves:	****				****		****				****	
Green Time:	57.8	57.8	88.9	10.0	10.0	17.0	7.0	69.1	126.9	31.1	93.2	103.2
Volume/Cap:	0.73	0.73	0.09	0.09	0.63	0.13	0.51	0.32	0.54	0.39	0.73	0.02
Delay/Veh:	56.7	56.7	24.2	80.7	93.9	75.1	91.4	38.9	13.2	66.9	34.6	16.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	56.7	56.7	24.2	80.7	93.9	75.1	91.4	38.9	13.2	66.9	34.6	16.6
LOS by Move:	E+	E+	C	F	F	E-	F	D+	B	E	C-	B
HCM2kAvgQ:	22	22	2	1	5	1	3	9	19	6	30	1

Note: Queue reported is the number of cars per lane.

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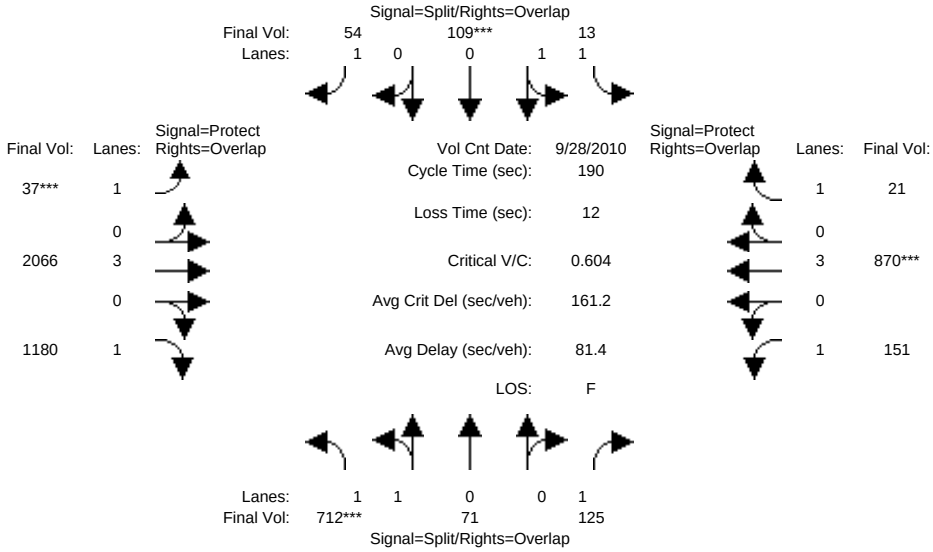
Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing (PM)

Intersection #5802: MONTAGUE EXPWY/TRADE ZONE BLVD



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	10	10	14	10	10	14	107	10	14	113	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

Volume Module: >> Count Date: 28 Sep 2010 << 5:00-6:00PM

Base Vol:	712	71	125	13	109	54	37	2066	1180	151	870	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	712	71	125	13	109	54	37	2066	1180	151	870	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	712	71	125	13	109	54	37	2066	1180	151	870	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	712	71	125	13	109	54	37	2066	1180	151	870	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	712	71	125	13	109	54	37	2066	1180	151	870	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	712	71	125	13	109	54	37	2066	1180	151	870	21

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.73	0.95	0.92	1.38	0.50	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.86	0.14	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	2568	256	1750	2625	950	1750	1750	5700	1750	1750	5700	1750

Capacity Analysis Module:

Vol/Sat:	0.28	0.28	0.07	0.00	0.11	0.03	0.02	0.36	0.67	0.09	0.15	0.01
Crit Moves:	****				****		****				****	
Green Time:	36.1	36.1	52.9	14.9	14.9	28.9	14.0	110	146.2	16.9	113	127.9
Volume/Cap:	1.46	1.46	0.26	0.06	1.46	0.20	0.29	0.63	0.88	0.97	0.26	0.02
Uniform Del:	77.0	77.0	53.2	81.1	87.5	70.4	83.3	26.3	15.5	86.3	18.4	10.3
IncremntDel:	217.3	217	0.3	0.0	261	0.4	1.2	0.4	6.8	63.4	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.36	1.96	1.00	1.00	1.00
Delay/Veh:	294.2	294	53.5	81.1	349	70.8	84.5	36.1	37.2	149.8	18.5	10.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	294.2	294	53.5	81.1	349	70.8	84.5	36.1	37.2	149.8	18.5	10.3
LOS by Move:	F	F	D-	F	F	E	F	D+	D+	F	B-	B+
HCM2kAvgQ:	41	51	7	1	12	3	2	30	63	11	8	0

Note: Queue reported is the number of cars per lane.

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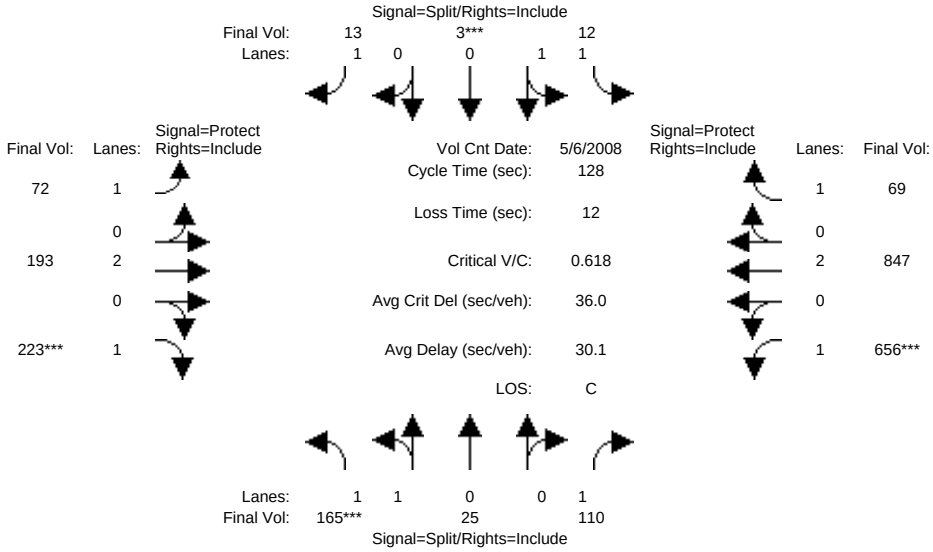
Level of Service Calculation Sheets

