# *Pleasant Hill Road Operational Analysis*

**for the**

**City of Lafayette**
**and**
**the Metropolitan Transportation Commission (MTC)**

August 31, 2001


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The City of Lafayette's Circulation Commission and City Council held a series of meetings with residents regarding concerns relative to traffic conditions on Pleasant Hill Road. In November of 2000 City staff requested funding from the Metropolitan Transportation Commission (MTC) through the Traffic Engineering Technical Assistance Program (TETAP) for a comprehensive evaluation of the roadway. The goal of the evaluation was to develop a transportation plan to reduce vehicular speeds and to encourage pedestrian and bicycle travel. Following is a summary of the process taken for the TETAP funded evaluation.

## Summary

### Study Parameters

The study area included the segment of Pleasant Hill Road between Mount Diablo Boulevard-S.R. 24 East On-ramp and Olympic Boulevard, with specific analysis of the intersections at either end as well as Old Tunnel Road-S.R. 24 East Off-ramp, Condit Road and Reliez Station Road. Conditions were evaluated during the morning and evening commute peak periods as well as mid-afternoon based on counts of vehicles, pedestrians and bicycles obtained specifically for this analysis.

### Issues and Concerns

A number of issues and concerns were identified for evaluation during the course of this study. The most pervasive concern, however, was the speed of traffic on Pleasant Hill Road and the resulting impacts on safety for pedestrians, bicycles, and cross-street traffic. Specific measures to improve operation were also identified for analysis, including items such as modified signal phasing and lane geometrics.

### Existing Conditions

Based on an evaluation of operation using standard methodologies and techniques, three of the study intersections are operating acceptably throughout the day based on the City's Level of Service standard. Excessive delays do currently exist, however, during one or more of the peak periods evaluated at the intersections with Olympic Boulevard and Reliez Station Road. This evaluation indicates that there are operational deficiencies which may need to be addressed.

Operating conditions were observed over the course of an entire day, including both the morning and evening peak periods. The product of this field review included some specific observations relative to physical conditions, such as the ambiguity of pedestrians crossing at Old Tunnel Road, and operating conditions, such as the conflict between pedestrians and right-turning traffic in the "free" right-turn lanes at Olympic Boulevard.

### Preliminary Ideas and Alternatives

The data collected in the field and obtained from City staff were used to develop a list of potential measures to address the concerns and achieve the goals identified. This information was presented to residents at a workshop held on April 16. During the ensuing discussion, a list was developed of issues to be further evaluated through elimination or revision of some items, and formation of some new ideas.

### Analysis of Alternatives

The potential improvement measures that were developed through an iterative process with residents and staff

were then evaluated to determine the extent to which the concerns expressed were addressed, and whether or not they would be expected to result in improved operation or safety conditions over those that currently exist. The details of the analysis were then presented at another neighborhood meeting on June 6, and the comments from this meeting used to form the final recommendations

Recommended Plan

A recommended plan is presented that includes measures that are critical to improve traffic conditions, and should be implemented as soon as possible, as well as other measures that would be expected to have a lesser impact, so may not be needed or require such a significant financial commitment that it will take considerable time to complete them.

**Intersection Level of Service Methodologies**

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. The LOS designation is accompanied by a unit of measure which indicates a level of delay. Because intersections tend to have a more substantial impact on traffic operation than does the capacity of intervening road segments, operation at critical intersections is typically used to determine whether or not a roadway or circulation system is functioning acceptably.

Although the City of Lafayette typically uses a methodology developed by the Contra Costa Transportation Authority, for review purposes each of the intersections was analyzed using methodologies from the *Highway Capacity Manual*, Special Report 209, Third Edition Update, Transportation Research Board, 1997 (HCM). This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The ranges of delay associated with the various levels of service are indicated in the following table.

**Intersection Level of Service Criteria**

| LOS | Signalized and Roundabout Intersections | Unsignalized and All-Way Stop-Controlled Intersections |
|---|---|---|
| A | Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all. | Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street. |
| B | Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop. | Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street. |
| C | Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping. | Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street. |
| D | Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop. | Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street. |
| E | Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive. | Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street. |
| F | Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection. | Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues. |

Reference: *Highway Capacity Manual, Special Report No. 209,* Third Edition Update, Transportation Research Board, 1997.

Signalized Intersection Level of Service Analysis Methodology

The signalized study intersections were analyzed using methodologies contained in the 1997 edition of the *Highway Capacity Manual.* This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average approach delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology.

Unsignalized Intersection Level of Service Analysis Methodology

The two-way stop-controlled intersections were analyzed using the "Unsignalized" methodology from the 1997 *Highway Capacity Manual.* This method determines a level of service for each minor turning movement by estimating the level of delay in seconds per vehicle. The through movements on the main street are assumed to operate at free flow and a Level of Service A. Unlike the 1994 methodology, levels of service are not determined for the intersection as a whole, so the intersection's operation is based on the movement or approach that is experiencing the highest delay.

All-Way Stop-Controlled Level of Service Analysis Methodology

Operating conditions at the all-way stop-controlled intersection were analyzed using the "All-Way Stop-Controlled Intersection" methodology contained in the 1997 *Highway Capacity Manual.* This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

Roundabout Methodology

Operating conditions at some of the study intersections were also projected for roundabouts, using the "Roundabout" methodology contained in the 1997 *Highway Capacity Manual*, as applied by the SIDRA analysis software. Delay is calculated for each approach and for the roundabout overall. The analysis is based on the availability of gaps in circulating traffic and geometric factors such as the radius of the roundabout and number of entering and circulating lanes. Roundabout Level of Service is then determined based upon the same delay ranges used for signalized intersections.

**Operational Standards and Goals**

The City currently has an adopted standard only for signalized intersections, and that standard specifies use of a methodology other than the HCM methodologies used for this analysis. The City's standard is appropriate for a planning level analysis, but is less applicable to this level of detailed analysis. In its Draft General Plan the City does use the HCM methodologies to establish goals for signalized intersections. According to the City's Draft General Plan and Draft Revised General Plan EIR dated June 2000, the following LOS targets for signalized and unsignalized intersections were applied for evaluation purposes. Note that the maximum delays are based on the ranges for the 1997 methodologies used rather than the 1994 methodologies referenced in the RDEIR.

| Type of Control | Minimum | Maximum Average Delay |
|---|---|---|
| Signalized | mid-LOS D | 45 seconds |
| All-way stop controlled | LOS D | 35 seconds |
| Unsignalized – Overall Average | LOS C | 25 seconds |
| Unsignalized – Minor Street Approach | LOS E | 50 seconds |

**Study Periods**

Three study periods were included in the evaluation. The morning peak period covers the period from 7:00 to 9:00 a.m. and typically includes trips associated with the home-to-work commute as well as students going to school. The midday peak evaluated was for the time period between 1:45 and 3:45 p.m., which was selected due to the high volume of traffic associated with students leaving one of the several schools located in close proximity to the study area. Finally, the evening peak period evaluated was 4:00 to 6:00 p.m., and includes the majority of work-to-home trips.

## Issues and Concerns

Staff at the City of Lafayette provided a considerable amount of background data regarding the discussion of issues related to traffic operation on Pleasant Hill Road. A substantial amount of public testimony has been received by the Circulation Commission, and numerous actions have already been taken. Based on a review of the documents provided, the following issues were identified for focused evaluation.

- The predominant issue identified is that the ***speed*** of traffic on Pleasant Hill Road is too high. Addressing this issue alone will contribute to resolution of many of the other issues since speeding advances the perception that there is a safety problem for bicyclists, pedestrians and other vehicular traffic. The Circulation Commission recommended that the speed limit be reduced from 45 mph to 35 mph, however, this change has not yet been justified in such a way that radar enforcement could be continued, therefore the City Council has not adopted the Commission's recommendation at this time.

- There are safety issues at the ***crosswalk at Condit Road.*** Although in-pavement flashers exist at this location, residents continue to have concerns about safety at this crossing. City staff has considered installing a traffic signal. Signalization is one of several potential measures that would help address this concern.

- ***Sidewalks*** are needed along both sides of the street to replace well-worn pathways or use of the shoulder area.

- The speed of traffic results in concerns about ***bike lane safety***. Although bike lanes are provided in both directions, they are immediately adjacent to the travel lanes, so residents do not feel comfortable allowing their children to ride bicycles along this corridor. This issue can also be at least partially addressed by achieving reduced travel speeds on Pleasant Hill Road, however, some sort of barrier between the traffic streams is still desired.

- Residents have ***difficulty making left-turns*** onto Pleasant Hill Road from all of the side streets (Ameno Drive, Condit Road, and Reliez Station Road).

- A ***traffic signal or all-way stops*** have been requested for the intersection at Condit Road. City staff has applied for funding that could pay for signalization, however, some residents want other measures that could address access and pedestrian safety concerns. It should further be noted that signalization has not received formal approval by the City Council.

- Residents whose driveways are on Pleasant Hill Road have to ***weave across two travel lanes to get to left-turn pockets in order to make U-turns*** since the median island precludes left-turns into or out of their driveways.

- ***Operation at the signalized intersections*** at the S.R. 24 East Ramps needs to be revised to address pedestrian access, phasing and timing issues. Residents have requested that a crosswalk be provided at S.R. 24 Off-ramp/Old Tunnel Road, and split phasing has also been requested at this location. Additional red clearance time has been requested at both ramp intersections.

## Study Area

The study area included Pleasant Hill Road between Mount Diablo Boulevard and Olympic Boulevard. This stretch of roadway has two lanes in each direction, with a wide, landscaped median dividing the two directions of travel along most of this segment. Additionally, bike lanes are striped in both directions flanked by a hatched area that can be used by pedestrians due to the lack of continuous sidewalks or other pedestrian facilities. The Lafayette-Moraga trail head is located at the southwest extremity of the study area. The posted speed limit is 45 mph. The study intersections are shown in Figure 1.

## Speed Surveys

A speed survey was performed during the late morning on March 22, 2001, and for that sample the critical, or 85$^{th}$ percentile speed, was 44 mph and the average speed 39 mph. A survey with a larger sample size completed by City staff on March 26 indicated that the critical speed in the mid-afternoon is 46 mph, with an average speed of 43 mph. Based on the data obtained, it appears that drivers may have reduced their speed at least slightly in response to the recent re-striping of Pleasant Hill Road, however, the travel speeds are generally consistent with the posted speed limit and the roadway's character as an arterial. The need to modify the road's character to invoke changes in driver behavior resulting in reduced speeds of approximately 35 mph is at the core of the concerns expressed by the residents.

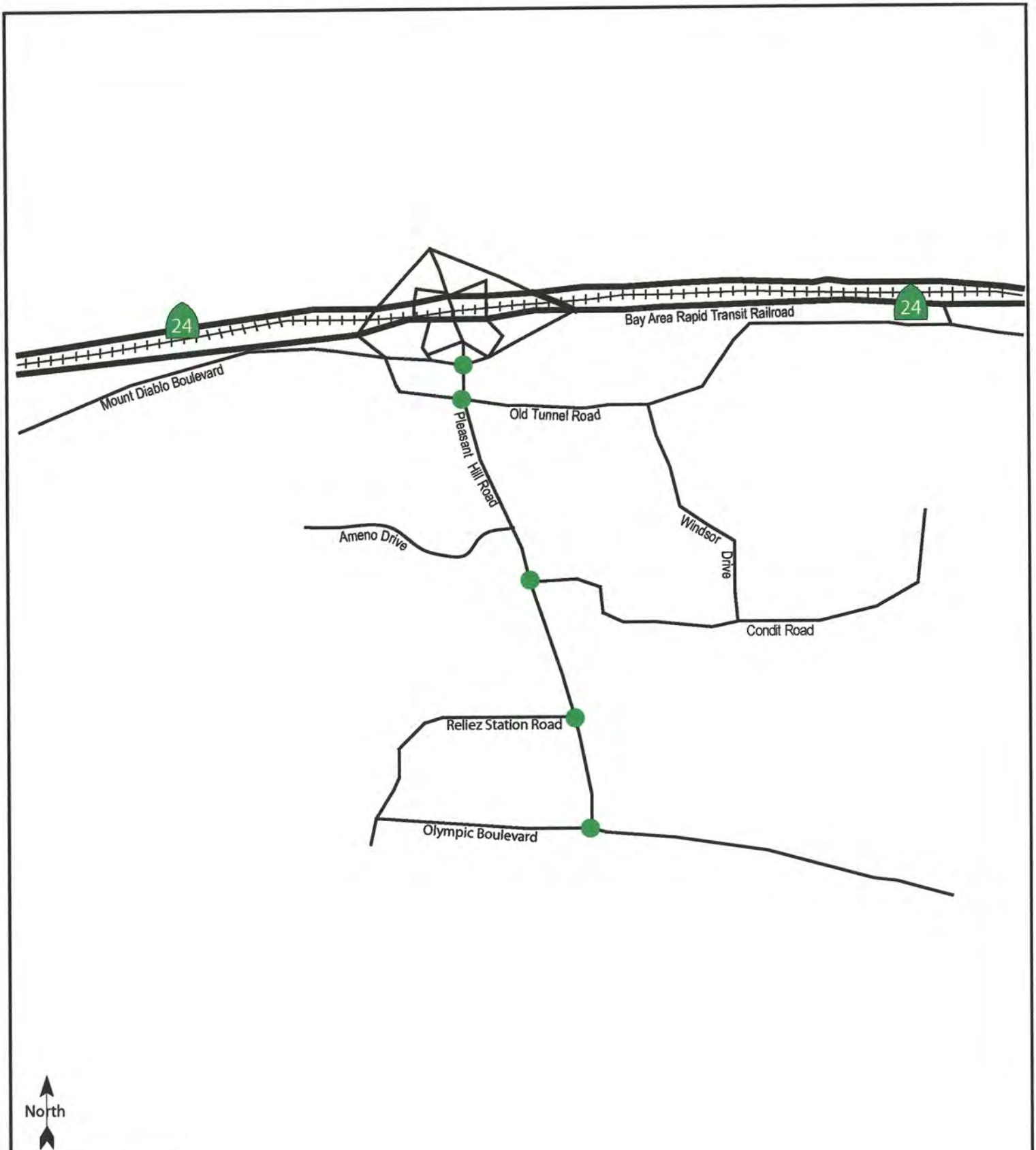
Based on a review of speed surveys performed over the last 12 years, the speeds recently surveyed appear to be consistent with historical speeds, indicating that there has been no substantial change in speeds over the last few years. Following is a summary of the speed survey data for Pleasant Hill Road.

**Table 1**
**Historical Radar Speed Survey Results**

| Date | Time of Day | Northbound | Southbound |
|---|---|---|---|
| 4/17/01 | Mid-morning | 46 | 47 |
| 3/26/01 | Afternoon | 46 | 47 |
| 3/22/01 | Mid-morning | 44 | 43 |
| 9/22/98 | Midday | 45.7 | 48.2 |
| 12/25/93 | Afternoon | 46.6 | 48.8 |
| 11/18/88 | Late morning | 43.8 | 44.4 |

## Intersection Configurations

The intersection of *Pleasant Hill Road/Mount Diablo Boulevard-SR 24 East On-Ramp* is signalized with protected left-turn phasing northbound. Left-turns are not allowed southbound as there is on-ramp access via a right-turn from the southbound approach. Northbound Pleasant Hill Road has one left-turn lane, two through lanes and a yield-controlled right-turn lane. The southbound approach has two through lanes and a right turn-lane that has a "free" movement to westbound Mount Diablo Boulevard. Eastbound Mount Diablo Boulevard has one left-turn lane, one through lane and a shared through/right turn-lane. There are existing marked crosswalks on the south, east and west legs of the intersection, with unprotected crossings

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# Figure 1

## *Pleasant Hill Road Operational Analysis*

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Study Area

City of Lafayette/MTC

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of the free right-turn lanes northbound and southbound.

*Pleasant Hill Road/Old Tunnel Road-SR 24 East Off-Ramp* is signalized with protected left-turn phasing southbound and permitted phasing eastbound and westbound. The northbound approach has two through lanes and a shared through/right turn-lane. Signing prohibits U-turns on this approach. Southbound Pleasant Hill Road has two through lanes and one left turn-lane. The SR 24 East off-ramp has a through/left turn-lane and one right turn-lane. Signing indicates that prohibition against right-turns on red from this approach. The westbound approach has one left-turn and one right-turn lane. There are marked crosswalks in the north-south direction only at this intersection across Old Tunnel Road and SR 24 East Off-ramp.

*Pleasant Hill Road/Condit Road* is stop controlled on the east leg (Condit Road) and the west leg (a private driveway). The northbound Pleasant Hill Road approach has a through lane from which left-turns can be made to the private driveways and a through/right-turn lane. Southbound there is a left turn-lane, a through lane and a shared right/through lane. There is also an acceleration lane in the southbound direction for use by drivers turning left from Condit Road. Both the eastbound and westbound minor street approaches have a single shared lane. There are marked crosswalks across the east and south side of this intersection. The south crosswalk is supplemented with in-pavement flashing lights. It should be noted that during the study performed to test the device it was noted that this location did not achieve high compliance and it was suggested that the flashers might not be appropriate for this crosswalk.

*Pleasant Hill Road/Reliez Station Road-Reliez Station Lane* is a four-legged intersection with stop controls on the eastbound and westbound Reliez Station Road-Lane approaches. The northbound and southbound approaches of Pleasant Hill Road each have a left turn-lane, a through lane and a shared through/right turn lane. The eastbound and westbound approaches each have one shared lane. The only marked crosswalk at this intersection is located on the west side across Reliez Station Road.

*Pleasant Hill Road/Olympic Boulevard* is a four-way stop controlled intersection. The northbound approach is a gated private street with one outbound lane. Southbound Pleasant Hill Road has a right turn-lane that operates under a yield control, a through lane and a left turn-lane. Eastbound Olympic Boulevard has a left turn-lane and a shared through/right turn-lane. The westbound approach has a left turn-lane, a through lane and a right turn-lane that operates as a "free" right entering its own egress lane on northbound Pleasant Hill Road. Olympic Boulevard has bike lanes in both directions and is posted at 45 mph east of Pleasant Hill Road. There are marked crosswalks across the north, east and west legs of the intersection. Additionally, pedestrian crosswalks separated from the primary crossing by raised islands are present across the southbound and westbound right-turn lanes.

**Existing Levels of Service**

Traffic counts were obtained at the five study intersections specifically for this study or from work prepared previously for the City of Lafayette. With the exception of the a.m. and p.m. counts at Old Tunnel Road, which were obtained on September 13, 2000, all of the count data was collected on March 15, 2001. Pedestrian and bicycle counts were included at some intersections in order to gauge the impacts of these alternative modes of transportation on the operation of the study intersections. In the vicinity of Condit Road the volume of traffic on Pleasant Hill Road is approximately 1800 vehicle per hour (vph) during all three of the peak periods evaluated. The volumes are slightly higher northbound than southbound during the morning peak period, but flows are fairly equal in both directions during the mid-afternoon and evening peak periods.

Based on the current volume of traffic using the various study intersection, it was determined that two of the study intersections are operating with delays that exceed the maximum target values indicated under the City's Draft General Plan EIR during one or more of the three peak periods evaluated. Delay on the

eastbound Reliez Station Road approach to Pleasant Hill Road exceeds the maximum desired limit of 50 seconds during both the morning and midday peak periods, and is very near the threshold during the evening peak period. The intersection of Pleasant Hill Road/Olympic Boulevard is operating with excessive delays at LOS E or F during all three of the peak periods evaluated. Based on the volume of eastbound traffic on Reliez Station Road versus the number of homes that the roadway serves, it appears that this route is used by some drivers to by-pass the congestion at Olympic Boulevard, however, the lack of adequate gaps for left-turning traffic results in such excessive delay that this route does not appear to be a particularly attractive alternative. The Level of Service results are summarized in Table 2 and copies of the calculations are provided in Appendix A.

**Table 2**
**Summary of Intersection Level of Service Calculations**

| Intersection | Existing Conditions | | | | | |
|---|---|---|---|---|---|---|
| | AM Peak | | MD Peak | | PM Peak | |
| *Approach* | Delay | LOS | Delay | LOS | Delay | LOS |
| 1. Pleasant Hill Rd/Mount Diablo Blvd-SR 24E On-Ramp | 22.7 | C | 24.9 | C | 24.4 | C |
| 2. Pleasant Hill Rd/Old Tunnel Rd-SR 24E Off-Ramp | 19.2 | B | 18.5 | B | 23.3 | C |
| 3. Pleasant Hill Rd/Condit Rd | | | | | | |
| *Westbound Approach* | *22.2* | *C* | *22.2* | *C* | *22.4* | *C* |
| 4. Pleasant Hill Rd/Reliez Station Rd-Reliez Station Ln | | | | | | |
| *Eastbound Approach* | ** | *F* | *58.9* | *F* | *35.6* | *E* |
| *Westbound Approach* | *23.7* | *C* | *15.0* | *C* | *20.9* | *C* |
| 5. Pleasant Hill Rd/Olympic Blvd | 74.2 | F | 59.4 | F | 47.3 | E |

Notes: Delay = average delay in seconds per vehicle
LOS = Level of Service
** = Delay in excess of 120 seconds

**Pedestrian and Bicycle Traffic**

Pedestrian and bicycle volumes were collected or available from other work done for the City. The data collected indicated that although bicycle traffic is heavier than pedestrian traffic, there are few pedestrians or bicyclists using this corridor despite the presence of marked bicycle lanes and informal pedestrian facilities. The lack of substantial activity by pedestrians and bicyclists may be a result of the safety concerns indicated by many residents, or may be a function of the days on which data was collected. This route may be more highly utilized on weekends by recreational users versus commuters and school children on weekdays. The pedestrian and bicycle volumes are indicated in Table 3 according to the leg of the intersection crossed.

**Table 3**
**Pedestrian and Bicycle Volumes**

| Pleasant Hill Road at: | | | AM Peak Hour | | | | Midday Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mode | Date | N | S | E | W | N | S | E | W | N | S | E | W |
| Condit Road | Peds | 09/00 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| | | 03/01 | 0 | 4 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 4 | 0 | 0 |
| | Bikes | 09/00 | 0 | 13 | 6 | 0 | 0 | 4 | 4 | 0 | 0 | 1 | 3 | 0 |
| | | 03/01 | 0 | 2 | 4 | 1 | 3 | 0 | 3 | 1 | 1 | 0 | 5 | 0 |
| Olympic Boulevard | Peds | 03/01 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 |
| | Bikes | 03/01 | 19 | 8 | 3 | 2 | 6 | 5 | 0 | 3 | 8 | 2 | 4 | 5 |

Notes: September 2000 counts collected by Wiltec and March 2001 counts collected by Marks Traffic Data Service

**Field Observations**

Operating conditions along Pleasant Hill Road were observed during all three study periods over the course of an entire day on Thursday, March 22, 2001. During this field reconnaissance, the following observations were made.

- The striping on Pleasant Hill Road described above is the result of a recent modification. Due to the change in lane alignment, the in-pavement flashing lights along the crosswalk at Condit Road are now located in the wheel track rather than in the middle of the lane where they would typically not be struck. This is likely to result in an increased need for maintenance due to the increased wear associated with vehicles regularly driving over the devices.

- Pedestrians crossing at Mount Diablo Boulevard-S.R. 24 East On-ramp are unprotected as they cross the "free" right turn lanes on the northwest and southeast corners. The pedestrian push buttons at these corners are on poles in the middle of triangular islands, so are not accessible from a wheelchair. The crosswalk markings across the right-turn lane from southbound to westbound are almost worn off, and are located so far around the corner that drivers may not see pedestrians until they are well into their turn. Similarly, the visibility between oncoming drivers and pedestrians using the crossing of the northbound to eastbound right-turn lane is limited by the horizontal and vertical curvature of the roadway.

- The northeast and northwest corners at Pleasant Hill Road/Olympic Boulevard have unprotected crosswalks across the "free" right-turn lanes southbound and westbound. Although these crossings have enhanced markings to emphasize the potential for pedestrian activity, these crossings are located such that they are not visible until the driver is fairly near the intersection and most drivers that were observed did not reduce their speed sufficiently as they made the turn to react to a pedestrian had one stepped out into the street.

- While sidewalks are continuous through most of the study section north of Old Tunnel Road-S.R. 24 East Off-ramp, there is a short segment missing on the west side of the street between the Hungry Hunter Restaurant and the S.R. 24 East Off-ramp.

- Although there are no crosswalks or pedestrian signals to facilitate crossing Pleasant Hill Road at Old

Tunnel Road-S.R. 24 East Off-ramp, since there are also not any signs prohibiting crossing, pedestrians can currently cross at this location and may do so to access the southbound bus stop south of the intersection. Given the distance across the street and lack of pedestrian activated timing, it is likely that pedestrians moving at either a normal or slow pace (4 feet per second or less) would be stranded in the middle of the street somewhere when the signal changed to green for through traffic on Pleasant Hill Road.

- Sight distance along Pleasant Hill Road from Ameno Drive, Condit Road and Reliez Station Road-Lane meets or exceeds the minimum corner sight distance required for vehicles approaching at 45 mph or less. The only approach that does not have adequate corner sight distance for higher speeds is the southbound approach to Condit Road, where sight distance in limited by a vertical crest, however, due to the presence of an acceleration lane, the existing sight distance is adequate.