300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 6 May 2008 << 7:45-8:45AM												
Base Vol:	165	25	110	12	3	13	72	193	223	656	847	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	165	25	110	12	3	13	72	193	223	656	847	69
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	165	25	110	12	3	13	72	193	223	656	847	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	165	25	110	12	3	13	72	193	223	656	847	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	165	25	110	12	3	13	72	193	223	656	847	69
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	165	25	110	12	3	13	72	193	223	656	847	69
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.74	0.26	1.00	1.61	0.39	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3083	467	1750	2840	710	1750	1750	3800	1750	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.06	0.00	0.00	0.01	0.04	0.05	0.13	0.37	0.22	0.04
Crit Moves:	****				****				****	****		
Green Time:	11.8	11.8	11.8	10.0	10.0	10.0	18.6	23.9	23.9	70.3	75.6	75.6
Volume/Cap:	0.58	0.58	0.68	0.05	0.05	0.10	0.28	0.27	0.68	0.68	0.38	0.07
Delay/Veh:	58.4	58.4	67.7	54.7	54.7	55.1	49.4	44.8	54.3	22.8	13.9	11.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.4	58.4	67.7	54.7	54.7	55.1	49.4	44.8	54.3	22.8	13.9	11.2
LOS by Move:	E	E	E	D	D	E	D	D	D	C	B	B
HCM2k95thQ:	9	9	11	1	1	1	5	6	17	34	16	2

Note: Queue reported is the number of cars per lane.

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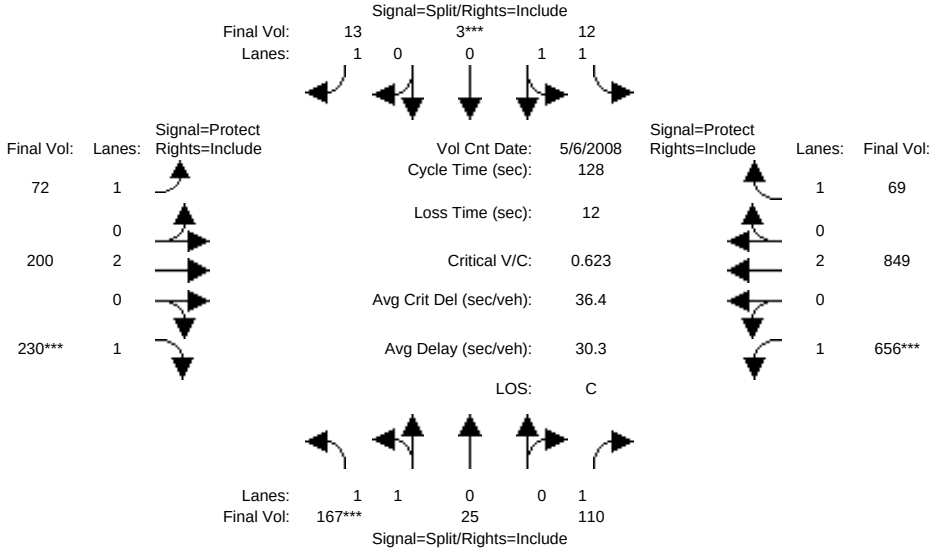
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 6 May 2008 << 7:45-8:45AM												
Base Vol:	165	25	110	12	3	13	72	193	223	656	847	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	165	25	110	12	3	13	72	193	223	656	847	69
Added Vol:	2	0	0	0	0	0	0	7	7	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	167	25	110	12	3	13	72	200	230	656	849	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	167	25	110	12	3	13	72	200	230	656	849	69
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	167	25	110	12	3	13	72	200	230	656	849	69
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	167	25	110	12	3	13	72	200	230	656	849	69
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.74	0.26	1.00	1.61	0.39	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3088	462	1750	2840	710	1750	1750	3800	1750	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.05	0.06	0.00	0.00	0.01	0.04	0.05	0.13	0.37	0.22	0.04
Crit Moves:	****				****				****	****		
Green Time:	11.7	11.7	11.7	10.0	10.0	10.0	18.5	24.5	24.5	69.8	75.8	75.8
Volume/Cap:	0.59	0.59	0.69	0.05	0.05	0.10	0.28	0.28	0.69	0.69	0.38	0.07
Delay/Veh:	58.7	58.7	68.2	54.7	54.7	55.1	49.4	44.4	54.1	23.3	13.8	11.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.7	58.7	68.2	54.7	54.7	55.1	49.4	44.4	54.1	23.3	13.8	11.1
LOS by Move:	E	E	E	D	D	E	D	D	D	C	B	B
HCM2k95thQ:	9	9	11	1	1	1	5	6	17	35	16	2

Note: Queue reported is the number of cars per lane.