- One of the collision reports reviewed occurred when a driver exited the Hungry Hunter driveway and crossed over three lanes of traffic to make a U-turn at Old Tunnel Road-S.R. 24 East Off-ramp. This movement was observed several times during the lunch hour, and typically the vehicle stopped in a position straddling two lanes because there is such a short distance between the driveway and the intersection.

- A number of new signs have been installed in response to citizen concerns, including one that reads "Yield to U-turns" on Condit Road, a "tee" intersection sign approaching Ameno Drive, and a "Signal Ahead" sign approaching Old Tunnel Road.

## Preliminary Ideas and Alternatives

A number of preliminary ideas were developed and presented at a neighborhood meeting on April 16, 2001. Through the discussion with the residents and staff, some of the preliminary ideas were rejected, others modified, and some new concepts developed. Following is a list concepts that appeared to merit further consideration and analysis based on this preliminary screening.

- Install new traffic signals (potential sites include Olympic Boulevard and Condit Road).
- Install stop signs on Pleasant Hill Road at Condit Road.
- Install roundabouts (potential sites include Olympic Boulevard, Condit Road, and Reliez Station Road).
- Provide split-phasing at Old Tunnel Road-S.R. 24 East Off-ramp
- Convert Pleasant Hill Road to one lane in each direction.
- Provide acceleration lanes at Ameno Drive and Reliez Station Road.
- Perform a new radar speed study to see if a lower speed limit can be established.
- Initiate a radar speed gun "check-out" for residents to see for themselves what travel speeds really are.
- Consider installing signs and barricades prohibiting crossings at Old Tunnel Road-S.R. 24 East Off-ramp or else install a crosswalk and pedestrian phase to accommodate the movement.
- Consider using raised berms or grooved pavement between the outside travel lane and bike lane to provide better separation between these streams of traffic.
- Install continuous sidewalks or multi-purpose pathways on one or both sides of Pleasant Hill Road. Consider a landscape strip separating the path from the travel lanes to project an image of a narrower roadway; it may be necessary to reduce the width of the median island to achieve this.
- Install a sign on eastbound Olympic Boulevard directing traffic to continue straight to I-680.

Some of the ideas that were considered, but were not pursued at this time are as follows.

- Eliminate the "free" right-turns at Olympic Boulevard to improve pedestrians safety. It was determined that since this intersection now has a low number of pedestrian crossings and already has unacceptable delay and elimination of the free right-turns would further increase delay, this option should not be pursued at this time. Consideration could, however, be given to improving pedestrian safety through whatever modifications are undertaken to address the operational deficiency.
- Eliminate the "free" right-turns at Mount Diablo Boulevard-S.R. 24 East On-ramp to improve pedestrians safety and upgrade crosswalk markings and consider relocating the crosswalks to improve lines of sight between pedestrians and drivers. These concerns were not seen as significant by residents in attendance at the public meetings. Further, since this intersection is controlled by Caltrans, such modifications would require their approval or could be forwarded to their attention for consideration.

- Install overhead flashing pedestrian warning signs at Condit Road to supplement or replace the in-pavement flashers. Residents were of the opinion that the flashers have had a minimal positive effect and flashing signs were considered incompatible with the community's character.

- Limit movements from the Hungry Hunter driveway to the curb lane southbound only. This would be difficult to enforce and would make it difficult for drivers to get to westbound Mt. Diablo Boulevard from the site. The City should continue to monitor the collision incidence at this location to determine if further action should be considered.

The preliminary ideas and alternatives resulting from the first public workshop were further evaluated to develop a list of potential measures from which the ultimate plan could be drawn. Following are discussions of the various items considered as well as their expected ability to help achieve the goals of the reducing travel speeds and improving safety. Two tables showing the Level of Service results for many of the alternatives reviewed is provided at the end of the discussion.

**Signal Timing and Phasing and Right-of-Way Controls**

Red Clearance Intervals

Collision histories indicate that by far the most prevalent type of collision at the Mount Diablo Road-S.R. 24 East On-ramp and Old Tunnel Road-S.R. 24 East Off-ramp intersections is the broadside between northbound and eastbound vehicles. These intersections are so wide that standard clearance times are not adequate to allow vehicles to clear the intersection before conflicting traffic receives a green light. To address this safety concern, a red clearance interval should be implemented, or if there is already such timing, its length should be increased.

Split-phase Old Tunnel Road-S.R. 24 East Off-ramp

The opposing approaches of Old Tunnel Road and S.R. 24 East Off-ramp currently operate under a single phase. Because of the higher volumes on the off-ramp, long crossing distance, vertical alignment of the intersection and unusual configuration with only one leg being one-way, residents have expressed concern that drivers do not understand the current phasing and that right-of-way assignment would be improved through use of split-phasing. Analysis indicates that while LOS C operation can be maintained during all three peak periods evaluated with implementation of split phasing, average delays would be expected to increase. A review of the collision history at this location shows that there was only one collision reported in the period between January 1, 1997, and March 30, 2000, that could have been prevented through use of split phasing. Since there is not a demonstrated safety problem indicated by the collision history, and the use of split-phasing would be expected to result in increased average delay at the intersection, it is unlikely that Caltrans would consent to this change. It is therefore recommended that the City continue monitoring this location to determine if split-phasing should be included as part of future improvements because of the anticipated safety benefits associated with providing better right-of-way assignment at this location.

Traffic Signal or All-way Stops at Condit Road

There have been regular requests for a traffic signal or additional stop signs at Condit Road to improve pedestrian safety and address issues of discourteous drivers that will not stop for pedestrians. Although there are existing in-pavement warning lights, this street is very wide so pedestrians are in the street for a fairly long time. Given the alignment of the road and speed of traffic on Pleasant Hill Road, this results in an unresolved conflict between pedestrians and vehicular traffic. Analysis of the intersection's operation under signalized control indicates that LOS A conditions would exist during all three of the peak periods evaluated, with average delays for side street traffic as well as through traffic averaging about 6-8 seconds during the three peak periods evaluated. Although a traffic signal would assign right-of-way to pedestrians and protect them from through traffic, the signal would simultaneously serve vehicles entering from Condit Road and these vehicles would be in conflict with the pedestrian traffic. A signal therefore not does provide a completely protected crossing, but would slow traffic on Pleasant Hill Road and force it to yield to pedestrians, which addresses the concern expressed by the greatest number of residents regarding this location and substantially improve conditions over what currently exists.

With stop signs added on Pleasant Hill Road, the intersection would experience average delays of 27-33 seconds and operate at LOS D during all three peak periods, which represents deteriorated conditions from the existing case where the Condit Road approach is at LOS C and both Pleasant Hill Road approaches are at LOS A. Further, all-way stop signs are most effective where there are approximately equal volumes entering from all approaches. Where the side street volume is substantially lower, as is the case here, stop signs tend to result in rear-end collisions on the more heavily traveled street, followed by decreased compliance once drivers find that they are stopping "for no reason" time after time. This phenomenon obviously has significant safety implications for drivers or pedestrians attempting to cross Pleasant Hill Road, fully expecting oncoming traffic to stop. Finally, the increased noise and air pollution associated with forcing more than 20,000 vehicles per day to stop creates significant negative impacts for the residents living nearest this intersection. This measure is therefore not recommended.

Traffic Signal at Olympic Boulevard

One potential measure to address unacceptable delays at Pleasant Hill Road/Olympic Boulevard is the installation of a traffic signal. With a traffic signal, the intersection could operate at LOS C during all three peak periods evaluated. This represents a substantial improvement over current operating conditions. Further, by eliminating the free right-turn movements on the southbound and westbound approaches and implementing overlap phases instead, pedestrian safety would be improved. This measure appears to be a viable option for addressing a portion of the operational deficiencies and concerns for the corridor.

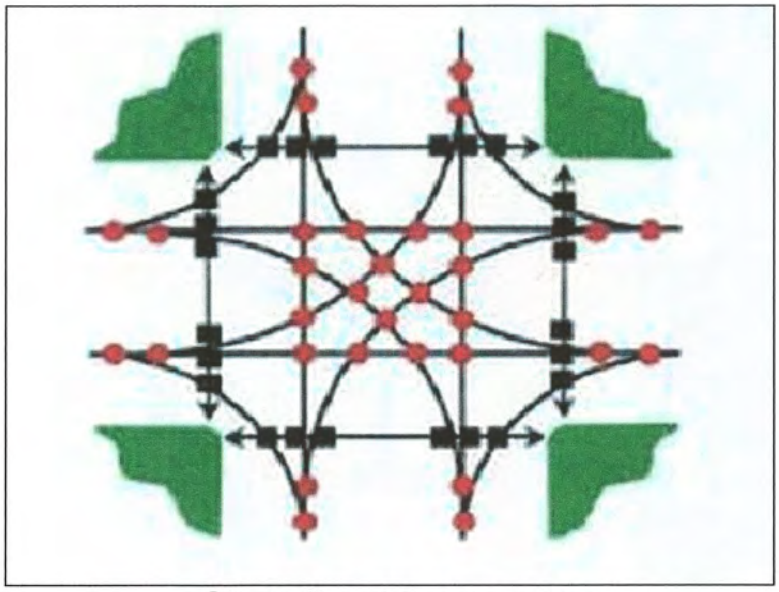
Concerns have been expressed regarding the potential for increased diversion of through traffic to Reliez Station Road to avoid congestion caused by a traffic signal. Although the calculations performed indicate that this should not be expected, this concern could be further addressed through appropriate phasing and timing of the traffic signal to ensure that the eastbound to northbound and southbound to westbound movements are given priority.

Roundabouts

Consideration was also given to using modern roundabouts at one or more locations as a means of reducing travel speeds. The modern roundabout is characterized by several basic operational and design principles, including counterclockwise circulation, yield-at-entry and deflection for entering traffic. The designs of modern roundabouts force drivers to navigate through them at a slow speed, and they eliminate the negative traffic operation and driving behaviors associated with the rapid acceleration and deceleration characteristics of all-way stop-controlled intersections since most drivers only have to slow down, but do not have to stop. Roundabouts also have considerably fewer points where vehicle-to-vehicle or vehicle-to-pedestrian conflicts are possible, as shown in Figure 2. Finally, roundabouts provide a more aesthetic approach to controlling vehicular right-of-way. Because this form of traffic control is relatively new to the United States, it is relevant to provide background information which may prove useful to the decision makers and the public. In March 2000 the Federal Highway Administration (FHWA) published *Roundabouts: An Informational Guide*, which provides design guidelines as well as discussions of the operational impacts of roundabouts. Following is a synthesis of the pros and cons typically associated with modern roundabouts based on discussion in the FHWA guide.

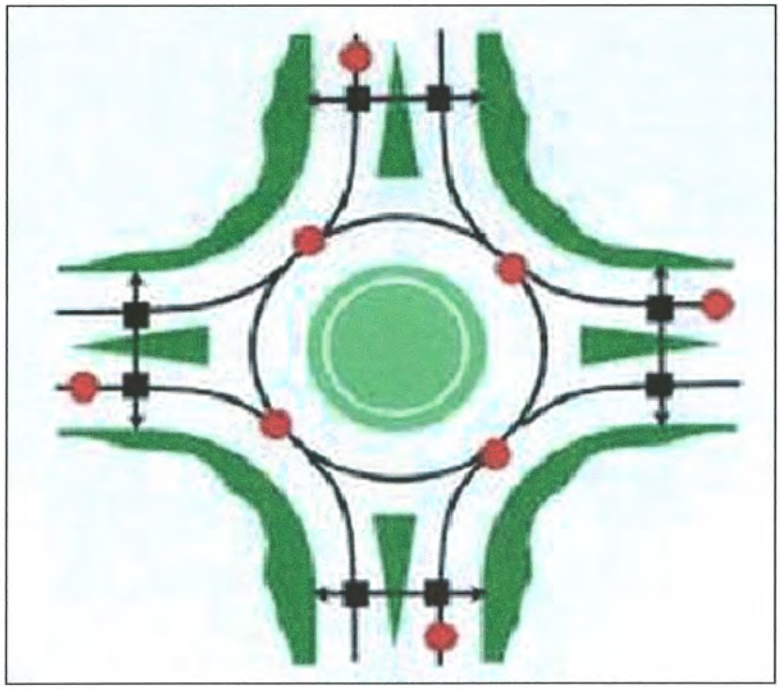
*Pros*

- Vehicular Safety – The conversion of existing intersections to roundabout-controlled intersections has been found by the FHWA to result in a 37 percent reduction in total traffic collisions, with a 51 percent decrease in *injury* collisions. These reductions are largely associated with the extreme unlikelihood that head-on and broadside collisions will occur, the limited number of potential conflict points, and the



Signalized Intersection

- 32 Vehicle to Vehicle Conflict Points
- 24 Vehicle to Pedestrian Conflict Points



Modern Roundabout Intersection

- 8 Vehicle to Vehicle Conflict Points
- 8 Vehicle to Pedestrian Conflict Points

Figure 2 Intersection Conflict Points for Vehicles and Pedestrians

*Pleasant Hill Road Operational Analysis*

speed-regulating characteristics of this type of intersection.

- Pedestrian Safety – The conversion of existing intersections to roundabout-controlled intersections has been found to decrease the number and severity of pedestrian accidents by as much as 73 percent according to one Dutch study of 181 intersections. Several factors lead to enhanced pedestrian safety at roundabouts. First, vehicle speeds are typically moderated to between 15 and 25 miles per, facilitating easier decision making for both drivers and pedestrians. Second, pedestrian crossing distances, and subsequently pedestrian exposure to moving vehicles, is substantially reduced at roundabouts compared to traditional intersections. When crossing the Pleasant Hill Road intersections in their current configurations pedestrians cross five vehicle lanes compared to crossing two lanes at a roundabout-controlled intersection. Third, pedestrian crossings at modern roundabouts pass through the "splitter islands" on each approach leg, which effectively serve as refuge areas. Pedestrians may focus on only one direction of moving traffic at a time, first crossing the lane of traffic entering the roundabout, and then pausing at the splitter island before proceeding across the exit lane of the roundabout. While traffic does not stop, and discourteous drivers may still demand the right-of-way even when there is a pedestrian present, the generally slower speeds and shorter crossing distances would still contribute to considerably safer crossing conditions than currently exist.

- Capacity and Delay Times – For a given number of approach lanes, roundabouts are capable of handling a higher volume of vehicles than other types of intersection controls. This is because all legs of the intersection are being served simultaneously, without necessarily stopping vehicles and without the startup loss time or sometimes inefficient protected movements associated with traffic signals. Though not warranted for the study intersections along Pleasant Hill Road, roundabouts can also be designed with multiple circulating lanes to further increase capacity. At many intersections, and in particular those that are all-way stop-controlled, roundabouts will have lower average vehicle delay and better Levels of Service.

- U-turns – The ability to make U-turns is relatively easy and safe at roundabout-controlled intersections. This can improve access from driveways along adjacent street segments where left turns are difficult or prohibited.

- Fuel Consumption, Air Quality, and Energy – By reducing the amount of rapid acceleration and deceleration associated with other types of intersection controls, roundabouts typically cause vehicles to consume less fuel and correspondingly lead to lower vehicle emissions. Roundabouts also use no electricity other than lighting, and have a longer expected service life than signalized intersections.

- Aesthetics – Roundabouts provide an excellent opportunity for landscaping and/or public art.

- Traffic Calming – Roundabouts require vehicles to travel at lower speeds and are particularly suitable for traffic calming when used with other treatments such as road narrowing, etc.

*Cons*

- Safety for Visually Impaired Persons – Roundabouts do not have the same audible queues as used by visually-impaired pedestrians to cross stop-controlled and signalized intersections, and may require special design treatments to accommodate these users. Blind pedestrians may be guided to the appropriate crossing points at roundabouts through the use of tactile cues installed along sidewalks. The sizes and shapes of such devices are standardized and consistent with ADA guidelines. Some of the devices used include what are called "tactile wayfinders," which may be installed to guide blind pedestrians to and through crosswalks and "truncated domes" are used to warn blind pedestrians of unsafe

crossing points.

- Initial Confusion and Driver Unfamiliarity – Drivers who are unfamiliar with roundabouts may become timid or uncertain upon approach to the intersection, and may violate yield controls or stop at inappropriate times, potentially resulting in minor accidents.

*Pro/Con*

- Public Acceptance of Roundabouts – In the United States, it has been found that many communities experience public opposition to roundabouts in the early planning stages. After construction and some time to acclimate, however, public opinion typically shifts in a much more positive direction.

- Bicyclist Safety – Studies of bicycle safety at roundabouts have yielded mixed results. It appears that an increase in bicycle accidents is associated with some roundabouts, although more so at higher-speed, multi-lane intersections than under lower-speed urban environments. Roundabout design must consider the degree of anticipated bicycle activity and incorporate design elements that protect bicyclist safety. At roundabouts with design speeds in the range of 15 to 20 miles per hour, bicycle lanes should be terminated at roundabout approaches so that bicyclists join in with circulating traffic, claiming their space and behaving the same as other circulating vehicles. Less-confident bicyclists or small children would have the option of dismounting their bicycle and walking on pedestrian paths. At roundabouts with higher design speeds, multiple lanes, and/or very high traffic volumes, it is desirable to create bicycle bypass lanes which pass around the periphery of the intersection and cross perpendicular approaches adjacent to pedestrian crossing locations. At the Condit Road intersection it appears that bypass lanes would be appropriate for use by younger bicyclists although more experienced cyclists could join vehicular traffic passing through the roundabout.

- Parking – Although parking is not an issue for the Pleasant Hill Road corridor, in reviewing the issues associated with roundabouts it should be noted that the narrowed approach lane widths and presence of splitter islands can result in lost parking spaces adjacent to the intersection, which could be an issue on Condit Road and Reliez Station Road. This configuration can have a positive effect on the parking supply just beyond roundabout intersections, however, as the removal of turn lanes and/or through lanes may create more available street width for on-street parking, or in this case, bicycle and pedestrian facilities.

The Insurance Institute for Highway Safety (IIHS) endorsed the use of roundabouts in their May 13, 2000, *Status Report* publication. The IIHS article reports 39 percent decreases in total crashes, 76 percent decreases in injury-producing crashes, and 90 percent decreases in fatal crashes at roundabouts. Although this is less of a reduction in collisions than reported by the FHWA, it still makes roundabouts a more appealing form of intersection control than stop controls or traffic signals at many locations. The article also reports improved pedestrian safety at roundabouts, as indicated by reductions in pedestrian-related incidents after roundabout installation.

For this analysis, modern roundabouts were considered at the intersections of Pleasant Hill Road at Condit Road, Reliez Station Road and Olympic Boulevard because of their ability to improve driver and pedestrian safety, encourage appropriate vehicle speeds, act as a "gateway" urban design element, and provide for easy left turn and u-turn maneuvering. To construct a roundabout at any of these three locations it would be necessary to narrow the existing median islands on the intersection approaches. This median change could be applied only on the approaches or be implemented along the entire section of roadway. Further, a phased approach could be applied to the construction of roundabouts with curbs being erected and median islands modified as the first phase, followed by the addition of landscaping and associated removal of asphalt in the

roundabout area during a later phase. It should be noted that portions of the median islands will need to be replaced with asphalt even for a temporary roundabout.

Consideration would also need to be given to the truck size used as the "design vehicle." Although a roundabout with a 120-foot diameter can be accommodated at all three of the sites evaluated, unless very large trucks regularly use this route, it would be possible to introduce a smaller roundabout design particularly at Condit Road and Reliez Station Road where the trucks would typically be traveling straight through and rarely turning into either of these roadways.

Projected negotiation speeds through a roundabout are determined by the SIDRA analysis software, and reflect the speed at which vehicles will circulate within the roundabout itself. The predominant factors influencing speeds are the curve radii within the roundabout, width of circulating lanes, and the diameter of the central island. At a properly-designed roundabout, drivers will literally feel uncomfortable proceeding at speeds higher than 20 to 25 miles per hour as they circulate through the intersection.

The analysis also produces a "section speed," which is the *average* speed of vehicles over a 2,000 foot long segment comprised of the roundabout and the two 1,000 foot segments of roadway on either side. The "section speed" figure provides an approximation of the speed-regulating characteristics of roundabouts for a given roadway segment. The average speed on mid-block segments of Pleasant Hill Road was input at 35 miles per hour in this analysis, and the software adjusts this value downward based on roundabout configuration and performance.

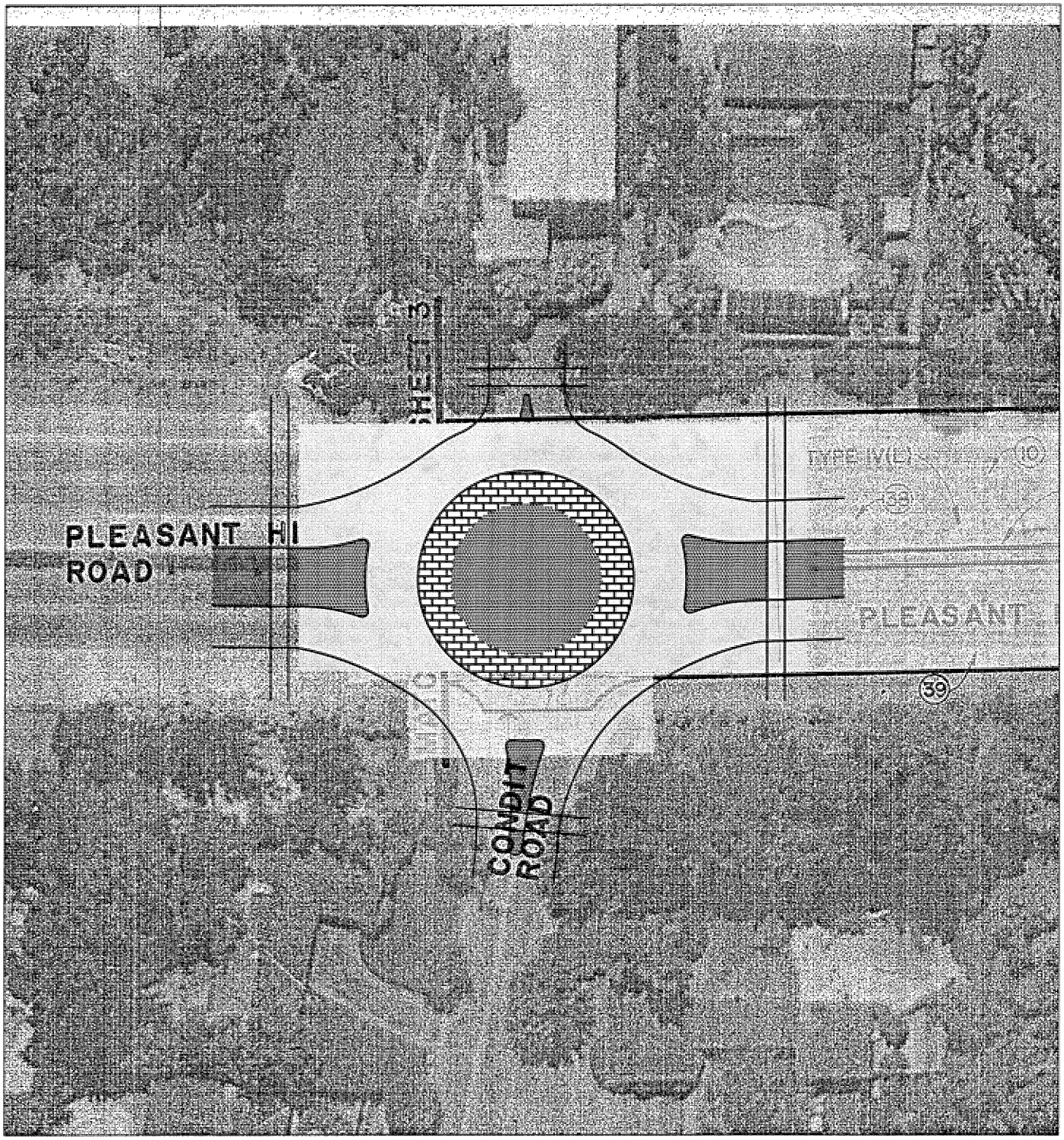
It should be emphasized that the concept plans provided are for analysis purposes only, and are not intended for design or construction purposes. The actual operating conditions would be highly dependent on the design selected for each site; the results shown here are based on one potential design concept.

*Condit Road*

Preliminary analysis of a single lane roundabout at Condit Road indicates that the intersection would operate at LOS B during all three of the peak periods evaluated and that a single lane roundabout would work acceptably. This design concept would include single lane approaches and a single circulating lane, and could potentially be sited to fit within any number of overall design concepts for the corridor. A smaller roundabout could potentially be used at this site since large trucks would not typically be turning into or out of Condit Road. With single lane approaches, the crossing distance would be substantially reduced, thereby dramatically reducing the time during which pedestrians are in conflict with vehicular traffic. Pedestrian safety would be further enhanced due to the slower approach speeds of vehicles entering the roundabout. The projected "negotiation speed" for vehicles circulating through a roundabout at this intersection is between 13 and 14 mph, and the average "overall section speed" for 1000 feet on either side of the intersection is between 21 and 26 miles per hour.

On major streets such as Pleasant Hill Road that experience somewhat steady peak hour traffic flows, gaps for side-street vehicles are created when vehicles from opposing legs make a left turn movement. For example, a steady stream of northbound traffic within a roundabout may appear to inhibit entry from the westbound minor street, though any time a southbound vehicle turns left onto the minor street a gap is created. As long as there is traffic turning both in to and out of the minor street, gaps will exist. Further, the presence of nearby stop signs, roundabouts, and traffic signals can lead to additional gaps in the stream of traffic.