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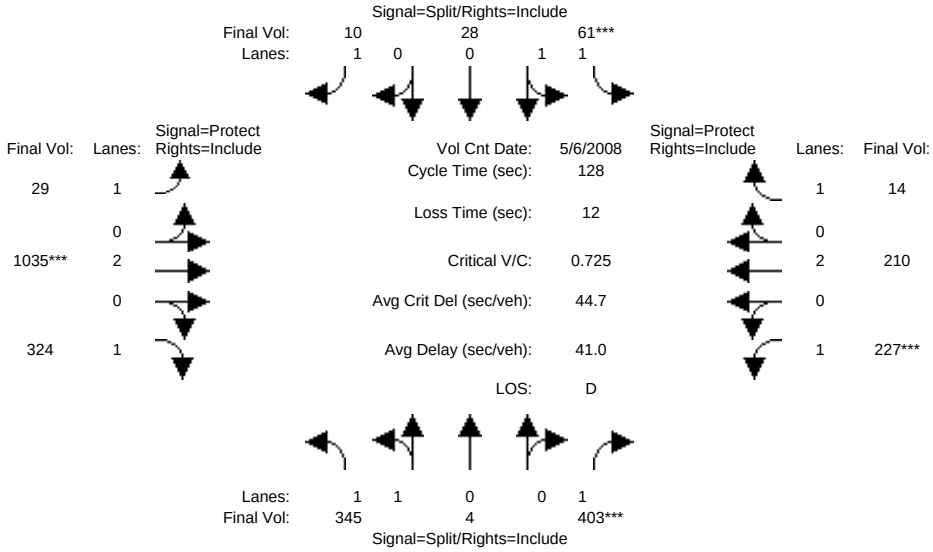
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

Volume Module: >> Count Date: 6 May 2008 << 5:00-6:00PM

Base Vol:	345	4	403	61	28	10	29	1035	324	227	210	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	345	4	403	61	28	10	29	1035	324	227	210	14
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	345	4	403	61	28	10	29	1035	324	227	210	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	345	4	403	61	28	10	29	1035	324	227	210	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	345	4	403	61	28	10	29	1035	324	227	210	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	345	4	403	61	28	10	29	1035	324	227	210	14

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.98	0.02	1.00	1.38	0.62	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3509	41	1750	2433	1117	1750	1750	3800	1750	1750	3800	1750

Capacity Analysis Module:

Vol/Sat:	0.10	0.10	0.23	0.03	0.03	0.01	0.02	0.27	0.19	0.13	0.06	0.01
Crit Moves:			****	****				****		****		
Green Time:	38.6	38.6	38.6	10.0	10.0	10.0	27.8	45.7	45.7	21.7	39.6	39.6
Volume/Cap:	0.33	0.33	0.76	0.32	0.32	0.07	0.08	0.76	0.52	0.76	0.18	0.03
Delay/Veh:	34.8	34.8	47.1	56.5	56.5	54.9	40.0	39.0	33.3	61.8	32.4	30.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.8	34.8	47.1	56.5	56.5	54.9	40.0	39.0	33.3	61.8	32.4	30.8
LOS by Move:	C	C	D	E	E	D	D	D	C	E	C	C
HCM2k95thQ:	11	11	29	4	4	1	2	31	19	20	6	1

Note: Queue reported is the number of cars per lane.

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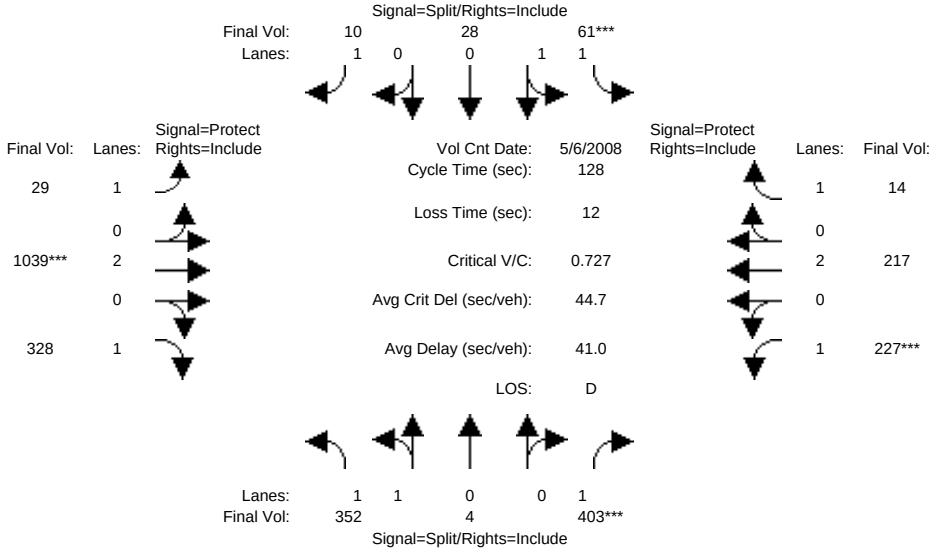
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