A preliminary concept plan based on a 120-foot diameter roundabout at Condit Road is shown in Figure 3.




1 in = 50 ft

North

Figure 3 Pleasant Hill Rd./Condit Rd. Roundabout Design Concept

*Pleasant Hill Road Operational Analysis*

**Whitlock & Weinberger Transportation, Inc.**

City of Lafayette/MTC

*Reliez Station Road*

A roundabout would be expected to eliminate the unacceptable delay on the Reliez Station Road approach to Pleasant Hill Road, and instead provide LOS B operation for all vehicles entering the intersection. Given the width of Pleasant Hill Road, there are numerous alternatives for siting a single lane roundabout to serve all four approaches. Assuming a smaller diameter roundabout would be acceptable, it may be possible to place the roundabout toward the westerly side of the right-of-way, allowing the City to provide a more standard approach on the east side of the intersection where there is currently a very short perpendicular approach. Although there is not currently a pedestrian crossing at this location, with the roundabout it would be possible to provide one here as well as at Condit Road. A roundabout at this intersection would have a projected negotiation speed for circulating vehicles of 13 to 14 miles per hour, and an average running speed for the segment 1000 feet on either side of the intersection of 21 to 27 miles per hour. Figure 4 shows the preliminary concept prepared for this location with a large radius roundabout.

*Olympic Boulevard*

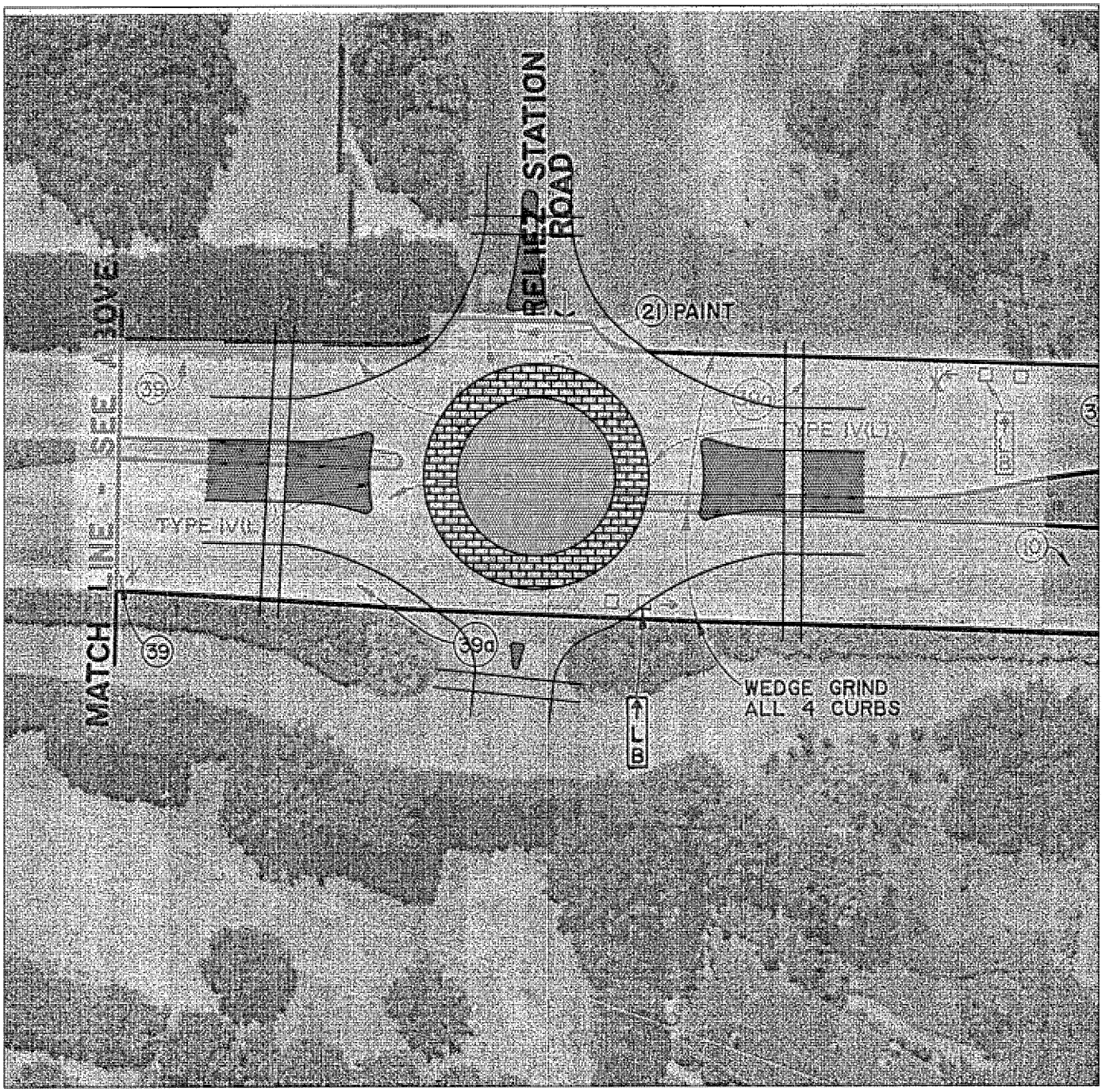
With a roundabout, this intersection would be expected to operate at LOS C during all three peak periods evaluated. As with the other two locations discussed, a single lane roundabout would accommodate the traffic flow and a large diameter center island was selected so that vehicles such as Safeway delivery trucks could be accommodated. Because the southern leg of the intersection is a private street and is narrower than the other approaches, it would be necessary to place the center of the roundabout north of the center of the existing intersection and skew the approaches slightly, however, it appears that there is sufficient right-of-way width to accommodate a roundabout. The projected negotiation speed for a roundabout at this intersection is between 13 and 14 miles per hour, and the average overall section speed is between 17 and 31 miles per hour, with the higher speed being for vehicles continuing straight through eastbound on Olympic Boulevard. The conceptual layout is shown graphically in Figure 5. It should be noted that the layout evaluated does not include free right-turn lanes on either the southbound or westbound approaches, however, a free right-turn lane could be provided on the westbound leg if needed to accommodate projected future traffic volumes.

**Geometric Changes**

Two-Lane Roadway

A number of residents have suggested that Pleasant Hill Road be reduced from two lanes in each direction to one as a potential measure to reduce average travel speeds. Since the intersection at Olympic Boulevard carries a considerable volume of traffic on both Olympic Boulevard approaches and is already operating unacceptably, a reduction in the number of travel lanes on Pleasant Hill Road would result in further degradation of operating conditions. Similarly, the reduction in lanes also reduces the availability of gaps in through traffic for turns from the side streets. With one lane in each direction average delays would be expected to reach unacceptable levels at Condit Road (more than 50 seconds during the morning and evening peak periods) and would reach intolerable levels at Reliez Station Road (more than two minutes during the morning and midday peak periods).

As a result of the significant negative impact that a reduction to one lane in each direction would have on operating conditions at the three southerly study intersections under existing right-of-way controls, this measure would only be feasible with additional improvements at the three intersections such as traffic signals or roundabouts to maintain or achieve acceptable operating conditions. If the City elects to use roundabouts at Condit Road and potentially also Reliez Station Road, a single lane in each direction between the intersections would be expected to adequately handle the existing traffic load. Some potential lane configuration alternatives are indicated in Figure 6. Although future traffic volume projections were not




1 in = 50 ft

North

Figure 4 Pleasant Hill Rd./Reliez Station Rd. Roundabout Design Concept

*Pleasant Hill Road Operational Analysis*

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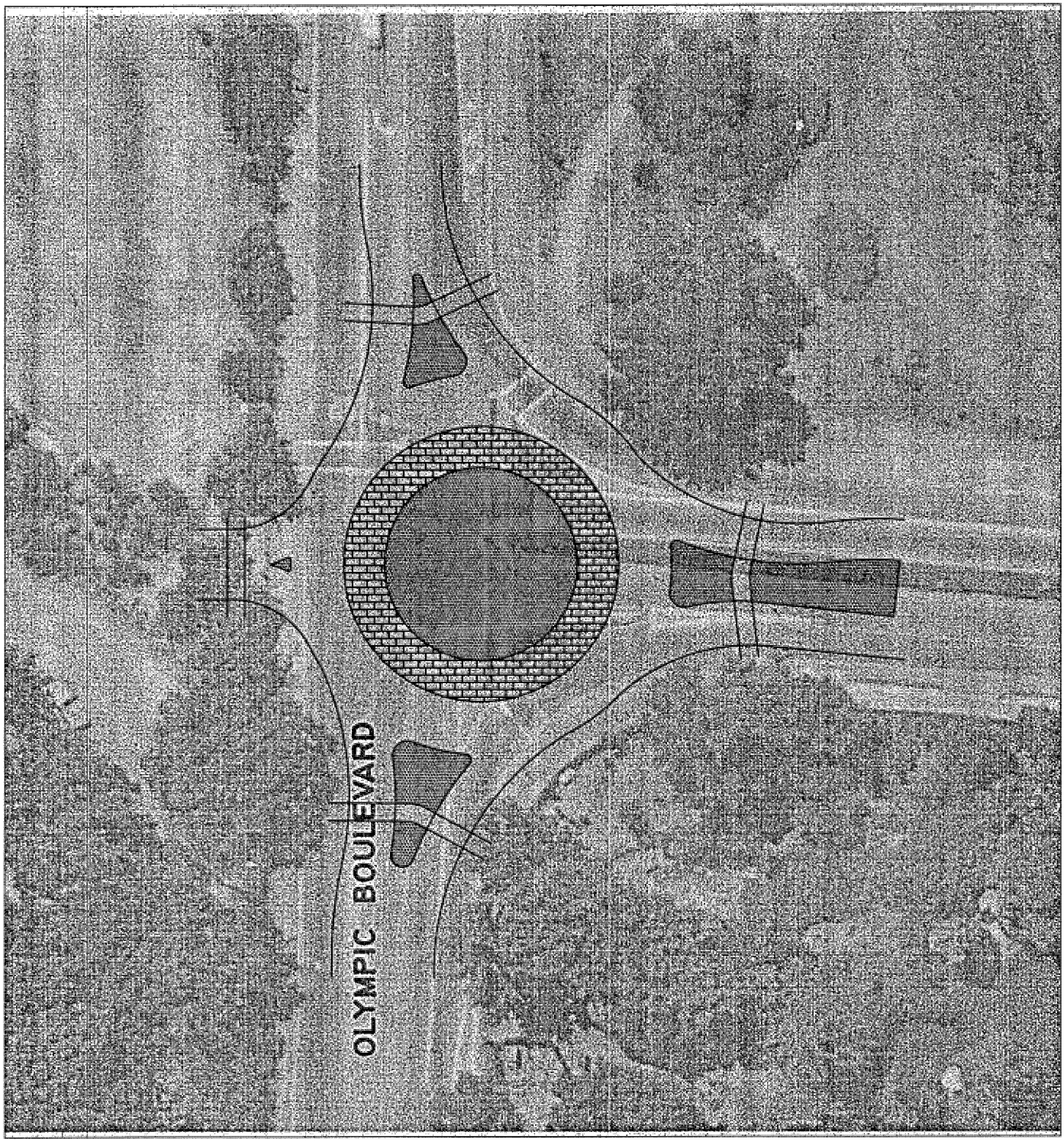


1 in = 50 ft

North

Figure 5 Pleasant Hill Rd./Olympic Blvd. Roundabout Design Concept

*Pleasant Hill Road Operational Analysis*

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City of Lafayette/MTC

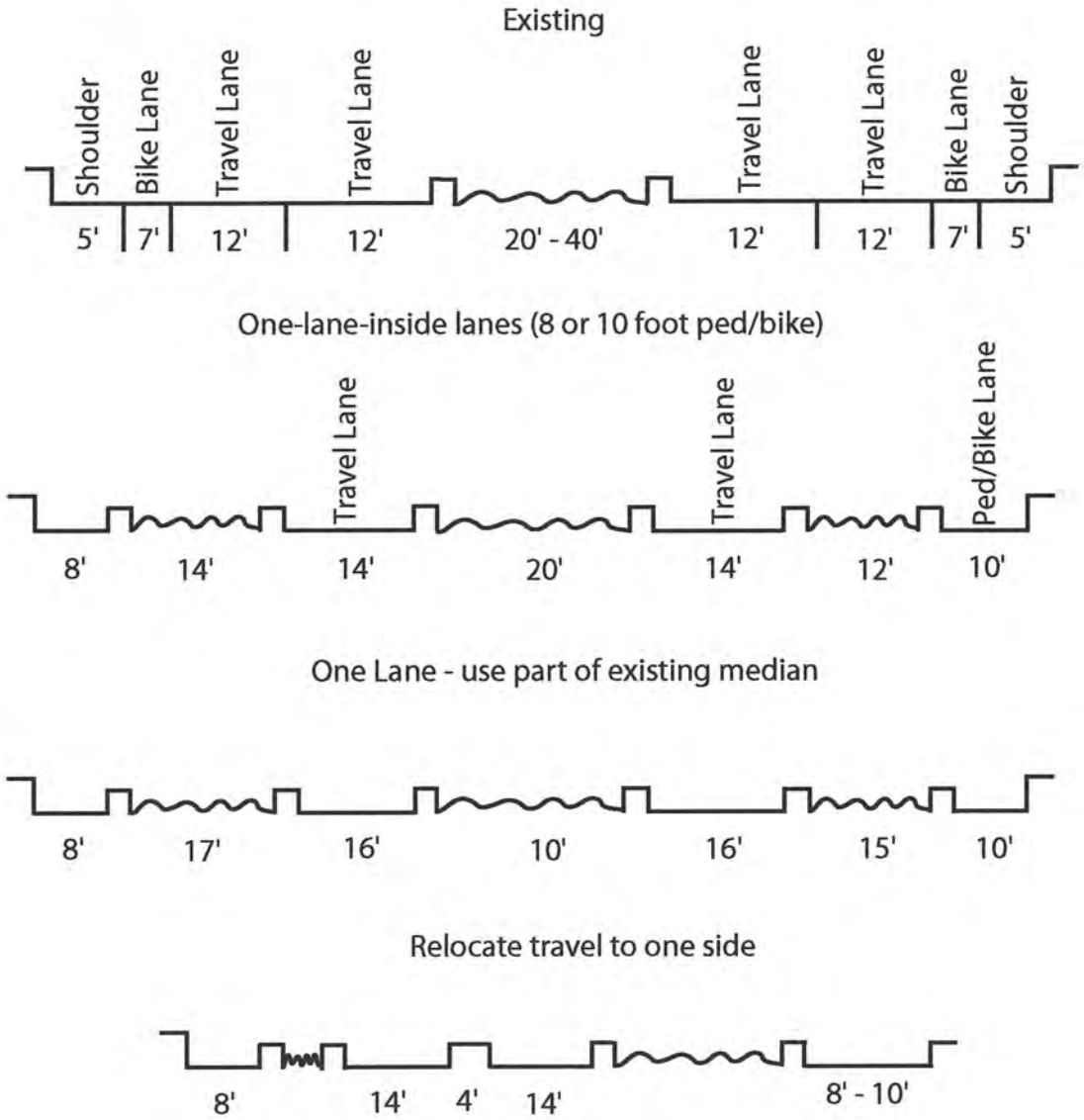


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Figure 6 Two-Lane Pleasant Hill Road Configuration Alternatives

*Pleasant Hill Road Operational Analysis*

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City of Lafayette/MTC

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readily available, an analysis based on a 20 percent growth factor indicates that the roadway would continue to operate within the desired parameters with this level of growth in traffic volumes. While there is still some remaining capacity beyond the 20 percent growth evaluated, the point at which failure would be reached was not ascertained. Further analysis once more detailed future volume projections are available would be necessary in order to determine the adequacy of this scheme under long-term traffic growth.

Acceleration lanes at Reliez Station Road

Using the 1997 unsignalized methodology it is possible to determine the benefit of having an acceleration lane for use by drivers turning into a major street. While average delay would be expected to decrease some, the eastbound Reliez Station Road approach would still be expected to operate unacceptably at LOS F during the morning and midday peak periods. Because acceleration lanes would reduce average delay by about 30 seconds per vehicle during the morning peak period and improve safety, this measure would be beneficial, so should be considered when developing the plan for improvements.

Although turning movement counts were not collected at Ameno Drive, so this location could not be analyzed, the same benefits in terms of reduced potential for conflict and delay would be realized through installation of an acceleration lane northbound at this location as well.

**Traffic Calming Techniques**

Update the Speed Limit Analysis

Although recent radar surveys indicate that the critical speed of traffic on Pleasant Hill Road has decreased slightly, the change has not been sufficient to support a reduction in the posted speed limit. Further, without continued enforcement speeds may tend to increase over time and climb back to the levels that were prevalent prior to the recent restriping. Upon implementation of the "short-range" elements adopted from this plan, speeds may decrease sufficiently to allow the City to adopt a lower speed limit. Surveys should therefore be performed on an ongoing basis as some of the measures are implemented.

"Check out" Radar Gun

Many jurisdictions have implemented neighborhood traffic calming programs to address the concern of speeding traffic, and one of the elements of most of these programs is the radar speed gun check-out. Residents often have the mistaken perception that vehicles are traveling at considerably higher speeds than they are, and use of the radar gun allows them to gauge speed based on their perception, then check that against a real measurement. This type of program typically results in a better understanding of vehicle speeds, and knowledge that the number of offenders is considerably smaller than perceived. Although this measure is not a physical improvement, it would need to be part of the adopted plan as details for implementing such a program and obtaining the necessary equipment will need to be determined. It could also serve as an interim measure to improve perception until such time as the physical improvements can be constructed.

**Pedestrian and Bicycle Access**

Accommodate or Prohibit Crossings at Old Tunnel Road-S.R. 24 East Off-ramp

Although there are no crosswalks across Pleasant Hill Road at Old Tunnel Road-S.R. 24 East Off-ramp, so the signal does not include a pedestrian phase, crossing is currently allowed at this location because it is not specifically prohibited. The distance between this intersection and Mount Diablo Boulevard-S.R. 24 East On-

ramps is approximately 350 feet, which may be an inconvenient additional distance for many pedestrians to walk. There is a bus stop just south of the intersection, which may attract pedestrian traffic. It is recommended that either the crossing should be marked, a pedestrian phase with appropriate timing provided, and the existing gap in sidewalk to the north of the intersection completed or else the City install barricades and signing indicating that pedestrian crossings are specifically prohibited at this location.

Provide separation between the bike lane and travel lanes

Because safety for bicyclists has been an ongoing concern given the speed of traffic on Pleasant Hill Road, particularly for school-aged children, the program of measures to be implemented along this corridor should include some type of separation between modes of travel. Input received from residents indicate that use of the existing bike lane by children is limited because of parental concerns regarding safety. To reduce this concern and increase the number of children bicycling along this corridor, it appears that providing separation between the streams of traffic is critical unless speeds can be reduced to a level that offsets this concern. Potential methods of achieving this goal vary from the simple, such as grooved pavement, to more complex projects including a landscaped strip dividing the lanes. The effectiveness of such methods will also vary, with the physical division providing the greatest protection.

Provide a continuous sidewalk or path

The need for continuous pedestrian facilities is a very obvious and well-supported part of the overall plan for this corridor. During the public workshop a number of alternatives were discussed, including meandering sidewalks on one or both sides, paths along the edge of the roadway on one or both sides, and use of the shoulders on one or both sides. Regardless of what type of facility is to be provided, it is clear that some sort of pedestrian path should be included as part of the planned improvements. The type of facility will be dependent on the overall plan chosen for implementation.

**Miscellaneous**

Direct Traffic to I-680 Along Olympic Boulevard

Currently there are a number of drivers on Pleasant Hill Road that come from or are going to I-680 via S.R. 24. Since access to I-680 can also be obtained directly from Olympic, it was suggested that signs be installed on eastbound Olympic Boulevard west of Pleasant Hill Road indicating that drivers should continue straight ahead to I-680. To promote this alternate route in the hopes of diverting some traffic and thereby reducing volumes on Pleasant Hill Road, consideration could be given to installing such signing. One alternative would include guide signs indicating the distance to I-680 via Olympic Boulevard and S.R. 24 via Pleasant Hill Road.

**Table 4**
**Summary of Intersection Levels of Service under Various Alternatives Evaluated**

| Intersection | | AM Peak | | MD Peak | | PM Peak | |
|---|---|---|---|---|---|---|---|
| Condition | *Approach* | Delay | LOS | Delay | LOS | Delay | LOS |
| **Pleasant Hill Rd/Old Tunnel Rd-SR 24E Off-Ramp** | | | | | | | |
| Existing | | 19.2 | B | 18.5 | B | 23.3 | C |
| Split-phased | | 27.8 | C | 24.3 | C | 27.6 | C |
| **Pleasant Hill Rd/Condit Rd** | | | | | | | |
| Existing | *Westbound Approach* | *22.2* | *C* | *22.2* | *C* | *22.4* | *C* |
| Signalized | | 8.5 | A | 6.6 | A | 7.1 | A |
| All-way Stop-controlled | | 32.6 | D | 27.4 | D | 29.1 | D |
| Roundabout | (Overall) | 11.2 | B | 11.0 | B | 11.0 | B |
| | *Northbound Approach* | *10.9* | *B* | *10.8* | *B* | *10.9* | *B* |
| | *Southbound Approach* | *10.8* | *B* | *10.7* | *B* | *10.8* | *B* |
| | *Westbound Approach* | *18.8* | *B* | *17.3* | *B* | *16.6* | *B* |
| Two Lane | *Westbound Approach* | *52.9* | *F* | *45.7* | *E* | *51.3* | *F* |
| **Pleasant Hill Rd/Reliez Station Rd-Reliez Station Ln** | | | | | | | |
| Existing | *Eastbound Approach* | ** | *F* | *58.9* | *F* | *35.6* | *E* |
| | *Westbound Approach* | *23.7* | *C* | *15.0* | *C* | *20.9* | *C* |
| Roundabout | (Overall) | 11.1 | B | 10.9 | B | 10.6 | B |
| | *Northbound Approach* | *10.9* | *B* | *10.7* | *B* | *10.6* | *B* |
| | *Southbound Approach* | *10.4* | *B* | *10.4* | *B* | *10.4* | *B* |
| | *Eastbound Approach* | *18.6* | *B* | *18.3* | *B* | *18.8* | *B* |
| | *Westbound Approach* | *19.8* | *B* | *17.0* | *B* | *16.9* | *B* |
| Two Lane | *Eastbound Approach* | ** | *F* | ** | *F* | *81.4* | *F* |
| | *Westbound Approach* | *43.0* | *E* | *24.3* | *C* | *36.7* | *E* |
| Acceleration Lane | *Eastbound Approach* | ** | *F* | *58.8* | *F* | *35.5* | *E* |
| | *Westbound Approach* | *21.7* | *C* | *15.0* | *C* | *20.8* | *C* |
| **Pleasant Hill Rd/Olympic Blvd** | | | | | | | |
| Existing | | 74.2 | F | 59.4 | F | 47.3 | E |
| Signalized | | 24.9 | C | 21.2 | C | 22.0 | C |
| Roundabout | (Overall) | 22.5 | C | 22.0 | C | 18.8 | B |
| | *Northbound Approach* | *22.0* | *C* | *19.3* | *B* | *15.8* | *B* |
| | *Southbound Approach* | *15.0* | *B* | *14.8* | *B* | *16.5* | *B* |
| | *Eastbound Approach* | *20.1* | *C* | *23.1* | *C* | *19.3* | *B* |
| | *Westbound Approach* | *34.3* | *C* | *29.3* | *C* | *20.9* | *C* |

**Table 5**
**Summary of Roundabout Intersection Levels of Service with 20 Percent Volume Increase**

| Intersection | | AM Peak | | MD Peak | | PM Peak | |
|---|---|---|---|---|---|---|---|
| Condition | *Approach* | **Delay** | **LOS** | **Delay** | **LOS** | Delay | LOS |
| **Pleasant Hill Rd/Condit Rd** | | | | | | | |
| Roundabout | (Overall) | 11.7 | B | 11.3 | B | 11.3 | B |
| | *Northbound Approach* | *11.2* | *B* | *11.1* | *B* | *11.2* | *B* |
| | *Southbound Approach* | *10.8* | *B* | *10.8* | *B* | *10.8* | *B* |
| | *Westbound Approach* | *25.6* | *C* | *21.5* | *C* | *20.2* | *C* |
| **Pleasant Hill Rd/Reliez Station Rd-Reliez Station Ln** | | | | | | | |
| Roundabout | (Overall) | 11.4 | B | 11.0 | B | 10.7 | B |
| | *Northbound Approach* | *11.2* | *B* | *10.9* | *C* | *10.6* | *B* |
| | *Southbound Approach* | *10.5* | *B* | *10.4* | *B* | *10.4* | *B* |
| | *Eastbound Approach* | *21.2* | *C* | *20.9* | *C* | *21.9* | *C* |
| | *Westbound Approach* | *25.6* | *C* | *21.3* | *C* | *19.8* | *B* |
| Pleasant Hill Rd/Olympic Blvd | | | | | | | |
| Roundabout | (Overall) | 45.6 | D | 50.9 | D | 29.4 | C |
| | *Northbound Approach* | *29.5* | *C* | *25.1* | *C* | *18.7* | *B* |
| | *Southbound Approach* | *15.5* | *B* | *14.8* | *B* | *20.6* | *C* |
| | *Eastbound Approach* | *29.6* | *C* | *36.0* | *D* | *22.8* | *C* |
| | *Westbound Approach* | *102* | *F* | *110* | *F* | *44.6* | *D* |

Notes: Delay = average delay in seconds per vehicle
LOS = Level of Service
** = Delay in excess of 120 seconds

Based on the field observations, analysis performed, and discussion with City staff and residents, the following plan was developed. For ease of implementation, it is divided up into those items that are needed and should be completed as soon as possible, those that are less imperative and can be deferred for several years, and those that are not imperative and cannot be completed quickly due to either cost or other constraints, so will require a long time to achieve funding and implementation.