Intersection #3663: LUNDY/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 6 May 2008 << 5:00-6:00PM												
Base Vol:	345	4	403	61	28	10	29	1035	324	227	210	14
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	345	4	403	61	28	10	29	1035	324	227	210	14
Added Vol:	7	0	0	0	0	0	0	4	4	0	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	352	4	403	61	28	10	29	1039	328	227	217	14
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	352	4	403	61	28	10	29	1039	328	227	217	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	352	4	403	61	28	10	29	1039	328	227	217	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	352	4	403	61	28	10	29	1039	328	227	217	14
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.98	0.02	1.00	1.38	0.62	1.00	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	3510	40	1750	2433	1117	1750	1750	3800	1750	1750	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.10	0.23	0.03	0.03	0.01	0.02	0.27	0.19	0.13	0.06	0.01
Crit Moves:			****	****				****		****		
Green Time:	38.5	38.5	38.5	10.0	10.0	10.0	27.8	45.8	45.8	21.7	39.7	39.7
Volume/Cap:	0.33	0.33	0.76	0.32	0.32	0.07	0.08	0.76	0.52	0.76	0.18	0.03
Delay/Veh:	34.9	34.9	47.2	56.5	56.5	54.9	40.0	39.0	33.3	62.0	32.4	30.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.9	34.9	47.2	56.5	56.5	54.9	40.0	39.0	33.3	62.0	32.4	30.7
LOS by Move:	C	C	D	E	E	D	D	D	C	E	C	C
HCM2k95thQ:	11	11	29	4	4	1	2	31	19	20	6	1

Note: Queue reported is the number of cars per lane.

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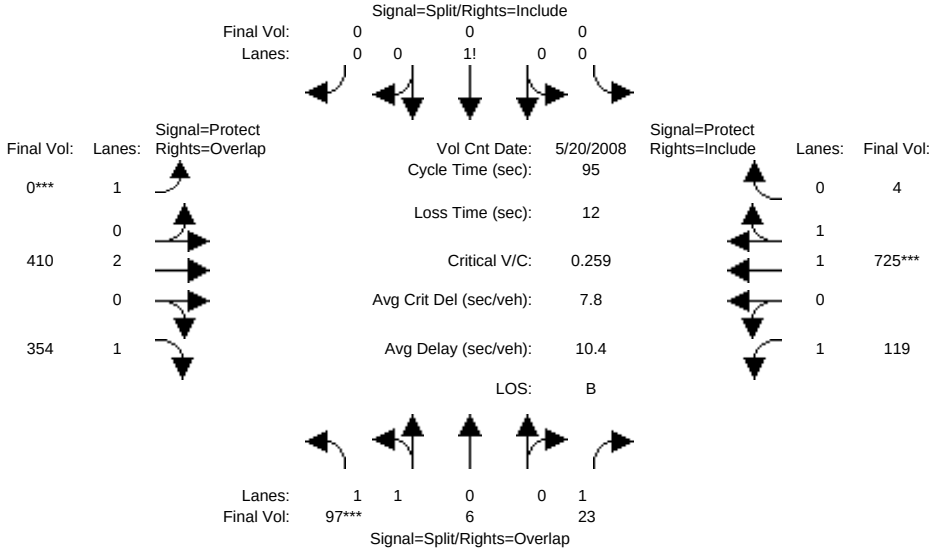
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #3905: RINGWOOD/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 20 May 2008 << 7:30-8:30AM												
Base Vol:	97	6	23	0	0	0	0	410	354	119	725	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	6	23	0	0	0	0	410	354	119	725	4
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	6	23	0	0	0	0	410	354	119	725	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	6	23	0	0	0	0	410	354	119	725	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	6	23	0	0	0	0	410	354	119	725	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	97	6	23	0	0	0	0	410	354	119	725	4
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	1.89	0.11	1.00	0.00	1.00	0.00	1.00	2.00	1.00	1.00	1.99	0.01
Final Sat.:	3343	207	1750	0	1750	0	1750	3800	1750	1750	3680	20
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.11	0.20	0.07	0.20	0.20
Crit Moves:	****						****				****	
Green Time:	10.7	10.7	32.2	0.0	0.0	0.0	0.0	50.8	61.4	21.6	72.3	72.3
Volume/Cap:	0.26	0.26	0.04	0.00	0.00	0.00	0.00	0.20	0.31	0.30	0.26	0.26
Delay/Veh:	38.9	38.9	21.0	0.0	0.0	0.0	0.0	11.6	7.6	30.9	3.4	3.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	38.9	38.9	21.0	0.0	0.0	0.0	0.0	11.6	7.6	30.9	3.4	3.4
LOS by Move:	D	D	C	A	A	A	A	B	A	C	A	A
HCM2k95thQ:	3	3	1	0	0	0	0	6	10	6	6	6

Note: Queue reported is the number of cars per lane.

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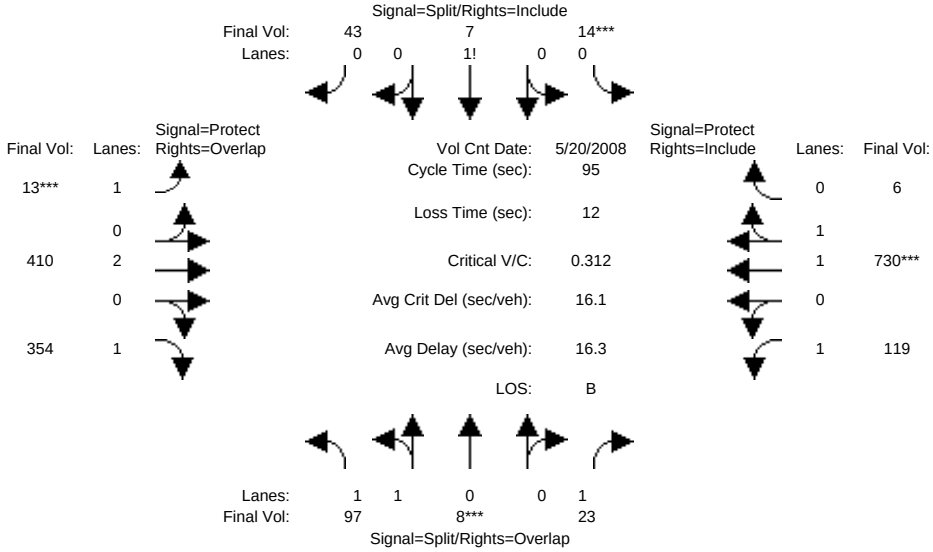
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

Intersection #3905: RINGWOOD/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 20 May 2008 << 7:30-8:30AM												
Base Vol:	97	6	23	0	0	0	0	410	354	119	725	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	6	23	0	0	0	0	410	354	119	725	4
Added Vol:	0	2	0	14	7	43	13	0	0	0	5	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	8	23	14	7	43	13	410	354	119	730	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	8	23	14	7	43	13	410	354	119	730	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	8	23	14	7	43	13	410	354	119	730	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	97	8	23	14	7	43	13	410	354	119	730	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	1.85	0.15	1.00	0.22	0.11	0.67	1.00	2.00	1.00	1.00	1.98	0.02
Final Sat.:	3279	270	1750	383	191	1176	1750	3800	1750	1750	3670	30
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.01	0.04	0.04	0.04	0.01	0.11	0.20	0.07	0.20	0.20
Crit Moves:		****		****			****				****	
Green Time:	10.0	10.0	28.8	10.2	10.2	10.2	7.0	44.0	54.0	18.8	55.8	55.8
Volume/Cap:	0.28	0.28	0.04	0.34	0.34	0.34	0.10	0.23	0.36	0.34	0.34	0.34
Delay/Veh:	39.6	39.6	23.4	40.3	40.3	40.3	41.4	15.4	11.3	33.4	10.2	10.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	39.6	39.6	23.4	40.3	40.3	40.3	41.4	15.4	11.3	33.4	10.2	10.2
LOS by Move:	D	D	C	D	D	D	D	B	B	C	B	B
HCM2k95thQ:	4	4	1	4	4	4	1	7	11	6	11	11

Note: Queue reported is the number of cars per lane.

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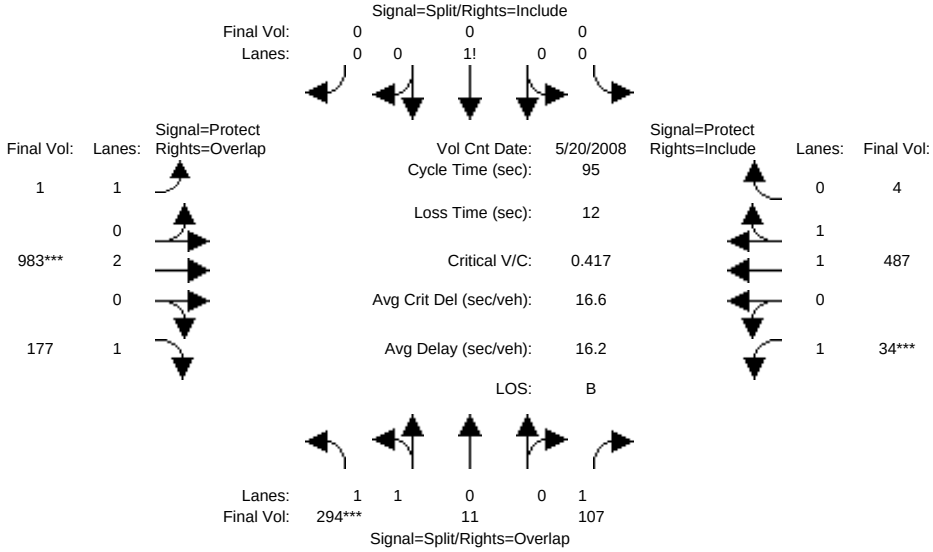
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #3905: RINGWOOD/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 20 May 2008 << 4:45-5:45PM												
Base Vol:	294	11	107	0	0	0	1	983	177	34	487	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	294	11	107	0	0	0	1	983	177	34	487	4
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	294	11	107	0	0	0	1	983	177	34	487	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	294	11	107	0	0	0	1	983	177	34	487	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	294	11	107	0	0	0	1	983	177	34	487	4
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	294	11	107	0	0	0	1	983	177	34	487	4
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	1.93	0.07	1.00	0.00	1.00	0.00	1.00	2.00	1.00	1.00	1.98	0.02
Final Sat.:	3422	128	1750	0	1750	0	1750	3800	1750	1750	3670	30
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.06	0.00	0.00	0.00	0.00	0.26	0.10	0.02	0.13	0.13
Crit Moves:	****							****		****		
Green Time:	18.9	18.9	25.9	0.0	0.0	0.0	22.9	57.1	76.0	7.0	41.2	41.2
Volume/Cap:	0.43	0.43	0.22	0.00	0.00	0.00	0.00	0.43	0.13	0.26	0.31	0.31
Delay/Veh:	33.7	33.7	27.0	0.0	0.0	0.0	27.4	10.4	2.2	42.7	17.7	17.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.7	33.7	27.0	0.0	0.0	0.0	27.4	10.4	2.2	42.7	17.7	17.7
LOS by Move:	C	C	C	A	A	A	C	B	A	D	B	B
HCM2k95thQ:	9	9	5	0	0	0	0	14	3	2	9	9

Note: Queue reported is the number of cars per lane.