**Highest Priority Improvements and Actions**

- Although it is a personnel-intensive solution, as a short-range action is it recommended that the Police Department provide increased enforcement. Even on an as-available basis, the additional presence will provide some relief from the excessive speeding and contribute to the potential for reducing the speed limit by reducing normal travel speeds, even if only temporarily. Traditional enforcement could be augmented by using a pedestrian decoy to improve compliance with pedestrian right-of-way laws and periodic placement of the radar speed trailer. Additionally, Pleasant Hill Road could be designated as a special enforcement zone and signs installed indicating enforcement by radar.

- To address ongoing concerns regarding pedestrian safety crossing Pleasant Hill Road at Condit Road, this intersection should either be signalized or converted to a roundabout, and the in-pavement crosswalk warning lights removed. The decision between these two alternatives should be based on the long-range plans for the corridor, with the roundabout being more appropriate if the roadway is to be reduced to the two-lane configuration as a long-range solution, while a signal would be more appropriate if the existing four-lane section is to be maintained. It would be possible to install a roundabout as an interim condition until the City constructs a two-lane section for the entire corridor, however, any kind of roundabout installation will require some potentially substantial modifications to existing median islands. The City of Davis, California, may be a useful information source as this City successfully implemented a temporary roundabout installation at Alvarado Road/Anderson Road that has recently been retrofitted to a permanent installation.

- In order to develop a better understanding of the speed of passing traffic, the City should develop a program to lend radar gun to residents to allow them to see how fast traffic is really traveling. This often leads to a better understanding of the actual speed of traffic and the minimal number of vehicles traveling at unacceptably high speeds. It will be necessary for staff to develop guidelines and procedures for the program as well as obtain funding for the necessary equipment.

- The existing "shoulder" area marked on Pleasant Hill Road should be assigned to pedestrian traffic. Although pedestrians are already using this space because it is the only place available to them, its use should be further encouraged by adding pavement legends to indicate that the area is designated for this use, providing access ramps at intersections and installing signs that warn drivers of pedestrians on the shoulder.

- Implement increased "red clearance" times at both S.R. 24 East ramp intersections, as is already being pursued through Caltrans.

- A pattern of narrow grooves in the pavement should be installed beside the travel lanes. Drivers moving too close to the bicycle lane would then receive an auditory and sensory reminder to move back into their lane, thereby reducing the potential for a driver to move over into the bicycle lane without noticing it. Should a cyclist need to swerve over the grooves around any obstacles in the bike path, they would need to be easily traversed by a bicycle tire. This measure would provide added safety to both bicyclists and

pedestrians walking along the edge of the roadway until such time as continuous sidewalks can be provided along Pleasant Hill Road. Noise impacts would be minimal as the grooves would be located outside the normal travel way, so would typically only be encountered by drivers that are not paying sufficient attention and allow their vehicles to wander toward the edge of the road. In conjunction with the installation of the grooves, the City may wish to consider restriping the vehicle lanes to 11 feet. This would assure that the space available to bicyclists and pedestrians is not reduced and further enhances the sense of separation between vehicles and bicyclists and pedestrians. Additionally, the narrower vehicle lanes may provide some minimal reduction in speeds and better align the striping with the flashing lights at Condit Road and reduce the maintenance needed due to the lights being in the wheel track under the existing striping. It should be noted that it is likely that these improvements would not remain in the long run if the two-lane roadway alternative is constructed.

- Traffic counts and a speed survey should be performed on Reliez Station Road after school starts in the fall and prior to implementing any improvements that might cause traffic to divert from Pleasant Hill Road to Reliez Station Road. This "before" data will provide a benchmark against which to determine impacts of any measures implemented.

- Institute a public awareness campaign promoting pedestrian safety. Residents should be encouraged to adopt an attitude of cooperation and courtesy and pedestrians provided with guidance for using the facilities. Some of the ways this could be accomplished include flyers with utility bills, promotional materials as schools, "safe walking" campaigns, "pedestrian buses" for school children, banners, etc.

- Install physical improvements to promote pedestrian safety and access. These measures could address a number of issues including increased awareness, reduced potential for conflict, and increased accessibility. Some specific actions could include installing additional signing at the crosswalks where free right-turns pose a conflict, curb extensions to reduce crossing distance at Condit Road, accessible pedestrian push buttons, and completing the missing segment of sidewalk north of the S.R. 24 East Off-ramp.

- In order to improve access to the southbound bus stop near the intersection of Old Tunnel Road-S.R. 24 East Off-ramp, as well as to improve general pedestrian access and safety, the City should work with Caltrans to install a crosswalk on the north side of this intersection, provide associated pedestrian signal heads and phasing, and complete the gap in the sidewalk just north of the intersection. The south side of the intersection should be appropriately signed to direct pedestrians to the new crosswalk and prohibit crossing on the south side of the intersection. A review of the operational analysis performed indicates that implementation of a pedestrian phase would have little impact on operating conditions, and that average delays well below the target values would be maintained. If the crosswalk and associated phasing cannot, for any reason, be implemented, the City should consider installing appropriate signing and barricades to prohibit pedestrian crossings at this location as well.

- Install a sign on eastbound Olympic Boulevard directing traffic to continue straight to I-680 rather than using Pleasant Hill Road and S.R. 24.

- New radar speed surveys should be performed to determine if a revised Engineering & Traffic Survey can be prepared to reduce the speed limit on Pleasant Hill Road.

**High Priority Improvements**

- Acceleration lanes could be provided at Reliez Station Road and Ameno Drive as an interim improvement depending on the time frame for implementing the ultimate plan by removing the

landscaping and paving sections of the existing median island area. This improvement would likely be eliminated during construction of a two-lane segment if this long-range plan is selected.

- Operational deficiencies at Olympic Boulevard should be addressed through installation of either a traffic signal or roundabout. Signalization, if selected, should include protected left-turn phasing on Olympic Boulevard, split phasing on Pleasant Hill Road, and right-turn overlaps on the southbound and westbound approaches. This phasing scheme is indicated graphically in Figure 7. The other control alternative is a single lane roundabout. It should be noted that the roundabout would operate at LOS C under existing traffic volumes, and appears to have substantial capacity remaining to accommodate future growth. If additional capacity it needed at the roundabout, it could be achieved by constructing "slip lanes" for right-turns on the southbound and/or westbound approaches.

**Long-Range Plan**

- In order to achieve all of the goals indicated, the ideal solution appears to be to install roundabouts at Condit Road and potentially also at Reliez Station Road, with one lane in each direction connecting these intersections. If a roundabout is selected for Olympic Boulevard, the two-lane configuration could be extended all the way south to this terminus. It would, however, be necessary to maintain the existing four-lane configuration on the approaches to the intersection at Old Tunnel Road and continuing to the north. The directional volumes on Pleasant Hill Road are generally equal and one lane is adequate to serve this demand. Further, one lane will result in slower travel speeds since the rate will be set by the most prudent driver. The analysis performed indicates that acceptable operation can be maintained at all three intersections with three single lane roundabouts based on current volumes as well as anticipated future volumes assuming 20 percent growth. The City of Palo Alto is pursuing a similar arterial treatment for Embarcadero Road, with lane reductions and roundabouts at key intersections, and could be a useful source for additional background information.

  In consideration of the concerns regarding diversion from Olympic Boulevard to Reliez Station Road, installation of a roundabout at Reliez Station Road should be deferred until after improvements are made to reduce delays at Pleasant Hill/Olympic Boulevard to avoid increasing diversion along Reliez Station Road. Further, improvements at Pleasant Hill/Olympic Boulevard may reduce the existing volume of diverted traffic, eliminating the need for a roundabout at this location. Additional analysis should be performed at such time as the roundabout at Reliez Station Road would be practical to determine if it is still appropriate.

- The excess right-of-way created by reducing the travelway could be used for bicycle and pedestrian facilities, potentially including a separate path on each side of the street separated from the travel lanes by landscape strips. Several alternative cross-sections are shown graphically in Figure 6.

- The City should continue to monitor the collision history at Pleasant Hill Road/Old Tunnel Road-S.R. 24 East Off-ramp to determine if there is a trend of collisions indicating the need for split-phasing on the Old Tunnel Road and S.R. 24 East Off-ramp approaches.

- Traffic counts and a speed survey should be performed on Reliez Station Road at approximately the same time of year or at least under the same basic conditions as were present when the "before" data was collected. The "before" and "after" data can be compared to determine the impacts of all measures implemented.

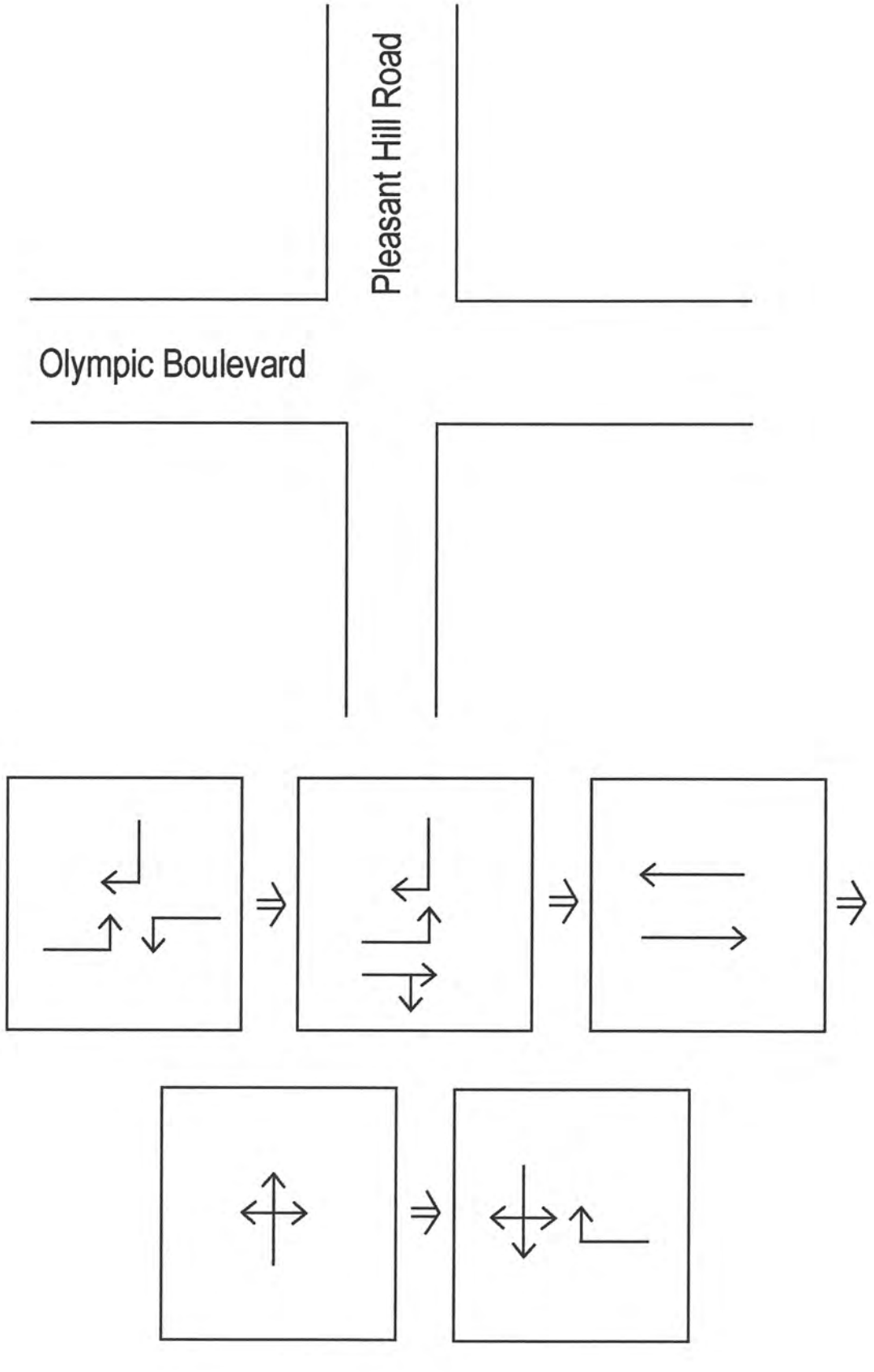


Figure 7 Recommended Signal Phasing at Olympic Boulevard

*Pleasant Hill Road Operational Analysis*

Whitlock & Weinberger Transportation Inc.

City of Lafayette/MTC

LAF002.ai 8/01

## Commission Comments

At the public meeting of the Circulation Commission on August 20, 2001, the final recommendations were presented. The comments of the Commissioners and resulting discussion are paraphrased below.

- Another alternative discussed includes a service road on what is now the southbound lanes for access to the adjacent properties only, and using the existing northbound lanes for two-way through traffic. Access between the service road and Pleasant Hill Road could occur through a new west leg at the proposed roundabout at Condit Road.

- Concerns were expressed relative to the use of roundabouts regarding the availability of adequate gaps for side street traffic to enter the flow of through traffic on Pleasant Hill Road. It was noted that a corridor analysis would need to be undertaken in order to review impacts of platooning between the intersections, travel time under current conditions and with the proposed modifications, the potential safety implications of placing 25 mph right-of-way controls along a 45 mph roadway.

- Demand modeling was suggested as one way to evaluate the potential for diverting trips to alternative routes and the impacts of such diversion and to determine the amount of capacity available for future increases in traffic volumes.

- The overriding question of whether or not it is appropriate to try and reduce speeds to 35 mph may need to be re-addressed in terms of the impact on the large number of people who do not live in this neighborhood and use this roadway on a regular basis.

- Further review of available literature on roundabouts should be performed, particularly related to pedestrian and bicycle safety.

- It was suggested that speed tables could be used at the crosswalks in conjunction with roundabouts to enhance pedestrian visibility and further enforce the lower speeds desired. Although there was some discussion of using speed tables without the roundabout, there was concern that speed tables are inappropriate for use on a 45 mph roadway and could result in unsafe conditions without some other means to achieve lower speeds along the corridor.

- The procedure for setting the speed limit on a roadway that has undergone major reconstruction should be addressed.

- Staff will need to verify if the Contra Costa Transportation Authority would need to review plans to narrow Pleasant Hill Road.

- Concern relative to the proposed narrowing of Pleasant Hill Road was expressed due to potential impacts associated with growth in neighboring jurisdictions.

## Study Participants

| | |
|---|---|
| Project Manager: | Dalene J. Whitlock, P.E., P.T.O.E. |
| Project Planner: | Zack Matley, AICP |
| Graphics: | Debbie Dunn |
| Technician: | Debbie Dunn |
| Report Review: | Steve Weinberger, P.E., P.T.O.E. |
| Data Collection: | Marks Traffic Data Service |

## References

*Highway Capacity Manual*, Special Report No. 209, Transportation Research Board, 1994
*Highway Design Manual*, 4th Edition, California Department of Transportation
*Roundabouts: An Informational Guide*, Federal Highway Administration (FHWA), March 2000 Insurance
*Status Report: Roundabouts*, Insurance Institute for Highway Safety (IIHS), May 13, 2000
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Level of Service Calculations

AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #1 Pleasant Hill Rd/Mount Diable Blvd-24 EB Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.529
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 22.7
Optimal Cycle: 34 Level Of Service: C

| Approach: | North Bound | | | | South Bound | | | | East Bound | | | | West Bound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - T | - R | | L | - T | - R | | L | - T | - R | | L | - T | - R | |
| Control: | Protected | | | | Protected | | | | Split Phase | | | | Split Phase | | | |
| Rights: | Ignore | | | | Ignore | | | | Include | | | | Ignore | | | |
| Min. Green: | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Lanes: | 1 | 0 2 | 0 | 1 | 0 | 0 2 | 0 | 1 | 1 | 0 1 | 1 | 0 | 0 | 0 0 | 0 | 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | |
| Base Vol: | 256 | 580 | 399 | | 0 | 603 | 806 | | 169 | 287 | 140 | | 0 | 0 | 199 | |
| 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: | 256 | 580 | 399 | | 0 | 603 | 806 | | 169 | 287 | 140 | | 0 | 0 | 199 | |
| User Adj: | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.00 | |
| PHF Adj: | 0.86 | 0.86 | 0.00 | | 0.90 | 0.90 | 0.00 | | 0.91 | 0.91 | 0.91 | | 0.67 | 0.67 | 0.00 | |
| PHF Volume: | 299 | 678 | 0 | | 0 | 669 | 0 | | 185 | 314 | 153 | | 0 | 0 | 0 | |
| Reduct Vol: | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Reduced Vol: | 299 | 678 | 0 | | 0 | 669 | 0 | | 185 | 314 | 153 | | 0 | 0 | 0 | |
| PCE Adj: | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.00 | |
| MLF Adj: | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 0.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.00 | |
| Final Vol.: | 299 | 678 | 0 | | 0 | 669 | 0 | | 185 | 314 | 153 | | 0 | 0 | 0 | |
| Saturation Flow Module: | | | | | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | |
| Adjustment: | 0.95 | 0.95 | 1.00 | | 1.00 | 0.95 | 1.00 | | 0.95 | 0.90 | 0.90 | | 1.00 | 1.00 | 1.00 | |
| Lanes: | 1.00 | 2.00 | 1.00 | | 0.00 | 2.00 | 1.00 | | 1.00 | 1.34 | 0.66 | | 0.00 | 0.00 | 1.00 | |
| Final Sat.: | 1805 | 3610 | 1900 | | 0 | 3610 | 1900 | | 1807 | 2308 | 1125 | | 0 | 0 | 1900 | |
| Capacity Analysis Module: | | | | | | | | | | | | | | | | |
| Vol/Sat: | 0.17 | 0.19 | 0.00 | | 0.00 | 0.19 | 0.00 | | 0.10 | 0.14 | 0.14 | | 0.00 | 0.00 | 0.00 | |
| Crit Moves: | **** | | | | | **** | | | | | **** | | | | | |
| Green/Cycle: | 0.31 | 0.66 | 0.00 | | 0.00 | 0.35 | 0.00 | | 0.26 | 0.26 | 0.26 | | 0.00 | 0.00 | 0.00 | |
| Volume/Cap: | 0.53 | 0.28 | 0.00 | | 0.00 | 0.53 | 0.00 | | 0.40 | 0.53 | 0.53 | | 0.00 | 0.00 | 0.00 | |
| Delay/Veh: | 29.2 | 7.1 | 0.0 | | 0.0 | 26.3 | 0.0 | | 31.3 | 32.6 | 32.6 | | 0.0 | 0.0 | 0.0 | |
| 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: | 29.2 | 7.1 | 0.0 | | 0.0 | 26.3 | 0.0 | | 31.3 | 32.6 | 32.6 | | 0.0 | 0.0 | 0.0 | |
| DesignQueue: | 12 | 13 | 0 | | 0 | 25 | 0 | | 8 | 13 | 7 | | 0 | 0 | 0 | |





AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.493
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 19.2
Optimal Cycle: 31 Level Of Service: B

| Approach: | North Bound | | | | South Bound | | | | East Bound | | | | West Bound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - T | - R | | L | - T | - R | | L | - T | - R | | L | - T | - R | |
| Control: | Protected | | | | Protected | | | | Permitted | | | | Permitted | | | |
| Rights: | Include | | | | Include | | | | Include | | | | Include | | | |
| Min. Green: | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Lanes: | 0 | 0 2 | 1 | 0 | 1 | 0 2 | 0 | 0 | 0 | 1 0 | 0 | 1 | 1 | 0 0 | 0 | 1 |
| Volume Module: >> Count Date: 13 Sep 2000 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 1004 | 25 | | 100 | 634 | 0 | | 50 | 28 | 192 | | 13 | 0 | 161 | |
| 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: | 0 | 1004 | 25 | | 100 | 634 | 0 | | 50 | 28 | 192 | | 13 | 0 | 161 | |
| 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: | 0.87 | 0.87 | 0.87 | | 0.86 | 0.86 | 0.86 | | 0.75 | 0.75 | 0.75 | | 0.76 | 0.76 | 0.76 | |
| PHF Volume: | 0 | 1159 | 29 | | 117 | 740 | 0 | | 67 | 37 | 256 | | 17 | 0 | 211 | |
| Reduct Vol: | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Reduced Vol: | 0 | 1159 | 29 | | 117 | 740 | 0 | | 67 | 37 | 256 | | 17 | 0 | 211 | |
| 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 | |
| Final Vol.: | 0 | 1159 | 29 | | 117 | 740 | 0 | | 67 | 37 | 256 | | 17 | 0 | 211 | |
| Saturation Flow Module: | | | | | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | |
| Adjustment: | 1.00 | 0.91 | 0.91 | | 0.95 | 0.95 | 1.00 | | 0.83 | 0.83 | 0.85 | | 0.64 | 1.00 | 0.85 | |
| Lanes: | 0.00 | 2.93 | 0.07 | | 1.00 | 2.00 | 0.00 | | 0.64 | 0.36 | 1.00 | | 1.00 | 0.00 | 1.00 | |
| Final Sat.: | 0 | 5040 | 126 | | 1805 | 3610 | 0 | | 1018 | 562 | 1615 | | 1218 | 0 | 1615 | |
| Capacity Analysis Module: | | | | | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.23 | 0.23 | | 0.06 | 0.20 | 0.00 | | 0.07 | 0.07 | 0.16 | | 0.01 | 0.00 | 0.13 | |
| Crit Moves: | | **** | | | **** | | | | | | **** | | | | | |
| Green/Cycle: | 0.00 | 0.47 | 0.47 | | 0.13 | 0.60 | 0.00 | | 0.32 | 0.32 | 0.32 | | 0.32 | 0.00 | 0.32 | |
| Volume/Cap: | 0.00 | 0.49 | 0.49 | | 0.49 | 0.34 | 0.00 | | 0.20 | 0.20 | 0.49 | | 0.04 | 0.00 | 0.41 | |
| Delay/Veh: | 0.0 | 18.6 | 18.6 | | 41.9 | 10.2 | 0.0 | | 24.8 | 24.8 | 28.1 | | 23.4 | 0.0 | 27.0 | |
| 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: | 0.0 | 18.6 | 18.6 | | 41.9 | 10.2 | 0.0 | | 24.8 | 24.8 | 28.1 | | 23.4 | 0.0 | 27.0 | |
| DesignQueue: | 0 | 36 | 1 | | 6 | 17 | 0 | | 3 | 1 | 10 | | 1 | 0 | 8 | |

AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Average Delay (sec/veh): 22.2 Worst Case Level Of Service: C

| Approach: | North Bound | | | | | | South Bound | | | | | | East Bound | | | | | | West Bound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | |
| Control: | Uncontrolled | | | | | | Uncontrolled | | | | | | Stop Sign | | | | | | Stop Sign | | | | | |
| Rights: | Include | | | | | | Include | | | | | | Include | | | | | | Include | | | | | |
| Lanes: | 0 | 1 | 0 | 1 | 0 | | 1 | 0 | 1 | 1 | 0 | | 0 | 0 | 1! | 0 | 0 | | 0 | 0 | 1! | 0 | 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 973 | 25 | | | | 78 | 771 | 0 | | | | 0 | 0 | 0 | | | | 14 | 0 | 70 | | | |
| 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: | 0 | 973 | 25 | | | | 78 | 771 | 0 | | | | 0 | 0 | 0 | | | | 14 | 0 | 70 | | | |
| 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: | 0.93 | 0.93 | 0.93 | | | | 0.90 | 0.90 | 0.90 | | | | 0.25 | 0.25 | 0.25 | | | | 0.67 | 0.67 | 0.67 | | | |
| PHF Volume: | 0 | 1043 | 27 | | | | 86 | 854 | 0 | | | | 0 | 0 | 0 | | | | 21 | 0 | 105 | | | |
| Reduct Vol: | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | |
| Final Vol.: | 0 | 1043 | 27 | | | | 86 | 854 | 0 | | | | 0 | 0 | 0 | | | | 21 | 0 | 105 | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | | 4.1 | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | 6.8 | xxxx | 6.9 | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | | 2.2 | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | 3.5 | xxxx | 3.3 | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | | 862 | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | 1499 | xxxx | 283 | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | | 728 | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | 106 | xxxx | 664 | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | | 726 | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | 96 | xxxx | 662 | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | | | | 10.6 | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | |
| LOS by Move: | * | * | * | | | | B | * | * | | | | * | * | * | | | | * | * | * | | | |
| Movement: | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | |
| Shared Cap.: | xxxx | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | xxxx | 0 | xxxxx | | | | xxxx | 334 | xxxxx | | | |
| Shrd StpDel: | 0.0 | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | 22.2 | xxxxx | | | |
| Shared LOS: | A | * | * | | | | * | * | * | | | | * | * | * | | | | * | C | * | | | |
| ApproachDel: | xxxxxx | | | | | | xxxxxx | | | | | | xxxxxx | | | | | | 22.2 | | | | | |
| ApproachLOS: | * | | | | | | * | | | | | | * | | | | | | C | | | | | |





AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 138.3 Worst Case Level Of Service: F

| Approach: | North Bound | | | | | | South Bound | | | | | | East Bound | | | | | | West Bound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | |
| Control: | Uncontrolled | | | | | | Uncontrolled | | | | | | Stop Sign | | | | | | Stop Sign | | | | | |
| Rights: | Include | | | | | | Include | | | | | | Include | | | | | | Include | | | | | |
| Lanes: | 1 | 0 | 1 | 1 | 0 | | 1 | 0 | 1 | 1 | 0 | | 0 | 0 | 1! | 0 | 0 | | 0 | 0 | 1! | 0 | 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 2 | 921 | 3 | | | | 7 | 746 | 32 | | | | 71 | 1 | 2 | | | | 6 | 0 | 6 | | | |
| 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: | 2 | 921 | 3 | | | | 7 | 746 | 32 | | | | 71 | 1 | 2 | | | | 6 | 0 | 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: | 0.97 | 0.97 | 0.97 | | | | 0.93 | 0.93 | 0.93 | | | | 0.49 | 0.49 | 0.49 | | | | 0.38 | 0.38 | 0.38 | | | |
| PHF Volume: | 2 | 950 | 3 | | | | 8 | 802 | 34 | | | | 146 | 2 | 4 | | | | 16 | 0 | 16 | | | |
| Reduct Vol: | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | | | |
| Final Vol.: | 2 | 950 | 3 | | | | 8 | 802 | 34 | | | | 146 | 2 | 4 | | | | 16 | 0 | 16 | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | | | | 4.1 | xxxx | xxxxx | | | | 7.5 | 6.5 | 6.9 | | | | 7.5 | xxxx | 6.9 | | | |
| FollowUpTim: | 2.2 | xxxx | xxxxx | | | | 2.2 | xxxx | xxxxx | | | | 3.5 | 4.0 | 3.3 | | | | 3.5 | xxxx | 3.3 | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 837 | xxxx | xxxxx | | | | 723 | xxxx | xxxxx | | | | 1114 | 1634 | 418 | | | | 1179 | xxxx | 205 | | | |
| Potent Cap.: | 806 | xxxx | xxxxx | | | | 818 | xxxx | xxxxx | | | | 152 | 94 | 589 | | | | 136 | xxxx | 744 | | | |
| Move Cap.: | 806 | xxxx | xxxxx | | | | 818 | xxxx | xxxxx | | | | 147 | 93 | 589 | | | | 132 | xxxx | 744 | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | 9.5 | xxxx | xxxxx | | | | 9.4 | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | |
| LOS by Move: | A | * | * | | | | A | * | * | | | | * | * | * | | | | * | * | * | | | |
| Movement: | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | |
| Shared Cap.: | xxxx | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | xxxx | 149 | xxxxx | | | | xxxx | 224 | xxxxx | | | |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | 138 | xxxxx | | | | xxxxx | 23.7 | xxxxx | | | |
| Shared LOS: | * | * | * | | | | * | * | * | | | | * | F | * | | | | * | C | * | | | |
| ApproachDel: | xxxxxx | | | | | | xxxxxx | | | | | | 138.3 | | | | | | 23.7 | | | | | |
| ApproachLOS: | * | | | | | | * | | | | | | F | | | | | | C | | | | | |

AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Pleasant Hill Rd/Olympic Blvd

Cycle (sec): 100 Critical Vol./Cap. (X): 1.300
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 74.2
Optimal Cycle: 0 Level Of Service: F

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Ignore | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 1! 0 | 0 | 1 0 | 1 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 3 | 5 | 2 | 316 | 7 | 444 | 556 | 310 | 4 | 1 | 267 | 388 |
| 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: | 3 | 5 | 2 | 316 | 7 | 444 | 556 | 310 | 4 | 1 | 267 | 388 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| PHF Adj: | 0.56 | 0.56 | 0.56 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.82 | 0.82 | 0.00 |
| PHF Volume: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 0 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Final Vol.: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.28 | 0.50 | 0.22 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.01 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 104 | 188 | 83 | 449 | 471 | 529 | 453 | 476 | 6 | 371 | 402 | 0 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.05 | 0.05 | 0.05 | 0.75 | 0.01 | 0.89 | 1.30 | 0.69 | 0.69 | 0.00 | 0.81 | xxxx |
| Crit Moves: | | **** | | | | **** | **** | | | | **** | |
| Delay/Veh: | 12.6 | 12.6 | 12.6 | 30.8 | 10.3 | 42.8 | 174.0 | 24.8 | 24.8 | 12.1 | 39.7 | 0.0 |
| Delay 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 |
| AdjDel/Veh: | 12.6 | 12.6 | 12.6 | 30.8 | 10.3 | 42.8 | 174.0 | 24.8 | 24.8 | 12.1 | 39.7 | 0.0 |
| LOS by Move: | B | B | B | D | B | E | F | C | C | B | E | * |
| ApproachDel: | | 12.6 | | | 37.5 | | | 120.2 | | | 39.6 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| ApprAdjDel: | | 12.6 | | | 37.5 | | | 120.2 | | | 39.6 | |
| LOS by Appr: | | B | | | E | | | F | | | E | |

MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #1 Pleasant Hill Rd/Mount Diable Blvd-24 EB Ramp

| | | | | | | |
|---|---|---|---|---|---|---|
| Cycle (sec): | 100 | | Critical Vol./Cap. (X): | | 0.582 | |
| Loss Time (sec): | 8 (Y+R = | 4 sec) | Average Delay (sec/veh): | | 24.9 | |
| Optimal Cycle: | 37 | | Level Of Service: | | C | |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Split Phase | | | Split Phase | | |
| Rights: | Ignore | | | Ignore | | | Include | | | Ignore | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 1 | 0 2 | 0 1 | 0 | 0 2 | 0 1 | 1 | 0 1 | 1 0 | 0 | 0 0 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:45 - 3:45 pm | | | | | | | | | | | | |
| Base Vol: | 282 | 510 | 350 | 0 | 485 | 511 | 218 | 430 | 273 | 0 | 0 | 395 |
| 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: | 282 | 510 | 350 | 0 | 485 | 511 | 218 | 430 | 273 | 0 | 0 | 395 |
| User Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| PHF Adj: | 0.97 | 0.97 | 0.00 | 0.88 | 0.88 | 0.00 | 0.94 | 0.94 | 0.94 | 0.82 | 0.82 | 0.00 |
| PHF Volume: | 292 | 528 | 0 | 0 | 553 | 0 | 233 | 459 | 292 | 0 | 0 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 292 | 528 | 0 | 0 | 553 | 0 | 233 | 459 | 292 | 0 | 0 | 0 |
| PCE Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| MLF Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Final Vol.: | 292 | 528 | 0 | 0 | 553 | 0 | 233 | 459 | 292 | 0 | 0 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.94 | 0.89 | 0.89 | 1.00 | 1.00 | 1.00 |
| Lanes: | 1.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 1.00 | 1.22 | 0.78 | 0.00 | 0.00 | 1.00 |
| Final Sat.: | 1805 | 3610 | 1900 | 0 | 3610 | 1900 | 1790 | 2078 | 1322 | 0 | 0 | 1900 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.16 | 0.15 | 0.00 | 0.00 | 0.15 | 0.00 | 0.13 | 0.22 | 0.22 | 0.00 | 0.00 | 0.00 |
| Crit Moves: | **** | | | | **** | | | | **** | | | |
| Green/Cycle: | 0.28 | 0.54 | 0.00 | 0.00 | 0.26 | 0.00 | 0.38 | 0.38 | 0.38 | 0.00 | 0.00 | 0.00 |
| Volume/Cap: | 0.58 | 0.27 | 0.00 | 0.00 | 0.58 | 0.00 | 0.34 | 0.58 | 0.58 | 0.00 | 0.00 | 0.00 |
| Delay/Veh: | 32.9 | 12.4 | 0.0 | 0.0 | 33.0 | 0.0 | 22.5 | 25.4 | 25.4 | 0.0 | 0.0 | 0.0 |
| 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: | 32.9 | 12.4 | 0.0 | 0.0 | 33.0 | 0.0 | 22.5 | 25.4 | 25.4 | 0.0 | 0.0 | 0.0 |
| DesignQueue: | 12 | 14 | 0 | 0 | 24 | 0 | 8 | 17 | 11 | 0 | 0 | 0 |





MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

| | | | | | | |
|---|---|---|---|---|---|---|
| Cycle (sec): | 100 | | Critical Vol./Cap. (X): | | 0.450 | |
| Loss Time (sec): | 8 (Y+R = | 4 sec) | Average Delay (sec/veh): | | 18.5 | |
| Optimal Cycle: | 29 | | Level Of Service: | | B | |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Permitted | | | Permitted | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 | 0 2 | 1 0 | 1 | 0 2 | 0 0 | 0 | 1 0 | 0 1 | 1 | 0 0 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:45 - 3:45 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 1001 | 18 | 131 | 631 | 0 | 42 | 47 | 177 | 17 | 0 | 123 |
| 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: | 0 | 1001 | 18 | 131 | 631 | 0 | 42 | 47 | 177 | 17 | 0 | 123 |
| 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: | 0.94 | 0.94 | 0.94 | 0.87 | 0.87 | 0.87 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| 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 |
| Final Vol.: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 | 0.88 | 0.88 | 0.85 | 0.63 | 1.00 | 0.85 |
| Lanes: | 0.00 | 2.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.47 | 0.53 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 0 | 5080 | 91 | 1805 | 3610 | 0 | 792 | 876 | 1615 | 1203 | 0 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.21 | 0.21 | 0.08 | 0.20 | 0.00 | 0.06 | 0.06 | 0.12 | 0.01 | 0.00 | 0.08 |
| Crit Moves: | | **** | | **** | | | | | **** | | | |
| Green/Cycle: | 0.00 | 0.46 | 0.46 | 0.18 | 0.65 | 0.00 | 0.27 | 0.27 | 0.27 | 0.27 | 0.00 | 0.27 |
| Volume/Cap: | 0.00 | 0.45 | 0.45 | 0.45 | 0.31 | 0.00 | 0.22 | 0.22 | 0.45 | 0.06 | 0.00 | 0.31 |
| Delay/Veh: | 0.0 | 18.3 | 18.3 | 37.2 | 7.8 | 0.0 | 28.5 | 28.5 | 31.0 | 27.0 | 0.0 | 29.4 |
| 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: | 0.0 | 18.3 | 18.3 | 37.2 | 7.8 | 0.0 | 28.5 | 28.5 | 31.0 | 27.0 | 0.0 | 29.4 |
| DesignQueue: | 0 | 33 | 1 | 7 | 15 | 0 | 2 | 2 | 8 | 1 | 0 | 6 |

MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Average Delay (sec/veh): 22.2 Worst Case Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 0 1 | 0 | 1 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.72 | 0.72 | 0.72 |
| PHF Volume: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 6.8 | xxxx | 6.9 |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 837 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1465 | xxxx | 298 |
| Potent Cap.: | xxxx | xxxx | xxxxx | 753 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 113 | xxxx | 658 |
| Move Cap.: | xxxx | xxxx | xxxxx | 751 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 104 | xxxx | 654 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | 10.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | B | * | * | * | * | * | * | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 0 | xxxxx | xxxx | 304 | xxxxx |
| Shrd StpDel: | 0.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 22.2 | xxxxx |
| Shared LOS: | A | * | * | * | * | * | * | * | * | * | C | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | xxxxxx | | | 22.2 | | |
| ApproachLOS: | * | | | * | | | * | | | C | | |





MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 58.9 Worst Case Level Of Service: F

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 1 0 | 1 | 1 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | |
| Base Vol: | 3 | 876 | 4 | 5 | 769 | 30 | 45 | 0 | 6 | 2 | 0 | 10 |
| 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: | 3 | 876 | 4 | 5 | 769 | 30 | 45 | 0 | 6 | 2 | 0 | 10 |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.64 | 0.64 | 0.64 | 0.50 | 0.50 | 0.50 |
| PHF Volume: | 3 | 977 | 4 | 5 | 838 | 33 | 71 | 0 | 9 | 4 | 0 | 20 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 3 | 977 | 4 | 5 | 838 | 33 | 71 | 0 | 9 | 4 | 0 | 20 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | xxxx | 6.9 | 7.5 | xxxx | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 870 | xxxx | xxxxx | 790 | xxxx | xxxxx | 1197 | xxxx | 435 | 1256 | xxxx | 264 |
| Potent Cap.: | 783 | xxxx | xxxxx | 782 | xxxx | xxxxx | 134 | xxxx | 574 | 121 | xxxx | 690 |
| Move Cap.: | 783 | xxxx | xxxxx | 782 | xxxx | xxxxx | 129 | xxxx | 574 | 118 | xxxx | 690 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | 9.6 | xxxx | xxxxx | 9.6 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 142 | xxxxx | xxxx | 382 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 58.9 | xxxxx | xxxxx | 15.0 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | F | * | * | C | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 58.9 | | | 15.0 | | |
| ApproachLOS: | * | | | * | | | F | | | C | | |

MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Pleasant Hill Rd/Olympic Blvd

Cycle (sec): 100 Critical Vol./Cap. (X): 1.183
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 59.4
Optimal Cycle: 0 Level Of Service: F

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Ignore | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 0 1 | 0 | 1 0 | 1 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:45 - 3:45 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 4 | 3 | 397 | 6 | 383 | 524 | 211 | 0 | 2 | 226 | 437 |
| 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: | 0 | 4 | 3 | 397 | 6 | 383 | 524 | 211 | 0 | 2 | 226 | 437 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| PHF Adj: | 0.60 | 0.60 | 0.60 | 0.94 | 0.94 | 0.94 | 0.96 | 0.96 | 0.96 | 0.93 | 0.93 | 0.00 |
| PHF Volume: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 0 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Final Vol.: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.00 | 0.58 | 0.42 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 0 | 237 | 170 | 466 | 491 | 551 | 463 | 491 | 0 | 383 | 410 | 0 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | xxxx | 0.03 | 0.03 | 0.91 | 0.01 | 0.74 | 1.18 | 0.45 | xxxx | 0.01 | 0.59 | xxxx |
| Crit Moves: | | **** | | **** | | | **** | | | | **** | |
| Delay/Veh: | 0.0 | 11.7 | 11.7 | 49.3 | 10.0 | 25.4 | 128.0 | 15.7 | 0.0 | 11.9 | 23.0 | 0.0 |
| Delay 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 |
| AdjDel/Veh: | 0.0 | 11.7 | 11.7 | 49.3 | 10.0 | 25.4 | 128.0 | 15.7 | 0.0 | 11.9 | 23.0 | 0.0 |
| LOS by Move: | * | B | B | E | B | D | F | C | * | B | C | * |
| ApproachDel: | | 11.7 | | | 37.4 | | | 95.8 | | | 22.9 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| ApprAdjDel: | | 11.7 | | | 37.4 | | | 95.8 | | | 22.9 | |
| LOS by Appr: | | B | | | E | | | F | | | C | |

PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #1 Pleasant Hill Rd/Mount Diable Blvd-24 EB Ramp

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap. (X): | 0.576 |
| Loss Time (sec): | 8 (Y+R = 4 sec) | Average Delay (sec/veh): | 24.4 |
| Optimal Cycle: | 37 | Level Of Service: | C |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Split Phase | | | Split Phase | | |
| Rights: | Ignore | | | Ignore | | | Include | | | Ignore | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 1 | 0 2 | 0 1 | 0 | 0 2 | 0 1 | 1 | 0 1 | 1 0 | 0 | 0 0 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:45 - 5:45 pm | | | | | | | | | | | | |
| Base Vol: | 227 | 518 | 239 | 0 | 553 | 582 | 235 | 472 | 257 | 0 | 0 | 918 |
| 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: | 227 | 518 | 239 | 0 | 553 | 582 | 235 | 472 | 257 | 0 | 0 | 918 |
| User Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| PHF Adj: | 0.87 | 0.87 | 0.00 | 0.91 | 0.91 | 0.00 | 0.98 | 0.98 | 0.98 | 0.92 | 0.92 | 0.00 |
| PHF Volume: | 261 | 596 | 0 | 0 | 608 | 0 | 239 | 480 | 261 | 0 | 0 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 261 | 596 | 0 | 0 | 608 | 0 | 239 | 480 | 261 | 0 | 0 | 0 |
| PCE Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| MLF Adj: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Final Vol.: | 261 | 596 | 0 | 0 | 608 | 0 | 239 | 480 | 261 | 0 | 0 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 0.90 | 0.90 | 1.00 | 1.00 | 1.00 |
| Lanes: | 1.00 | 2.00 | 1.00 | 0.00 | 2.00 | 1.00 | 1.00 | 1.30 | 0.70 | 0.00 | 0.00 | 1.00 |
| Final Sat.: | 1805 | 3610 | 1900 | 0 | 3610 | 1900 | 1799 | 2215 | 1204 | 0 | 0 | 1900 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.14 | 0.17 | 0.00 | 0.00 | 0.17 | 0.00 | 0.13 | 0.22 | 0.22 | 0.00 | 0.00 | 0.00 |
| Crit Moves: | **** | | | | **** | | | **** | | | | |
| Green/Cycle: | 0.25 | 0.54 | 0.00 | 0.00 | 0.29 | 0.00 | 0.38 | 0.38 | 0.38 | 0.00 | 0.00 | 0.00 |
| Volume/Cap: | 0.58 | 0.30 | 0.00 | 0.00 | 0.58 | 0.00 | 0.35 | 0.58 | 0.58 | 0.00 | 0.00 | 0.00 |
| Delay/Veh: | 34.6 | 12.6 | 0.0 | 0.0 | 30.9 | 0.0 | 22.7 | 25.5 | 25.5 | 0.0 | 0.0 | 0.0 |
| 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: | 34.6 | 12.6 | 0.0 | 0.0 | 30.9 | 0.0 | 22.7 | 25.5 | 25.5 | 0.0 | 0.0 | 0.0 |
| DesignQueue: | 11 | 16 | 0 | 0 | 25 | 0 | 9 | 18 | 10 | 0 | 0 | 0 |





PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap. (X): | 0.627 |
| Loss Time (sec): | 8 (Y+R = 4 sec) | Average Delay (sec/veh): | 23.3 |
| Optimal Cycle: | 41 | Level Of Service: | C |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Permitted | | | Permitted | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 2 | 1 0 | 1 | 0 2 | 0 0 | 0 | 1 0 | 0 1 | 1 | 0 0 | 0 1 |
| Volume Module: >> Count Date: 13 Sep 2000 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 867 | 14 | 182 | 688 | 0 | 100 | 56 | 305 | 16 | 0 | 73 |
| 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: | 0 | 867 | 14 | 182 | 688 | 0 | 100 | 56 | 305 | 16 | 0 | 73 |
| 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: | 0.70 | 0.70 | 0.70 | 0.93 | 0.93 | 0.93 | 0.84 | 0.84 | 0.84 | 0.86 | 0.86 | 0.86 |
| PHF Volume: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| 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 |
| Final Vol.: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 | 0.81 | 0.81 | 0.85 | 0.54 | 1.00 | 0.85 |
| Lanes: | 0.00 | 2.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.64 | 0.36 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 0 | 5094 | 82 | 1805 | 3610 | 0 | 986 | 551 | 1615 | 1022 | 0 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.24 | 0.24 | 0.11 | 0.20 | 0.00 | 0.12 | 0.12 | 0.23 | 0.02 | 0.00 | 0.05 |
| Crit Moves: | | **** | | **** | | | | | **** | | | |
| Green/Cycle: | 0.00 | 0.39 | 0.39 | 0.17 | 0.56 | 0.00 | 0.36 | 0.36 | 0.36 | 0.36 | 0.00 | 0.36 |
| Volume/Cap: | 0.00 | 0.63 | 0.63 | 0.63 | 0.36 | 0.00 | 0.34 | 0.34 | 0.63 | 0.05 | 0.00 | 0.15 |
| Delay/Veh: | 0.0 | 25.4 | 25.4 | 42.5 | 12.3 | 0.0 | 23.7 | 23.7 | 28.6 | 20.9 | 0.0 | 21.7 |
| 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: | 0.0 | 25.4 | 25.4 | 42.5 | 12.3 | 0.0 | 23.7 | 23.7 | 28.6 | 20.9 | 0.0 | 21.7 |
| DesignQueue: | 0 | 45 | 1 | 9 | 19 | 0 | 4 | 2 | 14 | 1 | 0 | 3 |

PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Average Delay (sec/veh): 22.4 Worst Case Level Of Service: C

| Approach: | North Bound | | | | | South Bound | | | | | East Bound | | | | | West Bound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R |
| Control: | Uncontrolled | | | | | Uncontrolled | | | | | Stop Sign | | | | | Stop Sign | | | | |
| Rights: | Include | | | | | Include | | | | | Include | | | | | Include | | | | |
| Lanes: | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 | | | | | | | | |
| 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: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 | | | | | | | | |
| 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: | 0.89 | 0.89 | 0.89 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.69 | 0.69 | 0.69 | | | | | | | | |
| PHF Volume: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 | | | | | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| Final Vol.: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 | | | | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 6.8 | xxxx | 6.9 | | | | | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 715 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1442 | xxxx | 173 | | | | | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | 810 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 114 | xxxx | 767 | | | | | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | 807 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 102 | xxxx | 763 | | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | 10.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| LOS by Move: | * | * | * | B | * | * | * | * | * | * | * | * | | | | | | | | |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | | | | | | | | |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 0 | xxxxx | xxxx | 306 | xxxxx | | | | | | | | |
| Shrd StpDel: | 0.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 22.4 | xxxxx | | | | | | | | |
| Shared LOS: | A | * | * | * | * | * | * | * | * | * | C | * | | | | | | | | |
| ApproachDel: | xxxxxx | | | xxxxxx | | | xxxxxx | | | 22.4 | | | | | | | | | | |
| ApproachLOS: | * | | | * | | | * | | | C | | | | | | | | | | |





PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 35.6 Worst Case Level Of Service: E

| Approach: | North Bound | | | | | South Bound | | | | | East Bound | | | | | West Bound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R |
| Control: | Uncontrolled | | | | | Uncontrolled | | | | | Stop Sign | | | | | Stop Sign | | | | |
| Rights: | Include | | | | | Include | | | | | Include | | | | | Include | | | | |
| Lanes: | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 | | | | | | | | |
| 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: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 | | | | | | | | |
| 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: | 0.89 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.66 | 0.66 | 0.66 | 0.50 | 0.50 | 0.50 | | | | | | | | |
| PHF Volume: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 | | | | | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| Final Vol.: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 | | | | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | xxxx | 6.9 | 7.5 | xxxx | 6.9 | | | | | | | | |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 3.5 | xxxx | 3.3 | | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 948 | xxxx | xxxxx | 643 | xxxx | xxxxx | 1175 | xxxx | 474 | 1166 | xxxx | 128 | | | | | | | | |
| Potent Cap.: | 733 | xxxx | xxxxx | 859 | xxxx | xxxxx | 135 | xxxx | 542 | 137 | xxxx | 817 | | | | | | | | |
| Move Cap.: | 733 | xxxx | xxxxx | 859 | xxxx | xxxxx | 133 | xxxx | 542 | 134 | xxxx | 817 | | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | 9.9 | xxxx | xxxxx | 9.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * | | | | | | | | |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | | | | | | | | |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 149 | xxxxx | xxxx | 231 | xxxxx | | | | | | | | |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 35.6 | xxxxx | xxxxx | 20.9 | xxxxx | | | | | | | | |
| Shared LOS: | * | * | * | * | * | * | * | E | * | * | C | * | | | | | | | | |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 35.6 | | | 20.9 | | | | | | | | | | |
| ApproachLOS: | * | | | * | | | E | | | C | | | | | | | | | | |

PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #5 Pleasant Hill Rd/Olympic Blvd

Cycle (sec): 100 Critical Vol./Cap. (X): 1.079
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 47.3
Optimal Cycle: 0 Level Of Service: E

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Ignore | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 0 1 | 0 | 1 0 | 1 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:00 - 5:00 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 4 | 2 | 360 | 5 | 419 | 409 | 216 | 4 | 0 | 297 | 439 |
| 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: | 0 | 4 | 2 | 360 | 5 | 419 | 409 | 216 | 4 | 0 | 297 | 439 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| PHF Adj: | 0.50 | 0.50 | 0.50 | 0.96 | 0.96 | 0.96 | 0.83 | 0.83 | 0.83 | 0.94 | 0.94 | 0.00 |
| PHF Volume: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 0 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Final Vol.: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.00 | 0.67 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.02 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 0 | 255 | 128 | 454 | 477 | 536 | 457 | 476 | 9 | 0 | 409 | 0 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | xxxx | 0.03 | 0.03 | 0.83 | 0.01 | 0.81 | 1.08 | 0.55 | 0.55 | xxxx | 0.77 | xxxx |
| Crit Moves: | | | **** | **** | | | **** | | | | **** | |
| Delay/Veh: | 0.0 | 12.2 | 12.2 | 37.9 | 10.2 | 32.1 | 92.5 | 18.4 | 18.4 | 0.0 | 35.0 | 0.0 |
| Delay 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 |
| AdjDel/Veh: | 0.0 | 12.2 | 12.2 | 37.9 | 10.2 | 32.1 | 92.5 | 18.4 | 18.4 | 0.0 | 35.0 | 0.0 |
| LOS by Move: | * | B | B | E | B | D | F | C | C | * | E | * |
| ApproachDel: | | 12.2 | | | 34.7 | | | 66.6 | | | 35.0 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| ApprAdjDel: | | 12.2 | | | 34.7 | | | 66.6 | | | 35.0 | |
| LOS by Appr: | | B | | | D | | | F | | | E | |