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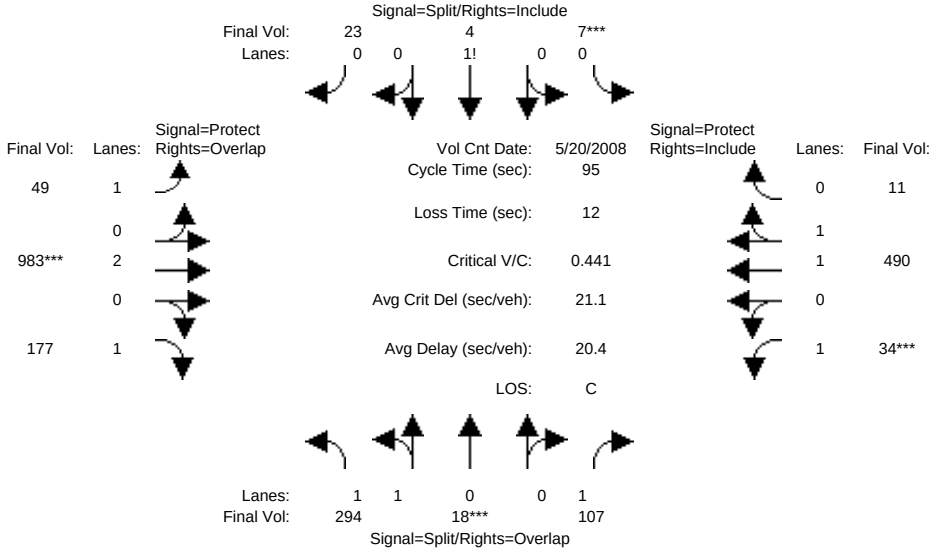
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

Intersection #3905: RINGWOOD/TRADE ZONE



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 20 May 2008 << 4:45-5:45PM												
Base Vol:	294	11	107	0	0	0	1	983	177	34	487	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	294	11	107	0	0	0	1	983	177	34	487	4
Added Vol:	0	7	0	7	4	23	48	0	0	0	3	7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	294	18	107	7	4	23	49	983	177	34	490	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	294	18	107	7	4	23	49	983	177	34	490	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	294	18	107	7	4	23	49	983	177	34	490	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	294	18	107	7	4	23	49	983	177	34	490	11
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.97	0.95
Lanes:	1.89	0.11	1.00	0.20	0.12	0.68	1.00	2.00	1.00	1.00	1.95	0.05
Final Sat.:	3345	205	1750	360	206	1184	1750	3800	1750	1750	3619	81
Capacity Analysis Module:												
Vol/Sat:	0.09	0.09	0.06	0.02	0.02	0.02	0.03	0.26	0.10	0.02	0.14	0.14
Crit Moves:		****		****				****		****		
Green Time:	16.7	16.7	23.7	10.0	10.0	10.0	19.8	49.3	66.0	7.0	36.4	36.4
Volume/Cap:	0.50	0.50	0.24	0.18	0.18	0.18	0.13	0.50	0.15	0.26	0.35	0.35
Delay/Veh:	36.0	36.0	28.8	39.3	39.3	39.3	30.8	15.1	5.0	42.7	21.0	21.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.0	36.0	28.8	39.3	39.3	39.3	30.8	15.1	5.0	42.7	21.0	21.0
LOS by Move:	D	D	C	D	D	D	C	B	A	D	C	C
HCM2k95thQ:	10	10	6	2	2	2	2	17	4	2	10	10

Note: Queue reported is the number of cars per lane.

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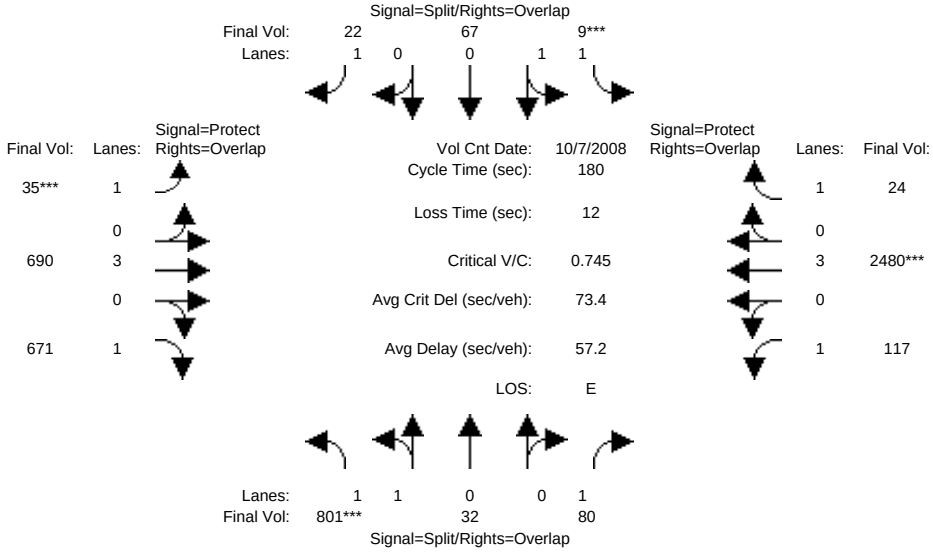
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #5802: MONTAGUE EXPWY/TRADE ZONE BLVD