AM Peak Hour - Split-Phased Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Future Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.635
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 27.8
Optimal Cycle: 41 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Split Phase | | | Split Phase | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 2 | 1 0 | 1 0 | 2 | 0 0 | 0 1 | 0 | 0 1 | 1 0 | 0 | 0 1 |
| Volume Module: >> Count Date: 13 Sep 2000 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 0 | 1004 | 25 | 100 | 634 | 0 | 50 | 28 | 192 | 13 | 0 | 161 |
| 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: | 0 | 1004 | 25 | 100 | 634 | 0 | 50 | 28 | 192 | 13 | 0 | 161 |
| 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: | 0.87 | 0.87 | 0.87 | 0.86 | 0.86 | 0.86 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.76 |
| PHF Volume: | 0 | 1159 | 29 | 117 | 740 | 0 | 67 | 37 | 256 | 17 | 0 | 211 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1159 | 29 | 117 | 740 | 0 | 67 | 37 | 256 | 17 | 0 | 211 |
| 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 |
| Final Vol.: | 0 | 1159 | 29 | 117 | 740 | 0 | 67 | 37 | 256 | 17 | 0 | 211 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 | 0.97 | 0.97 | 0.85 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.00 | 2.93 | 0.07 | 1.00 | 2.00 | 0.00 | 0.64 | 0.36 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 0 | 5040 | 126 | 1805 | 3610 | 0 | 1186 | 655 | 1615 | 1805 | 0 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.23 | 0.23 | 0.06 | 0.20 | 0.00 | 0.06 | 0.06 | 0.16 | 0.01 | 0.00 | 0.13 |
| Crit Moves: | | **** | | **** | | | | | **** | | | **** |
| Green/Cycle: | 0.00 | 0.36 | 0.36 | 0.10 | 0.46 | 0.00 | 0.25 | 0.25 | 0.25 | 0.21 | 0.00 | 0.21 |
| Volume/Cap: | 0.00 | 0.63 | 0.63 | 0.63 | 0.44 | 0.00 | 0.23 | 0.23 | 0.63 | 0.05 | 0.00 | 0.63 |
| Delay/Veh: | 0.0 | 27.1 | 27.1 | 50.2 | 18.2 | 0.0 | 30.1 | 30.1 | 36.8 | 31.9 | 0.0 | 40.3 |
| 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: | 0.0 | 27.1 | 27.1 | 50.2 | 18.2 | 0.0 | 30.1 | 30.1 | 36.8 | 31.9 | 0.0 | 40.3 |
| DesignQueue: | 0 | 43 | 1 | 6 | 23 | 0 | 3 | 2 | 11 | 1 | 0 | 10 |





MD Peak Hour - Split-Phased Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.540
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 24.3
Optimal Cycle: 34 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Split Phase | | | Split Phase | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 2 | 1 0 | 1 0 | 2 | 0 0 | 0 1 | 0 | 0 1 | 1 0 | 0 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:45 - 3:45 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 1001 | 18 | 131 | 631 | 0 | 42 | 47 | 177 | 17 | 0 | 123 |
| 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: | 0 | 1001 | 18 | 131 | 631 | 0 | 42 | 47 | 177 | 17 | 0 | 123 |
| 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: | 0.94 | 0.94 | 0.94 | 0.87 | 0.87 | 0.87 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| 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 |
| Final Vol.: | 0 | 1060 | 19 | 150 | 722 | 0 | 47 | 52 | 197 | 18 | 0 | 134 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 | 0.98 | 0.98 | 0.85 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.00 | 2.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.47 | 0.53 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 0 | 5080 | 91 | 1805 | 3610 | 0 | 881 | 975 | 1615 | 1805 | 0 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.21 | 0.21 | 0.08 | 0.20 | 0.00 | 0.05 | 0.05 | 0.12 | 0.01 | 0.00 | 0.08 |
| Crit Moves: | | **** | | **** | | | | | **** | | | **** |
| Green/Cycle: | 0.00 | 0.39 | 0.39 | 0.15 | 0.54 | 0.00 | 0.23 | 0.23 | 0.23 | 0.15 | 0.00 | 0.15 |
| Volume/Cap: | 0.00 | 0.54 | 0.54 | 0.54 | 0.37 | 0.00 | 0.24 | 0.24 | 0.54 | 0.06 | 0.00 | 0.54 |
| Delay/Veh: | 0.0 | 24.1 | 24.1 | 41.2 | 13.3 | 0.0 | 31.9 | 31.9 | 35.8 | 36.3 | 0.0 | 41.4 |
| 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: | 0.0 | 24.1 | 24.1 | 41.2 | 13.3 | 0.0 | 31.9 | 31.9 | 35.8 | 36.3 | 0.0 | 41.4 |
| DesignQueue: | 0 | 38 | 1 | 7 | 19 | 0 | 2 | 2 | 9 | 1 | 0 | 6 |

PM Peak Hour - Split-Phased Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #2 Pleasant Hill Rd/Old Tunnel Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.685
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 27.6
Optimal Cycle: 46 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Split Phase | | | Split Phase | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 2 | 1 0 | 1 0 | 2 | 0 0 | 0 1 | 0 | 0 1 | 1 0 | 0 | 0 1 |
| Volume Module: >> Count Date: 13 Sep 2000 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 867 | 14 | 182 | 688 | 0 | 100 | 56 | 305 | 16 | 0 | 73 |
| 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: | 0 | 867 | 14 | 182 | 688 | 0 | 100 | 56 | 305 | 16 | 0 | 73 |
| 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: | 0.70 | 0.70 | 0.70 | 0.93 | 0.93 | 0.93 | 0.84 | 0.84 | 0.84 | 0.86 | 0.86 | 0.86 |
| PHF Volume: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| 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 |
| Final Vol.: | 0 | 1239 | 20 | 195 | 737 | 0 | 120 | 67 | 365 | 19 | 0 | 85 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 | 0.97 | 0.97 | 0.85 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.00 | 2.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.64 | 0.36 | 1.00 | 1.00 | 0.00 | 1.00 |
| Final Sat.: | 0 | 5094 | 82 | 1805 | 3610 | 0 | 1181 | 660 | 1615 | 1805 | 0 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.24 | 0.24 | 0.11 | 0.20 | 0.00 | 0.10 | 0.10 | 0.23 | 0.01 | 0.00 | 0.05 |
| Crit Moves: | | **** | | **** | | | | | **** | | | **** |
| Green/Cycle: | 0.00 | 0.36 | 0.36 | 0.16 | 0.51 | 0.00 | 0.33 | 0.33 | 0.33 | 0.08 | 0.00 | 0.08 |
| Volume/Cap: | 0.00 | 0.68 | 0.68 | 0.68 | 0.40 | 0.00 | 0.31 | 0.31 | 0.68 | 0.14 | 0.00 | 0.68 |
| Delay/Veh: | 0.0 | 28.6 | 28.6 | 46.5 | 15.0 | 0.0 | 25.3 | 25.3 | 32.7 | 43.5 | 0.0 | 59.7 |
| 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: | 0.0 | 28.6 | 28.6 | 46.5 | 15.0 | 0.0 | 25.3 | 25.3 | 32.7 | 43.5 | 0.0 | 59.7 |
| DesignQueue: | 0 | 47 | 1 | 9 | 21 | 0 | 5 | 3 | 14 | 1 | 0 | 4 |

AM Peak Hour - Signalized Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.432
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 8.5
Optimal Cycle: 33 Level Of Service: A

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Permitted | | | Permitted | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0.93 | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.25 | 0.25 | 0.25 | 0.67 | 0.67 | 0.67 |
| PHF Volume: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| 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 |
| Final Vol.: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 0.76 | 1.00 | 0.76 |
| Lanes: | 0.00 | 1.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.17 | 0.00 | 0.83 |
| Final Sat.: | 0 | 3505 | 91 | 1805 | 3610 | 0 | 0 | 1900 | 0 | 241 | 0 | 1204 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.30 | 0.30 | 0.05 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.09 |
| Crit Moves: | | **** | | **** | | | | | | **** | | |
| Green/Cycle: | 0.00 | 0.69 | 0.69 | 0.11 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.20 |
| Volume/Cap: | 0.00 | 0.43 | 0.43 | 0.43 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 | 0.43 |
| Delay/Veh: | 0.0 | 7.0 | 7.0 | 43.1 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 35.9 | 0.0 | 35.9 |
| 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: | 0.0 | 7.0 | 7.0 | 43.1 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 35.9 | 0.0 | 35.9 |
| DesignQueue: | 0 | 20 | 1 | 4 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 5 |





MD Peak Hour - Signalized Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Cycle (sec): 60 Critical Vol./Cap. (X): 0.454
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 6.6
Optimal Cycle: 28 Level Of Service: A

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Permitted | | | Permitted | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.72 | 0.72 | 0.72 |
| PHF Volume: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| 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 |
| Final Vol.: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 0.75 | 1.00 | 0.75 |
| Lanes: | 0.00 | 1.96 | 0.04 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.22 | 0.00 | 0.78 |
| Final Sat.: | 0 | 3525 | 74 | 1805 | 3610 | 0 | 0 | 1900 | 0 | 311 | 0 | 1110 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.28 | 0.28 | 0.04 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.07 |
| Crit Moves: | | **** | | **** | | | | | | **** | | |
| Green/Cycle: | 0.00 | 0.62 | 0.62 | 0.10 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.15 |
| Volume/Cap: | 0.00 | 0.45 | 0.45 | 0.45 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 0.00 | 0.45 |
| Delay/Veh: | 0.0 | 6.2 | 6.2 | 27.4 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 24.9 | 0.0 | 24.9 |
| 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: | 0.0 | 6.2 | 6.2 | 27.4 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 24.9 | 0.0 | 24.9 |
| DesignQueue: | 0 | 14 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |

PM Peak Hour - Signalized Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap. (X): | 0.460 |
| Loss Time (sec): | 8 (Y+R = 4 sec) | Average Delay (sec/veh): | 7.1 |
| Optimal Cycle: | 29 | Level Of Service: | A |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Permitted | | | Permitted | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 1 | 0 1 | 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0.89 | 0.89 | 0.89 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.69 | 0.69 | 0.69 |
| PHF Volume: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| 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 |
| Final Vol.: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 0.75 | 1.00 | 0.75 |
| Lanes: | 0.00 | 1.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.23 | 0.00 | 0.77 |
| Final Sat.: | 0 | 3508 | 88 | 1805 | 3610 | 0 | 0 | 1900 | 0 | 327 | 0 | 1094 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.27 | 0.27 | 0.05 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.07 |
| Crit Moves: | | **** | | **** | | | | | | **** | | |
| Green/Cycle: | 0.00 | 0.60 | 0.60 | 0.12 | 0.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.15 |
| Volume/Cap: | 0.00 | 0.46 | 0.46 | 0.46 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 | 0.00 | 0.46 |
| Delay/Veh: | 0.0 | 6.9 | 6.9 | 26.2 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 24.7 | 0.0 | 24.7 |
| 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: | 0.0 | 6.9 | 6.9 | 26.2 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 24.7 | 0.0 | 24.7 |
| DesignQueue: | 0 | 14 | 0 | 3 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |

AM Peak Hour - All-Way-Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap. (X): | 0.912 |
| Loss Time (sec): | 0 (Y+R = 4 sec) | Average Delay (sec/veh): | 32.6 |
| Optimal Cycle: | 0 | Level Of Service: | D |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 1 | 0 1 | 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0.93 | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.25 | 0.25 | 0.25 | 0.67 | 0.67 | 0.67 |
| PHF Volume: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| 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 |
| Final Vol.: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.00 | 1.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.17 | 0.00 | 0.83 |
| Final Sat.: | 0 | 1144 | 30 | 516 | 1125 | 0 | 0 | 0 | 0 | 94 | 0 | 471 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | xxxx | 0.91 | 0.91 | 0.17 | 0.76 | xxxx | xxxx | xxxx | xxxx | 0.22 | xxxx | 0.22 |
| Crit Moves: | | **** | | | **** | | | | | **** | | |
| Delay/Veh: | 0.0 | 42.4 | 41.9 | 10.9 | 25.7 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 11.1 |
| Delay 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 |
| AdjDel/Veh: | 0.0 | 42.4 | 41.9 | 10.9 | 25.7 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 0.0 | 11.1 |
| LOS by Move: | * | E | E | B | D | * | * | * | * | B | * | B |
| ApproachDel: | | 42.4 | | | 24.4 | | | xxxxxx | | | 11.1 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | xxxxx | | | 1.00 | |
| ApprAdjDel: | | 42.4 | | | 24.4 | | | xxxxxx | | | 11.1 | |
| LOS by Appr: | | E | | | C | | | * | | | B | |





MD Peak Hour - All-Way-Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap. (X): | 0.850 |
| Loss Time (sec): | 0 (Y+R = 4 sec) | Average Delay (sec/veh): | 27.4 |
| Optimal Cycle: | 0 | Level Of Service: | D |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 1 | 0 1 | 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.72 | 0.72 | 0.72 |
| PHF Volume: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| 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 |
| Final Vol.: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.00 | 1.96 | 0.04 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.22 | 0.00 | 0.78 |
| Final Sat.: | 0 | 1169 | 25 | 532 | 1163 | 0 | 0 | 0 | 0 | 123 | 0 | 438 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | xxxx | 0.85 | 0.85 | 0.15 | 0.75 | xxxx | xxxx | xxxx | xxxx | 0.17 | xxxx | 0.17 |
| Crit Moves: | | **** | | | **** | | | | | | | **** |
| Delay/Veh: | 0.0 | 33.0 | 32.7 | 10.5 | 24.4 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 10.6 |
| Delay 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 |
| AdjDel/Veh: | 0.0 | 33.0 | 32.7 | 10.5 | 24.4 | 0.0 | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 10.6 |
| LOS by Move: | * | D | D | B | C | * | * | * | * | B | * | B |
| ApproachDel: | | 33.0 | | | 23.2 | | | xxxxxx | | | 10.6 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | xxxxx | | | 1.00 | |
| ApprAdjDel: | | 33.0 | | | 23.2 | | | xxxxxx | | | 10.6 | |
| LOS by Appr: | | D | | | C | | | * | | | B | |

PM Peak Hour - All-Way-Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap. (X): | 0.843 |
| Loss Time (sec): | 0 (Y+R = 4 sec) | Average Delay (sec/veh): | 29.1 |
| Optimal Cycle: | 0 | Level Of Service: | D |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 1 | 0 1 | 0 | 1 | 0 1 | 1 0 | 0 | 0 1! | 0 0 | 0 | 0 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0.89 | 0.89 | 0.89 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.69 | 0.69 | 0.69 |
| PHF Volume: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| 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 |
| Final Vol.: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 0.00 | 1.95 | 0.05 | 1.00 | 2.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.23 | 0.00 | 0.77 |
| Final Sat.: | 0 | 1139 | 29 | 535 | 1166 | 0 | 0 | 0 | 0 | 129 | 0 | 431 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | xxxx | 0.84 | 0.84 | 0.18 | 0.81 | xxxx | xxxx | xxxx | xxxx | 0.18 | xxxx | 0.18 |
| Crit Moves: | | **** | | | **** | | | | | **** | | |
| Delay/Veh: | 0.0 | 32.7 | 32.4 | 10.8 | 29.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 0.0 | 10.7 |
| Delay 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 |
| AdjDel/Veh: | 0.0 | 32.7 | 32.4 | 10.8 | 29.3 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 0.0 | 10.7 |
| LOS by Move: | * | D | D | B | D | * | * | * | * | B | * | B |
| ApproachDel: | | 32.7 | | | 27.5 | | | xxxxxx | | | 10.7 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | xxxxx | | | 1.00 | |
| ApprAdjDel: | | 32.7 | | | 27.5 | | | xxxxxx | | | 10.7 | |
| LOS by Appr: | | D | | | D | | | * | | | B | |

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 TR | 1081 | 28 | | 1109 | 2 | | | 0.612 | 10.9 | 161 | |
| | 0 1081 | 28 | | 1109 | 2 | | | 0.612 | 10.9 | 161 | |
| East: WB Condit Road | | | | | | | | | | | |
| 1 LR | 16 | | 78 | 94 | 0 | | | 0.195 | 18.8 | 32 | |
| | 16 | 0 | 78 | 94 | 0 | | | 0.195 | 18.8 | 32 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LT | 87 | 857 | | 944 | 2 | | | 0.506 | 10.8 | 101 | |
| | 87 | 857 | 0 | 944 | 2 | | | 0.506 | 10.8 | 101 | |
| ALL VEHICLES | | | | Tot Arv. 2147 | % HV 2 | | | Max X 0.612 | Aver. Delay 11.2 | Max Queue 161 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road
AM Peak Hour - Existing Conditions
Intersection ID:
Roundabout
* CONDIT-A

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 1109 | 1813 | 0.612* | 10.9 | B |
| | | 1109 | 1813 | 0.612 | 10.9 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 94 | 482 | 0.195 | 18.8 | B |
| | | 94 | 482 | 0.195 | 18.8 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 944 | 1866 | 0.506 | 10.8 | B |
| | | 944 | 1866 | 0.506 | 10.8 | B |
| ALL VEHICLES: | | 2147 | 4161 | 0.612 | 11.2 | B |
| INTERSECTION: | | 2147 | 4161 | 0.612 | 11.2 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Pleasant Hill Road/Condit Road * CONDIT-M
Midday Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 TR | | 995 | 21 | 1016 | 2 | | | 0.558 | 10.8 | 132 | |
| | 0 | 995 | 21 | 1016 | 2 | | | 0.558 | 10.8 | 132 | |
| East: WB Condit Road | | | | | | | | | | | |
| 1 LR | 17 | | 60 | 77 | 0 | | | 0.141 | 17.3 | 24 | |
| | 17 | 0 | 60 | 77 | 0 | | | 0.141 | 17.3 | 24 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LT | 82 | 893 | | 975 | 2 | | | 0.523 | 10.7 | 107 | |
| | 82 | 893 | 0 | 975 | 2 | | | 0.523 | 10.7 | 107 | |
| ALL VEHICLES | | | | Tot Arv. 2068 | % HV 2 | | | Max X 0.558 | Aver. Delay 11.0 | Max Queue 132 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road * CONDIT-M
Midday Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 1016 | 1821 | 0.558* | 10.8 | B |
| | | 1016 | 1821 | 0.558 | 10.8 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 77 | 547 | 0.141 | 17.3 | B |
| | | 77 | 547 | 0.141 | 17.3 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 975 | 1866 | 0.523 | 10.7 | B |
| | | 975 | 1866 | 0.523 | 10.7 | B |
| ALL VEHICLES: | | 2068 | 4234 | 0.558 | 11.0 | B |
| INTERSECTION: | | 2068 | 4234 | 0.558 | 11.0 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Pleasant Hill Road/Condit Road * CONDIT-P
PM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 TR | | 948 | 23 | 971 | 2 | | | 0.543 | 10.9 | 125 | |
| | 0 | 948 | 23 | 971 | 2 | | | 0.543 | 10.9 | 125 | |
| East: WB Condit Road | | | | | | | | | | | |
| 1 LR | 18 | | 59 | 77 | 0 | | | 0.134 | 16.6 | 23 | |
| | 18 | 0 | 59 | 77 | 0 | | | 0.134 | 16.6 | 23 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LT | 99 | 952 | | 1051 | 2 | | | 0.563 | 10.8 | 124 | |
| | 99 | 952 | 0 | 1051 | 2 | | | 0.563 | 10.8 | 124 | |
| ALL VEHICLES | | | | Tot Arv. 2099 | % HV 2 | | | Max X 0.563 | Aver. Delay 11.0 | Max Queue 125 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road * CONDIT-P
PM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 971 | 1787 | 0.543 | 10.9 | B |
| | | 971 | 1787 | 0.543 | 10.9 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 77 | 573 | 0.134 | 16.6 | B |
| | | 77 | 573 | 0.134 | 16.6 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1051 | 1866 | 0.563* | 10.8 | B |
| | | 1051 | 1866 | 0.563 | 10.8 | B |
| ALL VEHICLES: | | 2099 | 4226 | 0.563 | 11.0 | B |
| INTERSECTION: | | 2099 | 4226 | 0.563 | 11.0 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

AM Peak Hour - Two-lane Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

**********

Intersection #3 Pleasant Hill Rd/Condit Rd

**********

Average Delay (sec/veh): 52.9 Worst Case Level Of Service: F

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 0 0 0 1 0 | | | 1 0 0 1 0 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0 | 973 | 25 | 78 | 771 | 0 | 0 | 0 | 0 | 14 | 0 | 70 |
| 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: | 0.93 | 0.93 | 0.93 | 0.90 | 0.90 | 0.90 | 0.25 | 0.25 | 0.25 | 0.67 | 0.67 | 0.67 |
| PHF Volume: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 0 | 1043 | 27 | 86 | 854 | 0 | 0 | 0 | 0 | 21 | 0 | 105 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 822 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1936 | xxxx | 812 |
| Potent Cap.: | xxxx | xxxx | xxxxx | 743 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 66 | xxxx | 348 |
| Move Cap.: | xxxx | xxxx | xxxxx | 741 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 60 | xxxx | 346 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | 10.5 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | B | * | * | * | * | * | * | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 0 | xxxxx | xxxx | 193 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 52.9 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | * | * | * | F | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | xxxxxx | | | 52.9 | | |
| ApproachLOS: | * | | | * | | | * | | | F | | |





AM Peak Hour - Two-lane Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

**********

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

**********

Average Delay (sec/veh): 598.2 Worst Case Level Of Service: F

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 1 0 0 1 0 | | | 1 0 0 1 0 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 2 | 921 | 3 | 7 | 746 | 32 | 71 | 1 | 2 | 6 | 0 | 6 |
| 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: | 2 | 921 | 3 | 7 | 746 | 32 | 71 | 1 | 2 | 6 | 0 | 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: | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.49 | 0.49 | 0.49 | 0.38 | 0.38 | 0.38 |
| PHF Volume: | 2 | 950 | 3 | 8 | 802 | 34 | 146 | 2 | 4 | 16 | 0 | 16 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 2 | 950 | 3 | 8 | 802 | 34 | 146 | 2 | 4 | 16 | 0 | 16 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.1 | 6.5 | 6.2 | 7.1 | xxxx | 6.2 |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | 4.0 | 3.3 | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 837 | xxxx | xxxxx | 685 | xxxx | xxxxx | 1616 | 1609 | 819 | 1610 | xxxx | 684 |
| Potent Cap.: | 806 | xxxx | xxxxx | 834 | xxxx | xxxxx | 77 | 96 | 378 | 77 | xxxx | 411 |
| Move Cap.: | 806 | xxxx | xxxxx | 834 | xxxx | xxxxx | 73 | 95 | 378 | 74 | xxxx | 411 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | 9.5 | xxxx | xxxxx | 9.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 75 | xxxxx | xxxx | 126 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 598 | xxxxx | xxxxx | 43.0 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | F | * | * | E | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 598.2 | | | 43.0 | | |
| ApproachLOS: | * | | | * | | | F | | | E | | |

MD Peak Hour - Two-lane Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Pleasant Hill Rd/Condit Rd

Average Delay (sec/veh): 45.7 Worst Case Level Of Service: E

| Approach: | North Bound | | | | | South Bound | | | | | East Bound | | | | | West Bound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R |
| Control: | Uncontrolled | | | | | Uncontrolled | | | | | Stop Sign | | | | | Stop Sign | | | | |
| Rights: | Include | | | | | Include | | | | | Include | | | | | Include | | | | |
| Lanes: | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 | | | | | | | | |
| 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: | 0 | 895 | 19 | 74 | 804 | 0 | 0 | 0 | 0 | 15 | 0 | 54 | | | | | | | | |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.25 | 0.25 | 0.25 | 0.72 | 0.72 | 0.72 | | | | | | | | |
| PHF Volume: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 | | | | | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| Final Vol.: | 0 | 994 | 21 | 80 | 872 | 0 | 0 | 0 | 0 | 21 | 0 | 75 | | | | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | | | | | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 798 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1908 | xxxx | 791 | | | | | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | 768 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 70 | xxxx | 362 | | | | | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | 766 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 64 | xxxx | 360 | | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | 10.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| LOS by Move: | * | * | * | B | * | * | * | * | * | * | * | * | | | | | | | | |
| Movement: | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 0 | xxxxx | xxxx | 180 | xxxxx | | | | | | | | |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 45.7 | xxxxx | | | | | | | | |
| Shared LOS: | * | * | * | * | * | * | * | * | * | * | E | * | | | | | | | | |
| ApproachDel: | xxxxxx | | | xxxxxx | | | xxxxxx | | | | 45.7 | | | | | | | | | |
| ApproachLOS: | * | | | * | | | * | | | | E | | | | | | | | | |