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	10	10	14	10	10	14	100	10	14	107	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 7 Oct 2008 << 7:00-9:00												
Base Vol:	801	32	80	9	67	22	35	690	671	117	2480	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	801	32	80	9	67	22	35	690	671	117	2480	24
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	801	32	80	9	67	22	35	690	671	117	2480	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	801	32	80	9	67	22	35	690	671	117	2480	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	801	32	80	9	67	22	35	690	671	117	2480	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	801	32	80	9	67	22	35	690	671	117	2480	24
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.92	0.08	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3414	136	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.23	0.23	0.05	0.01	0.04	0.01	0.02	0.12	0.38	0.07	0.44	0.01
Crit Moves:	****			****			****				****	
Green Time:	33.0	33.0	47.9	14.0	14.0	28.0	14.0	106	139.1	14.9	107	121.0
Volume/Cap:	1.28	1.28	0.17	0.07	0.45	0.08	0.26	0.21	0.50	0.81	0.73	0.02
Delay/Veh:	211.0	211	51.0	77.0	81.3	65.1	79.1	17.3	7.8	109.0	27.0	9.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	211.0	211	51.0	77.0	81.3	65.1	79.1	17.3	7.8	109.0	27.0	9.8
LOS by Move:	F	F	D	E	F	E	E	B	A	F	C	A
HCM2k95thQ:	58	58	7	1	8	2	4	11	25	16	52	1

Note: Queue reported is the number of cars per lane.

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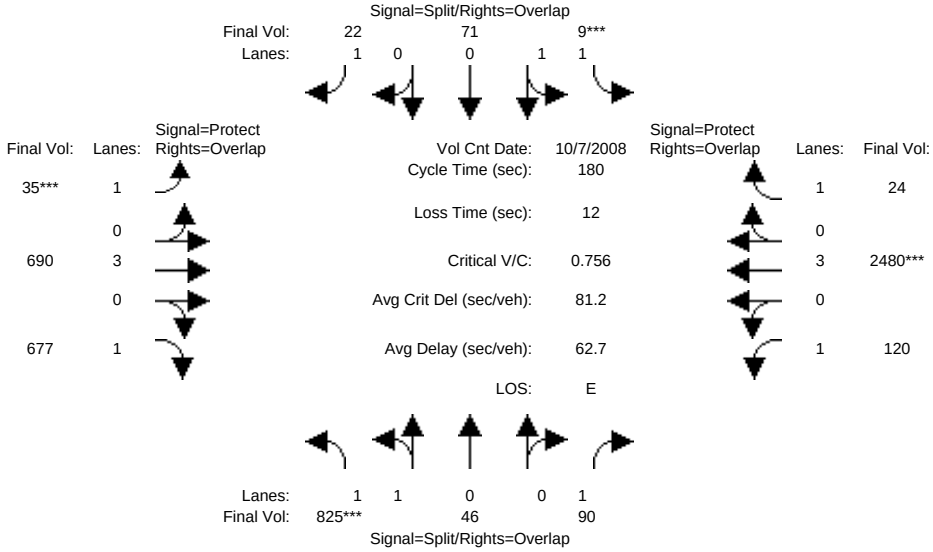
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project AM

Intersection #5802: MONTAGUE EXPWY/TRADE ZONE BLVD



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	10	10	14	10	10	14	100	10	14	107	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 7 Oct 2008 << 7:00-9:00												
Base Vol:	801	32	80	9	67	22	35	690	671	117	2480	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	801	32	80	9	67	22	35	690	671	117	2480	24
Added Vol:	24	14	10	0	4	0	0	0	6	3	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	825	46	90	9	71	22	35	690	677	120	2480	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	825	46	90	9	71	22	35	690	677	120	2480	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	825	46	90	9	71	22	35	690	677	120	2480	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	825	46	90	9	71	22	35	690	677	120	2480	24
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.95	0.92	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.90	0.10	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	3362	187	1750	1750	1900	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.25	0.25	0.05	0.01	0.04	0.01	0.02	0.12	0.39	0.07	0.44	0.01
Crit Moves:	****			****			****				****	
Green Time:	33.0	33.0	47.9	14.0	14.0	28.0	14.0	106	139.1	14.9	107	121.0
Volume/Cap:	1.34	1.34	0.19	0.07	0.48	0.08	0.26	0.21	0.50	0.83	0.73	0.02
Delay/Veh:	236.0	236	51.3	77.0	81.7	65.1	79.1	17.3	7.9	112.8	27.0	9.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	236.0	236	51.3	77.0	81.7	65.1	79.1	17.3	7.9	112.8	27.0	9.8
LOS by Move:	F	F	D	E	F	E	E	B	A	F	C	A
HCM2k95thQ:	62	62	8	1	8	2	4	11	26	17	52	1

Note: Queue reported is the number of cars per lane.

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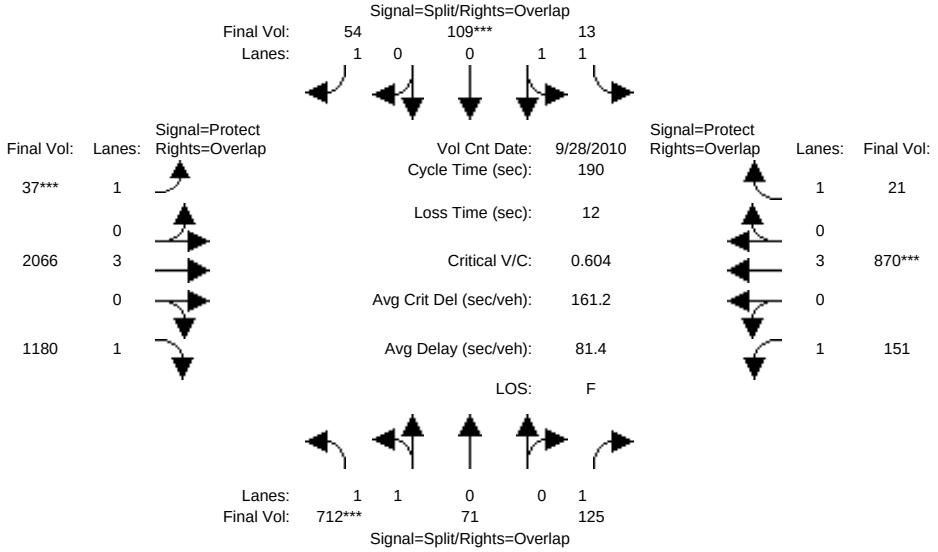
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #5802: MONTAGUE EXPWY/TRADE ZONE BLVD



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	10	10	14	10	10	14	107	10	14	113	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 28 Sep 2010 << 5:00-6:00PM												
Base Vol:	712	71	125	13	109	54	37	2066	1180	151	870	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	712	71	125	13	109	54	37	2066	1180	151	870	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	712	71	125	13	109	54	37	2066	1180	151	870	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	712	71	125	13	109	54	37	2066	1180	151	870	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	712	71	125	13	109	54	37	2066	1180	151	870	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	712	71	125	13	109	54	37	2066	1180	151	870	21
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.73	0.95	0.92	1.38	0.50	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.86	0.14	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	2568	256	1750	2625	950	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.28	0.28	0.07	0.00	0.11	0.03	0.02	0.36	0.67	0.09	0.15	0.01
Crit Moves:	****				****		****				****	
Green Time:	36.1	36.1	52.9	14.9	14.9	28.9	14.0	110	146.2	16.9	113	127.9
Volume/Cap:	1.46	1.46	0.26	0.06	1.46	0.20	0.29	0.63	0.88	0.97	0.26	0.02
Delay/Veh:	294.2	294	53.5	81.1	349	70.8	84.5	36.1	37.2	149.8	18.5	10.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	294.2	294	53.5	81.1	349	70.8	84.5	36.1	37.2	149.8	18.5	10.3
LOS by Move:	F	F	D	F	F	E	F	D	D	F	B	B
HCM2k95thQ:	61	77	13	2	22	6	5	50	99	23	15	1

Note: Queue reported is the number of cars per lane.

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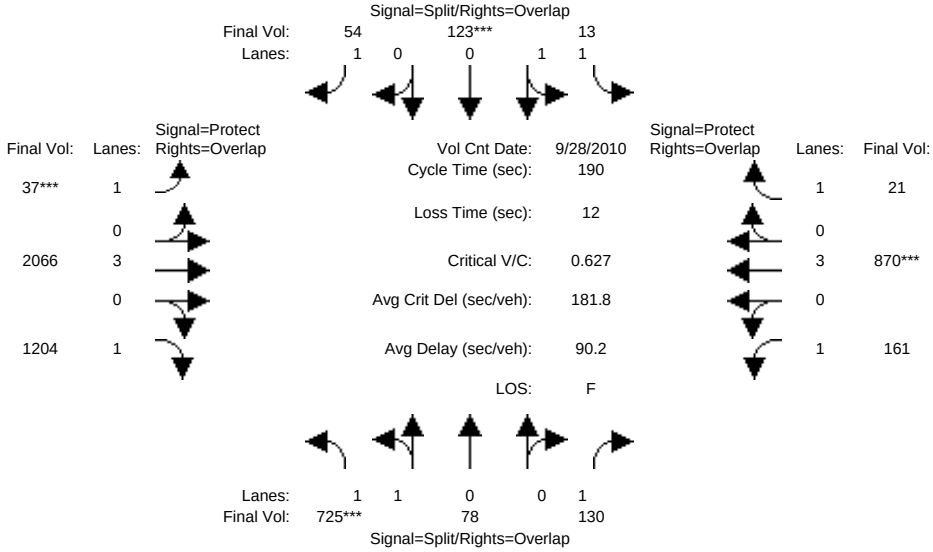
300 Montague Expressway
Milpitas, California

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Project PM

Intersection #5802: MONTAGUE EXPWY/TRADE ZONE BLVD



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	14	10	10	14	10	10	14	107	10	14	113	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 28 Sep 2010 << 5:00-6:00PM												
Base Vol:	712	71	125	13	109	54	37	2066	1180	151	870	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	712	71	125	13	109	54	37	2066	1180	151	870	21
Added Vol:	13	7	5	0	14	0	0	0	24	10	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	725	78	130	13	123	54	37	2066	1204	161	870	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	725	78	130	13	123	54	37	2066	1204	161	870	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	725	78	130	13	123	54	37	2066	1204	161	870	21
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	725	78	130	13	123	54	37	2066	1204	161	870	21
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.73	0.95	0.92	1.38	0.50	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.85	0.15	1.00	1.00	1.00	1.00	1.00	3.00	1.00	1.00	3.00	1.00
Final Sat.:	2554	275	1750	2625	950	1750	1750	5700	1750	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.28	0.28	0.07	0.00	0.13	0.03	0.02	0.36	0.69	0.09	0.15	0.01
Crit Moves:	****				****		****				****	
Green Time:	35.0	35.0	52.9	16.0	16.0	30.0	14.0	109	144.2	17.8	113	129.0
Volume/Cap:	1.54	1.54	0.27	0.06	1.54	0.20	0.29	0.63	0.91	0.98	0.26	0.02
Delay/Veh:	330.0	330	53.8	80.1	378	69.9	84.5	36.8	42.9	150.0	18.5	9.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	330.0	330	53.8	80.1	378	69.9	84.5	36.8	42.9	150.0	18.5	9.9
LOS by Move:	F	F	D	F	F	E	F	D	D	F	B	A
HCM2k95thQ:	65	82	14	2	25	6	5	50	106	24	15	1

Note: Queue reported is the number of cars per lane.

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