MD Peak Hour - Two-lane Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 258.5 Worst Case Level Of Service: F

| Approach: | North Bound | | | | | South Bound | | | | | East Bound | | | | | West Bound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R | L | - | T | - | R |
| Control: | Uncontrolled | | | | | Uncontrolled | | | | | Stop Sign | | | | | Stop Sign | | | | |
| Rights: | Include | | | | | Include | | | | | Include | | | | | Include | | | | |
| Lanes: | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1! | 0 | 0 | 0 | 0 | 1! | 0 | 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 3 | 876 | 4 | 5 | 769 | 30 | 45 | 0 | 6 | 2 | 0 | 10 | | | | | | | | |
| 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: | 3 | 876 | 4 | 5 | 769 | 30 | 45 | 0 | 6 | 2 | 0 | 10 | | | | | | | | |
| 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: | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.64 | 0.64 | 0.64 | 0.50 | 0.50 | 0.50 | | | | | | | | |
| PHF Volume: | 3 | 977 | 4 | 5 | 838 | 33 | 71 | 0 | 9 | 4 | 0 | 20 | | | | | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| Final Vol.: | 3 | 977 | 4 | 5 | 838 | 33 | 71 | 0 | 9 | 4 | 0 | 20 | | | | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.1 | xxxx | 6.2 | 7.1 | xxxx | 6.2 | | | | | | | | |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 3.5 | xxxx | 3.3 | | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 870 | xxxx | xxxxx | 753 | xxxx | xxxxx | 1709 | xxxx | 854 | 1703 | xxxx | 750 | | | | | | | | |
| Potent Cap.: | 783 | xxxx | xxxxx | 797 | xxxx | xxxxx | 67 | xxxx | 361 | 67 | xxxx | 381 | | | | | | | | |
| Move Cap.: | 783 | xxxx | xxxxx | 797 | xxxx | xxxxx | 63 | xxxx | 361 | 65 | xxxx | 381 | | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | 9.6 | xxxx | xxxxx | 9.5 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * | | | | | | | | |
| Movement: | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 69 | xxxxx | xxxx | 211 | xxxxx | | | | | | | | |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 259 | xxxxx | xxxxx | 24.3 | xxxxx | | | | | | | | |
| Shared LOS: | * | * | * | * | * | * | * | F | * | * | C | * | | | | | | | | |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 258.5 | | | | 24.3 | | | | | | | | | |
| ApproachLOS: | * | | | * | | | F | | | | C | | | | | | | | | |

PM Peak Hour - Two-lane Condition
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

**********

Intersection #3 Pleasant Hill Rd/Condit Rd

**********

Average Delay (sec/veh): 51.3 Worst Case Level Of Service: F

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 0 0 0 1 0 | | | 1 0 0 1 0 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0 | 853 | 21 | 89 | 857 | 0 | 0 | 0 | 0 | 16 | 0 | 53 |
| 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: | 0.89 | 0.89 | 0.89 | 0.91 | 0.91 | 0.91 | 0.25 | 0.25 | 0.25 | 0.69 | 0.69 | 0.69 |
| PHF Volume: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 0 | 960 | 24 | 98 | 945 | 0 | 0 | 0 | 0 | 23 | 0 | 77 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 669 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1936 | xxxx | 660 |
| Potent Cap.: | xxxx | xxxx | xxxxx | 830 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 65 | xxxx | 416 |
| Move Cap.: | xxxx | xxxx | xxxxx | 828 | xxxx | xxxxx | xxxx | xxxx | xxxxx | 59 | xxxx | 414 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | xxxxx | xxxx | xxxxx | 9.9 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | A | * | * | * | * | * | * | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 0 | xxxxx | xxxx | 173 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 51.3 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | * | * | * | F | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | xxxxxx | | | 51.3 | | |
| ApproachLOS: | * | | | * | | | * | | | F | | |





PM Peak Hour - Two-lane Condition
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

**********

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

**********

Average Delay (sec/veh): 81.4 Worst Case Level Of Service: F

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 1 0 0 1 0 | | | 1 0 0 1 0 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 0.89 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.66 | 0.66 | 0.66 | 0.50 | 0.50 | 0.50 |
| PHF Volume: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.1 | xxxx | 6.2 | 7.1 | xxxx | 6.2 |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 948 | xxxx | xxxxx | 602 | xxxx | xxxxx | 1665 | xxxx | 929 | 1666 | xxxx | 600 |
| Potent Cap.: | 733 | xxxx | xxxxx | 878 | xxxx | xxxxx | 69 | xxxx | 327 | 69 | xxxx | 449 |
| Move Cap.: | 733 | xxxx | xxxxx | 878 | xxxx | xxxxx | 68 | xxxx | 327 | 68 | xxxx | 449 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | 9.9 | xxxx | xxxxx | 9.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 77 | xxxxx | xxxx | 118 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 81.4 | xxxxx | xxxxx | 36.7 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | F | * | * | E | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 81.4 | | | 36.7 | | |
| ApproachLOS: | * | | | * | | | F | | | E | | |

AM Peak Hour - Conditions with Acceleration Lanes
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 106.5 Worst Case Level Of Service: F

| Approach: | North Bound | | | | South Bound | | | | East Bound | | | | West Bound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - R | L | - | T | - R | L | - | T | - R | L | - | T | - R |
| Control: | Uncontrolled | | | | Uncontrolled | | | | Stop Sign | | | | Stop Sign | | | |
| Rights: | Include | | | | Include | | | | Include | | | | Include | | | |
| Lanes: | 1 | 0 | 1 | 1 0 | 1 | 0 | 1 | 1 0 | 0 | 0 | 1! | 0 0 | 0 | 0 | 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | |
| Base Vol: | 2 | 921 | | 3 | 7 | 746 | | 32 | 71 | | 1 | 2 | 6 | | 0 | 6 |
| 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: | 2 | 921 | | 3 | 7 | 746 | | 32 | 71 | | 1 | 2 | 6 | | 0 | 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: | 0.97 | 0.97 | | 0.97 | 0.93 | 0.93 | | 0.93 | 0.49 | | 0.49 | 0.49 | 0.38 | | 0.38 | 0.38 |
| PHF Volume: | 2 | 950 | | 3 | 8 | 802 | | 34 | 146 | | 2 | 4 | 16 | | 0 | 16 |
| Reduct Vol: | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 |
| Final Vol.: | 2 | 950 | | 3 | 8 | 802 | | 34 | 146 | | 2 | 4 | 16 | | 0 | 16 |
| Critical Gap Module: | | | | | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | | xxxxx | 4.1 | xxxx | | xxxxx | 7.5 | | 6.5 | 6.9 | 7.5 | | xxxx | 6.9 |
| FollowUpTim: | 2.2 | xxxx | | xxxxx | 2.2 | xxxx | | xxxxx | 3.5 | | 4.0 | 3.3 | 3.5 | | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 837 | xxxx | | xxxxx | 634 | xxxx | | xxxxx | 1038 | | 1575 | 418 | 1105 | | xxxx | 99 |
| Potent Cap.: | 806 | xxxx | | xxxxx | 855 | xxxx | | xxxxx | 167 | | 99 | 589 | 150 | | xxxx | 841 |
| Move Cap.: | 806 | xxxx | | xxxxx | 855 | xxxx | | xxxxx | 163 | | 98 | 589 | 145 | | xxxx | 841 |
| Level Of Service Module: | | | | | | | | | | | | | | | | |
| Stopped Del: | 9.5 | xxxx | | xxxxx | 9.3 | xxxx | | xxxxx | xxxxx | xxxx | | xxxxx | xxxxx | xxxx | | xxxxx |
| LOS by Move: | A | * | | * | A | * | | * | * | * | | * | * | * | | * |
| Movement: | LT - | LTR | - | RT | LT - | LTR | - | RT | LT - | LTR | - | RT | LT - | LTR | - | RT |
| Shared Cap.: | xxxx | xxxx | | xxxxx | xxxx | xxxx | | xxxxx | xxxx | 165 | | xxxxx | xxxx | 247 | | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | | xxxxx | xxxxx | xxxx | | xxxxx | xxxxx | 107 | | xxxxx | xxxxx | 21.7 | | xxxxx |
| Shared LOS: | * | * | | * | * | * | | * | * | F | | * | * | C | | * |
| ApproachDel: | xxxxxx | | | | xxxxxx | | | | 106.5 | | | | 21.7 | | | |
| ApproachLOS: | * | | | | * | | | | F | | | | C | | | |





AM Peak Hour - All-Way Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.838
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 27.8
Optimal Cycle: 0 Level Of Service: D

| Approach: | North Bound | | | | South Bound | | | | East Bound | | | | West Bound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - R | L | - | T | - R | L | - | T | - R | L | - | T | - R |
| Control: | Stop Sign | | | | Stop Sign | | | | Stop Sign | | | | Stop Sign | | | |
| Rights: | Include | | | | Include | | | | Include | | | | Include | | | |
| Min. Green: | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Lanes: | 1 | 0 | 1 | 1 0 | 1 | 0 | 1 | 1 0 | 0 | 0 | 1! | 0 0 | 0 | 0 | 1! | 0 0 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | | | | | |
| Base Vol: | 2 | 921 | | 3 | 7 | 746 | | 32 | 71 | | 1 | 2 | 6 | | 0 | 6 |
| 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: | 2 | 921 | | 3 | 7 | 746 | | 32 | 71 | | 1 | 2 | 6 | | 0 | 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: | 0.97 | 0.97 | | 0.97 | 0.93 | 0.93 | | 0.93 | 0.49 | | 0.49 | 0.49 | 0.38 | | 0.38 | 0.38 |
| PHF Volume: | 2 | 950 | | 3 | 8 | 802 | | 34 | 146 | | 2 | 4 | 16 | | 0 | 16 |
| Reduct Vol: | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 |
| Reduced Vol: | 2 | 950 | | 3 | 8 | 802 | | 34 | 146 | | 2 | 4 | 16 | | 0 | 16 |
| 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 |
| Final Vol.: | 2 | 950 | | 3 | 8 | 802 | | 34 | 146 | | 2 | 4 | 16 | | 0 | 16 |
| Saturation Flow Module: | | | | | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Lanes: | 1.00 | 1.99 | | 0.01 | 1.00 | 1.92 | | 0.08 | 0.96 | | 0.01 | 0.03 | 0.50 | | 0.00 | 0.50 |
| Final Sat.: | 521 | 1134 | | 4 | 508 | 1069 | | 46 | 480 | | 7 | 13 | 239 | | 0 | 239 |
| Capacity Analysis Module: | | | | | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.84 | | 0.84 | 0.02 | 0.75 | | 0.75 | 0.30 | | 0.30 | 0.30 | 0.07 | | xxxx | 0.07 |
| Crit Moves: | | **** | | | | **** | | | **** | | | | | **** | | |
| Delay/Veh: | 9.5 | 32.9 | | 32.8 | 9.7 | 25.5 | | 25.1 | 13.0 | | 13.0 | 13.0 | 10.7 | | 0.0 | 10.7 |
| Delay 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 |
| AdjDel/Veh: | 9.5 | 32.9 | | 32.8 | 9.7 | 25.5 | | 25.1 | 13.0 | | 13.0 | 13.0 | 10.7 | | 0.0 | 10.7 |
| LOS by Move: | A | D | | D | A | D | | D | B | | B | B | B | | * | B |
| ApproachDel: | | 32.8 | | | | 25.3 | | | | 13.0 | | | | 10.7 | | |
| Delay Adj: | | 1.00 | | | | 1.00 | | | | 1.00 | | | | 1.00 | | |
| ApprAdjDel: | | 32.8 | | | | 25.3 | | | | 13.0 | | | | 10.7 | | |
| LOS by Appr: | | D | | | | D | | | | B | | | | B | | |

MD Peak Hour - Conditions with Acceleration Lanes
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 58.8 Worst Case Level Of Service: F

| Approach: | North Bound | | | | | | South Bound | | | | | | East Bound | | | | | | West Bound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | |
| Control: | Uncontrolled | | | | | | Uncontrolled | | | | | | Stop Sign | | | | | | Stop Sign | | | | | |
| Rights: | Include | | | | | | Include | | | | | | Include | | | | | | Include | | | | | |
| Lanes: | 1 | 0 | 1 | 1 | 0 | | 1 | 0 | 1 | 1 | 0 | | 0 | 0 | 1! | 0 | 0 | | 0 | 0 | 1! | 0 | 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 3 | 876 | | 4 | | | 5 | 769 | | 30 | | | 45 | | 0 | | 6 | | 2 | | 0 | | 10 | |
| 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: | 3 | 876 | | 4 | | | 5 | 769 | | 30 | | | 45 | | 0 | | 6 | | 2 | | 0 | | 10 | |
| 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: | 0.90 | 0.90 | | 0.90 | | | 0.92 | 0.92 | | 0.92 | | | 0.64 | | 0.64 | | 0.64 | | 0.50 | | 0.50 | | 0.50 | |
| PHF Volume: | 3 | 977 | | 4 | | | 5 | 838 | | 33 | | | 71 | | 0 | | 9 | | 4 | | 0 | | 20 | |
| Reduct Vol: | 0 | 0 | | 0 | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Final Vol.: | 3 | 977 | | 4 | | | 5 | 838 | | 33 | | | 71 | | 0 | | 9 | | 4 | | 0 | | 20 | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | | | | 4.1 | xxxx | xxxxx | | | | 7.5 | xxxx | | 6.9 | | | 7.5 | xxxx | | 6.9 | | |
| FollowUpTim: | 2.2 | xxxx | xxxxx | | | | 2.2 | xxxx | xxxxx | | | | 3.5 | xxxx | | 3.3 | | | 3.5 | xxxx | | 3.3 | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 870 | xxxx | xxxxx | | | | 789 | xxxx | xxxxx | | | | 1196 | xxxx | | 435 | | | 1255 | xxxx | | 263 | | |
| Potent Cap.: | 783 | xxxx | xxxxx | | | | 782 | xxxx | xxxxx | | | | 134 | xxxx | | 574 | | | 121 | xxxx | | 691 | | |
| Move Cap.: | 783 | xxxx | xxxxx | | | | 782 | xxxx | xxxxx | | | | 129 | xxxx | | 574 | | | 118 | xxxx | | 691 | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Stopped Del: | 9.6 | xxxx | xxxxx | | | | 9.6 | xxxx | xxxxx | | | | xxxxx | xxxx | | xxxxx | | | xxxxx | xxxx | | xxxxx | | |
| LOS by Move: | A | * | | * | | | A | * | | * | | | * | * | | * | | | * | * | | * | | |
| Movement: | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | |
| Shared Cap.: | xxxx | xxxx | xxxxx | | | | xxxx | xxxx | xxxxx | | | | xxxx | 142 | xxxxx | | | | xxxx | 383 | xxxxx | | | |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | | | | xxxxx | xxxx | xxxxx | | | | xxxxx | 58.8 | xxxxx | | | | xxxxx | 15.0 | xxxxx | | | |
| Shared LOS: | * | * | | * | | | * | * | | * | | | * | F | | * | | | * | C | | * | | |
| ApproachDel: | xxxxxx | | | | | | xxxxxx | | | | | | 58.8 | | | | | | 15.0 | | | | | |
| ApproachLOS: | * | | | | | | * | | | | | | F | | | | | | C | | | | | |





MD Peak Hour - All-way Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.820
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 26.0
Optimal Cycle: 0 Level Of Service: D

| Approach: | North Bound | | | | | | South Bound | | | | | | East Bound | | | | | | West Bound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | | L | - | T | - | R | |
| Control: | Stop Sign | | | | | | Stop Sign | | | | | | Stop Sign | | | | | | Stop Sign | | | | | |
| Rights: | Include | | | | | | Include | | | | | | Include | | | | | | Include | | | | | |
| Min. Green: | 0 | 0 | | 0 | | | 0 | 0 | | 0 | | | 0 | 0 | | 0 | | | 0 | 0 | | 0 | | |
| Lanes: | 1 | 0 | 1 | 1 | 0 | | 1 | 0 | 1 | 1 | 0 | | 0 | 0 | 1! | 0 | 0 | | 0 | 0 | 1! | 0 | 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:30 - 3:30 pm | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 3 | 876 | | 4 | | | 5 | 769 | | 30 | | | 45 | | 0 | | 6 | | 2 | | 0 | | 10 | |
| 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: | 3 | 876 | | 4 | | | 5 | 769 | | 30 | | | 45 | | 0 | | 6 | | 2 | | 0 | | 10 | |
| 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: | 0.90 | 0.90 | | 0.90 | | | 0.92 | 0.92 | | 0.92 | | | 0.64 | | 0.64 | | 0.64 | | 0.50 | | 0.50 | | 0.50 | |
| PHF Volume: | 3 | 977 | | 4 | | | 5 | 838 | | 33 | | | 71 | | 0 | | 9 | | 4 | | 0 | | 20 | |
| Reduct Vol: | 0 | 0 | | 0 | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Reduced Vol: | 3 | 977 | | 4 | | | 5 | 838 | | 33 | | | 71 | | 0 | | 9 | | 4 | | 0 | | 20 | |
| 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 | |
| Final Vol.: | 3 | 977 | | 4 | | | 5 | 838 | | 33 | | | 71 | | 0 | | 9 | | 4 | | 0 | | 20 | |
| Saturation Flow Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| Lanes: | 1.00 | 1.99 | | 0.01 | | | 1.00 | 1.92 | | 0.08 | | | 0.89 | | 0.00 | | 0.11 | | 0.17 | | 0.00 | | 0.83 | |
| Final Sat.: | 546 | 1191 | | 5 | | | 531 | 1125 | | 45 | | | 451 | | 0 | | 57 | | 88 | | 0 | | 438 | |
| Capacity Analysis Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Vol/Sat: | 0.01 | 0.82 | | 0.82 | | | 0.01 | 0.74 | | 0.74 | | | 0.16 | xxxx | | 0.16 | | | 0.05 | xxxx | | 0.05 | | |
| Crit Moves: | | **** | | | | | | **** | | | | | **** | | | | | | | **** | | | | |
| Delay/Veh: | 9.2 | 29.6 | | 29.6 | | | 9.4 | 23.9 | | 23.6 | | | 11.2 | | 0.0 | | 11.2 | | 9.9 | | 0.0 | | 9.9 | |
| Delay 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 | |
| AdjDel/Veh: | 9.2 | 29.6 | | 29.6 | | | 9.4 | 23.9 | | 23.6 | | | 11.2 | | 0.0 | | 11.2 | | 9.9 | | 0.0 | | 9.9 | |
| LOS by Move: | A | D | | D | | | A | C | | C | | | B | | * | | B | | A | | * | | A | |
| ApproachDel: | | 29.6 | | | | | | 23.8 | | | | | | 11.2 | | | | | | 9.9 | | | | |
| Delay Adj: | | 1.00 | | | | | | 1.00 | | | | | | 1.00 | | | | | | 1.00 | | | | |
| ApprAdjDel: | | 29.6 | | | | | | 23.8 | | | | | | 11.2 | | | | | | 9.9 | | | | |
| LOS by Appr: | | D | | | | | | C | | | | | | B | | | | | | A | | | | |

PM Peak Hour - Conditions with Acceleration Lanes
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Average Delay (sec/veh): 35.5 Worst Case Level Of Service: E

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Uncontrolled | | | Uncontrolled | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Lanes: | 1 0 1 | 1 0 | | 1 0 1 | 1 0 | | 0 0 1! | 0 0 | | 0 0 1! | 0 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 0.89 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.66 | 0.66 | 0.66 | 0.50 | 0.50 | 0.50 |
| PHF Volume: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Final Vol.: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 4.1 | xxxx | xxxxx | 4.1 | xxxx | xxxxx | 7.5 | xxxx | 6.9 | 7.5 | xxxx | 6.9 |
| FollowUpTim: | 2.2 | xxxx | xxxxx | 2.2 | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 3.5 | xxxx | 3.3 |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 948 | xxxx | xxxxx | 642 | xxxx | xxxxx | 1174 | xxxx | 474 | 1165 | xxxx | 127 |
| Potent Cap.: | 733 | xxxx | xxxxx | 859 | xxxx | xxxxx | 135 | xxxx | 542 | 137 | xxxx | 818 |
| Move Cap.: | 733 | xxxx | xxxxx | 859 | xxxx | xxxxx | 133 | xxxx | 542 | 135 | xxxx | 818 |
| Level Of Service Module: | | | | | | | | | | | | |
| Stopped Del: | 9.9 | xxxx | xxxxx | 9.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | A | * | * | A | * | * | * | * | * | * | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | 149 | xxxxx | xxxx | 231 | xxxxx |
| Shrd StpDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | 35.5 | xxxxx | xxxxx | 20.8 | xxxxx |
| Shared LOS: | * | * | * | * | * | * | * | E | * | * | C | * |
| ApproachDel: | xxxxxx | | | xxxxxx | | | 35.5 | | | 20.8 | | |
| ApproachLOS: | * | | | * | | | E | | | C | | |





PM Peak Hour - All-way Stop-Controlled Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Pleasant Hill Rd/Reliez Station Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.763
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 23.3
Optimal Cycle: 0 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Stop Sign | | | Stop Sign | | | Stop Sign | | | Stop Sign | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 1 0 1 | 1 0 | | 1 0 1 | 1 0 | | 0 0 1! | 0 0 | | 0 0 1! | 0 0 | |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:30 - 5:30 pm | | | | | | | | | | | | |
| Base Vol: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 4 | 823 | 2 | 4 | 835 | 34 | 18 | 0 | 3 | 1 | 0 | 1 |
| 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: | 0.89 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.66 | 0.66 | 0.66 | 0.50 | 0.50 | 0.50 |
| PHF Volume: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| 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 |
| Final Vol.: | 5 | 929 | 2 | 4 | 911 | 37 | 27 | 0 | 5 | 2 | 0 | 2 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Adjustment: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Lanes: | 1.00 | 1.99 | 0.01 | 1.00 | 1.92 | 0.08 | 0.84 | 0.00 | 0.16 | 0.50 | 0.00 | 0.50 |
| Final Sat.: | 562 | 1231 | 3 | 564 | 1195 | 49 | 437 | 0 | 81 | 263 | 0 | 263 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.01 | 0.75 | 0.75 | 0.01 | 0.76 | 0.76 | 0.06 | xxxx | 0.06 | 0.01 | xxxx | 0.01 |
| Crit Moves: | | **** | | | **** | | **** | | | **** | | |
| Delay/Veh: | 9.0 | 23.4 | 23.4 | 9.0 | 23.8 | 23.5 | 10.2 | 0.0 | 10.2 | 9.7 | 0.0 | 9.7 |
| Delay 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 |
| AdjDel/Veh: | 9.0 | 23.4 | 23.4 | 9.0 | 23.8 | 23.5 | 10.2 | 0.0 | 10.2 | 9.7 | 0.0 | 9.7 |
| LOS by Move: | A | C | C | A | C | C | B | * | B | A | * | A |
| ApproachDel: | | 23.3 | | | 23.7 | | | 10.2 | | | 9.7 | |
| Delay Adj: | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| ApprAdjDel: | | 23.3 | | | 23.7 | | | 10.2 | | | 9.7 | |
| LOS by Appr: | | C | | | C | | | B | | | A | |

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | | |
| 1 LTR | 79 | 1 | 2 | 82 | 0 | | | | 0.119 | 18.6 | 21 | |
| | 79 | 1 | 2 | 82 | 0 | | | | 0.119 | 18.6 | 21 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 2 | 1023 | 3 | 1028 | 2 | | | | 0.585 | 10.9 | 137 | |
| | 2 | 1023 | 3 | 1028 | 2 | | | | 0.585 | 10.9 | 137 | |
| East: WB Reliez Station Lane | | | | | | | | | | | | |
| 1 LTR | 7 | 1 | 7 | 15 | 0 | | | | 0.031 | 19.8 | 5 | |
| | 7 | 1 | 7 | 15 | 0 | | | | 0.031 | 19.8 | 5 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 8 | 829 | 36 | 873 | 2 | | | | 0.468 | 10.4 | 87 | |
| | 8 | 829 | 36 | 873 | 2 | | | | 0.468 | 10.4 | 87 | |

| ALL VEHICLES | Tot Arv. | % HV | Max X | Aver. Delay | Max Queue |
|---|---|---|---|---|---|
| | 1998 | 2 | 0.585 | 11.1 | 137 |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road * RELIEZ-A
AM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 82 | 689 | 0.119 | 18.6 | B |
| | | 82 | 689 | 0.119 | 18.6 | B |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 1028 | 1757 | 0.585* | 10.9 | B |
| | | 1028 | 1757 | 0.585 | 10.9 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 15 | 477 | 0.031 | 19.8 | B |
| | | 15 | 477 | 0.031 | 19.8 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 837 | 1788 | 0.468 | 10.4 | B |
| 43 | R | 36 | 77 | 0.468 | 10.4 | B |
| | | 873 | 1865 | 0.468 | 10.4 | B |
| ALL VEHICLES: | | 1998 | 4788 | 0.585 | 11.1 | B |
| INTERSECTION: | | 1998 | 4788 | 0.585 | 11.1 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | |
| 1 LTR | 50 | 1 | 7 | 58 | 0 | | | 0.085 | 18.3 | 15 | |
| | 50 | 1 | 7 | 58 | 0 | | | 0.085 | 18.3 | 15 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 3 | 973 | 4 | 980 | 2 | | | 0.537 | 10.7 | 117 | |
| | 3 | 973 | 4 | 980 | 2 | | | 0.537 | 10.7 | 117 | |
| East: WB Reliez Station Lane | | | | | | | | | | | |
| 1 LTR | 2 | 1 | 11 | 14 | 0 | | | 0.026 | 17.0 | 4 | |
| | 2 | 1 | 11 | 14 | 0 | | | 0.026 | 17.0 | 4 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 6 | 854 | 33 | 893 | 2 | | | 0.478 | 10.4 | 90 | |
| | 6 | 854 | 33 | 893 | 2 | | | 0.478 | 10.4 | 90 | |
| ALL VEHICLES | | | | Tot Arv. 1945 | % HV 2 | | | Max X 0.537 | Aver. Delay 10.9 | Max Queue 117 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road
Midday Peak Hour - Existing Conditions
Intersection ID:
Roundabout
* RELIEZ-M

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 58 | 681 | 0.085 | 18.3 | B |
| | | 58 | 681 | 0.085 | 18.3 | B |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 980 | 1824 | 0.537* | 10.7 | B |
| | | 980 | 1824 | 0.537 | 10.7 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 14 | 545 | 0.026 | 17.0 | B |
| | | 14 | 545 | 0.026 | 17.0 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 860 | 1798 | 0.478 | 10.4 | B |
| 43 | R | 33 | 69 | 0.478 | 10.4 | B |
| | | 893 | 1867 | 0.478 | 10.4 | B |
| ALL VEHICLES: | | 1945 | 4915 | 0.537 | 10.9 | B |
| INTERSECTION: | | 1945 | 4915 | 0.537 | 10.9 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | | |
| 1 LTR | 20 | 1 | 3 | 24 | 0 | | | | 0.038 | 18.8 | 7 | |
| | 20 | 1 | 3 | 24 | 0 | | | | 0.038 | 18.8 | 7 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 4 | 914 | 2 | 920 | 2 | | | | 0.494 | 10.6 | 98 | |
| | 4 | 914 | 2 | 920 | 2 | | | | 0.494 | 10.6 | 98 | |
| East: WB Reliez Station Lane | | | | | | | | | | | | |
| 1 LTR | 1 | 1 | 1 | 3 | 0 | | | | 0.005 | 16.9 | 1 | |
| | 1 | 1 | 1 | 3 | 0 | | | | 0.005 | 16.9 | 1 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 4 | 928 | 38 | 970 | 2 | | | | 0.520 | 10.4 | 104 | |
| | 4 | 928 | 38 | 970 | 2 | | | | 0.520 | 10.4 | 104 | |
| ALL VEHICLES | | | | Tot Arv. 1917 | % HV 2 | | | | Max X 0.521 | Aver. Delay 10.6 | Max Queue 104 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road * RELIEZ-P
PM Peak Hour - Existing Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 24 | 637 | 0.038 | 18.8 | B |
| | | 24 | 637 | 0.038 | 18.8 | B |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 920 | 1863 | 0.494 | 10.6 | B |
| | | 920 | 1863 | 0.494 | 10.6 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 3 | 619 | 0.005 | 16.9 | B |
| | | 3 | 619 | 0.005 | 16.9 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 932 | 1793 | 0.520 | 10.4 | B |
| 43 | R | 38 | 73 | 0.521* | 10.4 | B |
| | | 970 | 1866 | 0.521 | 10.4 | B |
| ALL VEHICLES: | | 1917 | 4985 | 0.521 | 10.6 | B |
| INTERSECTION: | | 1917 | 4985 | 0.521 | 10.6 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

AM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #5 Pleasant Hill Rd/Olympic Blvd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.756
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 24.9
Optimal Cycle: 56 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Ovl | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 | 0 | 1! 0 | 0 | 1 | 0 1 | 0 | 1 | 0 0 1 | 0 | 1 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 7:45 - 8:45 am | | | | | | | | | | | | |
| Base Vol: | 3 | 5 | 2 | 316 | 7 | 444 | 556 | 310 | 4 | 1 | 267 | 388 |
| 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: | 3 | 5 | 2 | 316 | 7 | 444 | 556 | 310 | 4 | 1 | 267 | 388 |
| 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: | 0.56 | 0.56 | 0.56 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.82 | 0.82 | 0.82 |
| PHF Volume: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 473 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 473 |
| 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 |
| Final Vol.: | 5 | 9 | 4 | 336 | 7 | 472 | 589 | 328 | 4 | 1 | 326 | 473 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.86 | 0.86 | 0.86 | 0.95 | 1.00 | 0.85 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.28 | 0.50 | 0.22 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.01 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 453 | 815 | 362 | 1805 | 1900 | 1615 | 1805 | 1873 | 23 | 1805 | 1900 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.01 | 0.01 | 0.01 | 0.19 | 0.00 | 0.29 | 0.33 | 0.18 | 0.18 | 0.00 | 0.17 | 0.29 |
| Crit Moves: | **** | | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.01 | 0.01 | 0.01 | 0.25 | 0.25 | 0.68 | 0.43 | 0.66 | 0.66 | 0.00 | 0.23 | 0.47 |
| Volume/Cap: | 0.76 | 0.76 | 0.76 | 0.76 | 0.01 | 0.43 | 0.76 | 0.27 | 0.27 | 0.27 | 0.76 | 0.62 |
| Delay/Veh: | 131.5 | 132 | 131.5 | 42.1 | 28.5 | 7.6 | 28.2 | 7.2 | 7.2 | 84.5 | 43.5 | 21.2 |
| 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: | 131.5 | 132 | 131.5 | 42.1 | 28.5 | 7.6 | 28.2 | 7.2 | 7.2 | 84.5 | 43.5 | 21.2 |
| DesignQueue: | 0 | 0 | 0 | 15 | 0 | 9 | 20 | 7 | 0 | 0 | 15 | 15 |





MD Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

Intersection #5 Pleasant Hill Rd/Olympic Blvd

Cycle (sec): 80 Critical Vol./Cap. (X): 0.748
Loss Time (sec): 8 (Y+R = 4 sec) Average Delay (sec/veh): 21.2
Optimal Cycle: 53 Level Of Service: C

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Protected | | | Protected | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Ovl | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 | 0 | 0 1 | 0 | 1 | 0 1 | 0 | 1 | 0 1 | 0 | 1 | 0 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 2:45 - 3:45 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 4 | 3 | 397 | 6 | 383 | 524 | 211 | 0 | 2 | 226 | 437 |
| 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: | 0 | 4 | 3 | 397 | 6 | 383 | 524 | 211 | 0 | 2 | 226 | 437 |
| 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: | 0.60 | 0.60 | 0.60 | 0.94 | 0.94 | 0.94 | 0.96 | 0.96 | 0.96 | 0.93 | 0.93 | 0.93 |
| PHF Volume: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 470 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 470 |
| 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 |
| Final Vol.: | 0 | 7 | 5 | 423 | 6 | 408 | 548 | 221 | 0 | 2 | 243 | 470 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.84 | 0.84 | 0.95 | 1.00 | 0.85 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.00 | 0.58 | 0.42 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 0 | 935 | 668 | 1805 | 1900 | 1615 | 1805 | 1900 | 0 | 1805 | 1900 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.01 | 0.01 | 0.23 | 0.00 | 0.25 | 0.30 | 0.12 | 0.00 | 0.00 | 0.13 | 0.29 |
| Crit Moves: | | **** | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.01 | 0.01 | 0.31 | 0.32 | 0.73 | 0.41 | 0.57 | 0.00 | 0.01 | 0.17 | 0.48 |
| Volume/Cap: | 0.00 | 0.75 | 0.75 | 0.75 | 0.01 | 0.35 | 0.75 | 0.20 | 0.00 | 0.20 | 0.75 | 0.60 |
| Delay/Veh: | 0.0 | 145 | 144.6 | 30.1 | 18.4 | 4.1 | 24.6 | 8.4 | 0.0 | 49.6 | 40.8 | 16.3 |
| 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: | 0.0 | 145 | 144.6 | 30.1 | 18.4 | 4.1 | 24.6 | 8.4 | 0.0 | 49.6 | 40.8 | 16.3 |
| DesignQueue: | 0 | 0 | 0 | 14 | 0 | 5 | 16 | 4 | 0 | 0 | 9 | 12 |

PM Peak Hour - Existing Conditions
Pleasant Hill Road TETAP Project
City of Lafayette

Level Of Service Computation Report
1997 HCM Operations Method (Base Volume Alternative)

**********

Intersection #5 Pleasant Hill Rd/Olympic Blvd

**********

| | | | |
|---|---|---|---|
| Cycle (sec): | 90 | Critical Vol./Cap. (X): | 0.718 |
| Loss Time (sec): | 8 (Y+R = 4 sec) | Average Delay (sec/veh): | 22.0 |
| Optimal Cycle: | 50 | Level Of Service: | C |

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Ovl | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanes: | 0 0 | 0 1 | 0 | 1 0 | 1 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module: >> Count Date: 15 Mar 2001 << 4:00 - 5:00 pm | | | | | | | | | | | | |
| Base Vol: | 0 | 4 | 2 | 360 | 5 | 419 | 409 | 216 | 4 | 0 | 297 | 439 |
| 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: | 0 | 4 | 2 | 360 | 5 | 419 | 409 | 216 | 4 | 0 | 297 | 439 |
| 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: | 0.50 | 0.50 | 0.50 | 0.96 | 0.96 | 0.96 | 0.83 | 0.83 | 0.83 | 0.94 | 0.94 | 0.94 |
| PHF Volume: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 468 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 468 |
| 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 |
| Final Vol.: | 0 | 8 | 4 | 375 | 5 | 436 | 493 | 260 | 5 | 0 | 316 | 468 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 0.86 | 0.86 | 0.95 | 1.00 | 0.85 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 0.85 |
| Lanes: | 0.00 | 0.67 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.02 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 0 | 1083 | 542 | 1805 | 1900 | 1615 | 1805 | 1859 | 36 | 1900 | 1900 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.01 | 0.01 | 0.21 | 0.00 | 0.27 | 0.27 | 0.14 | 0.14 | 0.00 | 0.17 | 0.29 |
| Crit Moves: | | **** | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.01 | 0.01 | 0.29 | 0.29 | 0.67 | 0.38 | 0.61 | 0.61 | 0.00 | 0.23 | 0.52 |
| Volume/Cap: | 0.00 | 0.72 | 0.72 | 0.72 | 0.01 | 0.40 | 0.72 | 0.23 | 0.23 | 0.00 | 0.72 | 0.56 |
| Delay/Veh: | 0.0 | 135 | 135.1 | 33.5 | 22.8 | 7.0 | 27.5 | 8.0 | 8.0 | 0.0 | 37.5 | 15.4 |
| 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: | 0.0 | 135 | 135.1 | 33.5 | 22.8 | 7.0 | 27.5 | 8.0 | 8.0 | 0.0 | 37.5 | 15.4 |
| DesignQueue: | 0 | 0 | 0 | 14 | 0 | 8 | 16 | 5 | 0 | 0 | 13 | 12 |

**********

Pleasant Hill Rd/Olympic Blvd * AM *
AM Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 617 | 345 | 5 | 967 | 2 | | | | 0.789 | 20.1 | 538 | |
| | 617 | 345 | 5 | 967 | 2 | | | | 0.789 | 20.1 | 538 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 3 | 6 | 2 | 11 | 0 | | | | 0.039 | 22.0 | 6 | |
| | 3 | 6 | 2 | 11 | 0 | | | | 0.039 | 22.0 | 6 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 2 | 297 | 431 | 730 | 2 | | | | 0.933 | 34.3 | 796 | |
| | 2 | 297 | 431 | 730 | 2 | | | | 0.933 | 34.3 | 796 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 351 | 9 | 493 | 853 | 2 | | | | 0.659 | 15.0 | 332 | |
| | 351 | 9 | 493 | 853 | 2 | | | | 0.659 | 15.0 | 332 | |
| ALL VEHICLES | | | | Tot Arv. 2561 | % HV 2 | | | | Max X 0.932 | Aver. Delay 22.5 | Max Queue 796 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * AM *
AM Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 967 | 1225 | 0.789 | 20.1 | C |
| | | 967 | 1225 | 0.789 | 20.1 | C |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 11 | 279 | 0.039 | 22.0 | C |
| | | 11 | 279 | 0.039 | 22.0 | C |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 730 | 783 | 0.932* | 34.3 | C |
| | | 730 | 783 | 0.932 | 34.3 | C |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 853 | 1294 | 0.659 | 15.0 | B |
| | | 853 | 1294 | 0.659 | 15.0 | B |
| ALL VEHICLES: | | 2561 | 3581 | 0.932 | 22.5 | C |
| INTERSECTION: | | 2561 | 3581 | 0.932 | 22.5 | C |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Pleasant Hill Rd/Olympic Blvd * MD *
Midday Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 583 | 235 | 2 | 820 | 2 | | | 0.800 | 23.1 | 532 | |
| | 583 | 235 | 2 | 820 | 2 | | | 0.800 | 23.1 | 532 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 1 | 4 | 3 | 8 | 0 | | | 0.026 | 19.3 | 4 | |
| | 1 | 4 | 3 | 8 | 0 | | | 0.026 | 19.3 | 4 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 3 | 251 | 486 | 740 | 2 | | | 0.903 | 29.3 | 719 | |
| | 3 | 251 | 486 | 740 | 2 | | | 0.903 | 29.3 | 719 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 441 | 8 | 426 | 875 | 2 | | | 0.623 | 14.8 | 300 | |
| | 441 | 8 | 426 | 875 | 2 | | | 0.623 | 14.8 | 300 | |
| ALL VEHICLES | | | | Tot Arv. 2443 | % HV 2 | | | Max X 0.902 | Aver. Delay 22.0 | Max Queue 719 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * MD *
Midday Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 820 | 1024 | 0.801 | 23.1 | C |
| | | 820 | 1024 | 0.801 | 23.1 | C |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 8 | 313 | 0.026 | 19.3 | B |
| | | 8 | 313 | 0.026 | 19.3 | B |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 740 | 820 | 0.902* | 29.3 | C |
| | | 740 | 820 | 0.902 | 29.3 | C |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 875 | 1405 | 0.623 | 14.8 | B |
| | | 875 | 1405 | 0.623 | 14.8 | B |
| ALL VEHICLES: | | 2443 | 3562 | 0.902 | 22.0 | C |
| INTERSECTION: | | 2443 | 3562 | 0.902 | 22.0 | C |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Pleasant Hill Rd/Olympic Blvd * PM *
PM Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 454 | 240 | 5 | 699 | 2 | | | | 0.669 | 19.3 | 332 | |
| | 454 | 240 | 5 | 699 | 2 | | | | 0.669 | 19.3 | 332 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 1 | 4 | 2 | 7 | 0 | | | | 0.016 | 15.8 | 3 | |
| | 1 | 4 | 2 | 7 | 0 | | | | 0.016 | 15.8 | 3 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 2 | 330 | 488 | 820 | 2 | | | | 0.828 | 20.9 | 575 | |
| | 2 | 330 | 488 | 820 | 2 | | | | 0.828 | 20.9 | 575 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 400 | 6 | 465 | 871 | 2 | | | | 0.710 | 16.5 | 393 | |
| | 400 | 6 | 465 | 871 | 2 | | | | 0.710 | 16.5 | 393 | |
| ALL VEHICLES | | | | Tot Arv. 2397 | % HV 2 | | | | Max X 0.828 | Aver. Delay 18.8 | Max Queue 575 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * PM *
PM Peak Hour - Existing Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 699 | 1045 | 0.669 | 19.3 | B |
| | | 699 | 1045 | 0.669 | 19.3 | B |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 7 | 438 | 0.016 | 15.8 | B |
| | | 7 | 438 | 0.016 | 15.8 | B |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 820 | 990 | 0.828* | 20.9 | C |
| | | 820 | 990 | 0.828 | 20.9 | C |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 871 | 1226 | 0.710 | 16.5 | B |
| | | 871 | 1226 | 0.710 | 16.5 | B |
| ALL VEHICLES: | | 2397 | 3700 | 0.828 | 18.8 | B |
| INTERSECTION: | | 2397 | 3700 | 0.828 | 18.8 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 TR | 1297 | 33 | | 1330 | 2 | | | 0.749 | 11.2 | 266 | |
| | 0 1297 | 33 | | 1330 | 2 | | | 0.749 | 11.2 | 266 | |
| East: WB Condit Road | | | | | | | | | | | |
| 1 LR | 19 | | 93 | 112 | 0 | | | 0.359 | 25.6 | 57 | |
| | 19 | 0 | 93 | 112 | 0 | | | 0.359 | 25.6 | 57 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LT | 104 1028 | | | 1132 | 2 | | | 0.607 | 10.8 | 146 | |
| | 104 1028 | 0 | | 1132 | 2 | | | 0.607 | 10.8 | 146 | |
| ALL VEHICLES | | | | Tot Arv. 2574 | % HV 2 | | | Max X 0.749 | Aver. Delay 11.7 | Max Queue 266 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road * CONDIT-A
AM Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 1330 | 1776 | 0.749* | 11.2 | B |
| | | 1330 | 1776 | 0.749 | 11.2 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 112 | 312 | 0.359 | 25.6 | C |
| | | 112 | 312 | 0.359 | 25.6 | C |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1132 | 1864 | 0.607 | 10.8 | B |
| | | 1132 | 1864 | 0.607 | 10.8 | B |
| ALL VEHICLES: | | 2574 | 3951 | 0.749 | 11.7 | B |
| INTERSECTION: | | 2574 | 3951 | 0.749 | 11.7 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Pleasant Hill Road/Condit Road * CONDIT-M
Midday Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | | |
| 1 TR | 1193 | 25 | 1218 | | 2 | | | | 0.682 | 11.1 | 206 | |
| | 0 1193 | 25 | 1218 | | 2 | | | | 0.682 | 11.1 | 206 | |
| East: WB Condit Road | | | | | | | | | | | | |
| 1 LR | 20 | 72 | 92 | | 0 | | | | 0.236 | 21.5 | 36 | |
| | 20 0 | 72 | 92 | | 0 | | | | 0.236 | 21.5 | 36 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LT | 99 1072 | | 1171 | | 2 | | | | 0.628 | 10.8 | 158 | |
| | 99 1072 | 0 | 1171 | | 2 | | | | 0.628 | 10.8 | 158 | |
| ALL VEHICLES | | | Tot Arv. 2481 | | % HV 2 | | | | Max X 0.682 | Aver. Delay 11.3 | Max Queue 206 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road * CONDIT-M
Midday Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 1218 | 1785 | 0.682* | 11.1 | B |
| | | 1218 | 1785 | 0.682 | 11.1 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 92 | 391 | 0.235 | 21.5 | C |
| | | 92 | 391 | 0.235 | 21.5 | C |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1171 | 1865 | 0.628 | 10.8 | B |
| | | 1171 | 1865 | 0.628 | 10.8 | B |
| ALL VEHICLES: | | 2481 | 4041 | 0.682 | 11.3 | B |
| INTERSECTION: | | 2481 | 4041 | 0.682 | 11.3 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | | | | | | | |
| 1 TR | 1138 | 28 | 1166 | 2 | | | | | 0.669 | 11.2 | 193 | |
| | 0 1138 | 28 | 1166 | 2 | | | | | 0.669 | 11.2 | 193 | |
| East: WB Condit Road | | | | | | | | | | | | |
| 1 LR | 21 | 71 | 92 | 0 | | | | | 0.219 | 20.2 | 34 | |
| | 21 0 | 71 | 92 | 0 | | | | | 0.219 | 20.2 | 34 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LT | 119 1143 | | 1262 | 2 | | | | | 0.677 | 10.8 | 191 | |
| | 119 1143 | 0 | 1262 | 2 | | | | | 0.677 | 10.8 | 191 | |
| ALL VEHICLES | | | Tot Arv. 2520 | % HV 2 | | | | | Max X 0.677 | Aver. Delay 11.3 | Max Queue 193 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Condit Road * CONDIT-P
PM Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| South: NB Pleasant Hill Road | | | | | | |
| 32 | TR | 1166 | 1744 | 0.669 | 11.2 | B |
| | | 1166 | 1744 | 0.669 | 11.2 | B |
| East: WB Condit Road | | | | | | |
| 22 | LR | 92 | 421 | 0.219 | 20.2 | C |
| | | 92 | 421 | 0.219 | 20.2 | C |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1262 | 1865 | 0.677* | 10.8 | B |
| | | 1262 | 1865 | 0.677 | 10.8 | B |
| ALL VEHICLES: | | 2520 | 4030 | 0.677 | 11.3 | B |
| INTERSECTION: | | 2520 | 4030 | 0.677 | 11.3 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Pleasant Hill Road/Reliez Station Road * RELIEZ-A
AM Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | |
| 1 LTR | 95 | 1 | 3 | 99 | 0 | | | 0.170 | 21.2 | 31 | |
| | 95 | 1 | 3 | 99 | 0 | | | 0.170 | 21.2 | 31 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 3 | 1228 | 4 | 1235 | 2 | | | 0.721 | 11.2 | 217 | |
| | 3 | 1228 | 4 | 1235 | 2 | | | 0.721 | 11.2 | 217 | |
| East: WB Reliez Station Lane | | | | | | | | | | | |
| 1 LTR | 8 | 1 | 8 | 17 | 0 | | | 0.055 | 25.6 | 8 | |
| | 8 | 1 | 8 | 17 | 0 | | | 0.055 | 25.6 | 8 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 9 | 995 | 43 | 1047 | 2 | | | 0.561 | 10.5 | 122 | |
| | 9 | 995 | 43 | 1047 | 2 | | | 0.561 | 10.5 | 122 | |
| ALL VEHICLES | | | | Tot Arv. 2398 | % HV 2 | | | Max X 0.721 | Aver. Delay 11.4 | Max Queue 217 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road * RELIEZ-A
AM Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 99 | 582 | 0.170 | 21.2 | C |
| | | 99 | 582 | 0.170 | 21.2 | C |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 1235 | 1714 | 0.721* | 11.2 | B |
| | | 1235 | 1714 | 0.721 | 11.2 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 17 | 311 | 0.055 | 25.6 | C |
| | | 17 | 311 | 0.055 | 25.6 | C |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1004 | 1789 | 0.561 | 10.5 | B |
| 43 | R | 43 | 77 | 0.558 | 10.5 | B |
| | | 1047 | 1866 | 0.561 | 10.5 | B |
| ALL VEHICLES: | | 2398 | 4472 | 0.721 | 11.4 | B |
| INTERSECTION: | | 2398 | 4472 | 0.721 | 11.4 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | | |
| 1 LTR | 60 | 1 | 8 | 69 | 0 | | | | 0.121 | 20.9 | 22 | |
| | 60 | 1 | 8 | 69 | 0 | | | | 0.121 | 20.9 | 22 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 4 | 1168 | 5 | 1177 | 2 | | | | 0.656 | 10.9 | 177 | |
| | 4 | 1168 | 5 | 1177 | 2 | | | | 0.656 | 10.9 | 177 | |
| East: WB Reliez Station Lane | | | | | | | | | | | | |
| 1 LTR | 3 | 1 | 13 | 17 | 0 | | | | 0.043 | 21.3 | 7 | |
| | 3 | 1 | 13 | 17 | 0 | | | | 0.043 | 21.3 | 7 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | | |
| 1 LTR | 7 | 1026 | 40 | 1073 | 2 | | | | 0.575 | 10.4 | 128 | |
| | 7 | 1026 | 40 | 1073 | 2 | | | | 0.575 | 10.4 | 128 | |
| ALL VEHICLES | | | | Tot Arv. 2336 | % HV 2 | | | | Max X 0.656 | Aver. Delay 11.0 | Max Queue 177 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road * RELIEZ-M
Midday Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 69 | 572 | 0.121 | 20.9 | C |
| | | 69 | 572 | 0.121 | 20.9 | C |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 1177 | 1793 | 0.656* | 10.9 | B |
| | | 1177 | 1793 | 0.656 | 10.9 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 17 | 394 | 0.043 | 21.3 | C |
| | | 17 | 394 | 0.043 | 21.3 | C |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1033 | 1796 | 0.575 | 10.4 | B |
| 43 | R | 40 | 70 | 0.571 | 10.4 | B |
| | | 1073 | 1866 | 0.575 | 10.4 | B |
| ALL VEHICLES: | | 2336 | 4624 | 0.656 | 11.0 | B |
| INTERSECTION: | | 2336 | 4624 | 0.656 | 11.0 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | | | | | | |
| 1 LTR | 24 | 1 | 4 | 29 | 0 | | | 0.056 | 21.9 | 10 | |
| | 24 | 1 | 4 | 29 | 0 | | | 0.056 | 21.9 | 10 | |
| South: NB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 5 | 1097 | 3 | 1105 | 2 | | | 0.593 | 10.6 | 142 | |
| | 5 | 1097 | 3 | 1105 | 2 | | | 0.593 | 10.6 | 142 | |
| East: WB Reliez Station Lane | | | | | | | | | | | |
| 1 LTR | 1 | 1 | 1 | 3 | 0 | | | 0.006 | 19.8 | 1 | |
| | 1 | 1 | 1 | 3 | 0 | | | 0.006 | 19.8 | 1 | |
| North: SB Pleasant Hill Road | | | | | | | | | | | |
| 1 LTR | 5 | 1113 | 45 | 1163 | 2 | | | 0.623 | 10.4 | 152 | |
| | 5 | 1113 | 45 | 1163 | 2 | | | 0.623 | 10.4 | 152 | |
| ALL VEHICLES | | | | Tot Arv. 2300 | % HV 2 | | | Max X 0.625 | Aver. Delay 10.7 | Max Queue 152 | |

Total flow period = 60 minutes. Peak flow period = 30 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Road/Reliez Station Road * RELIEZ-P
PM Peak Hour - Future Conditions
Intersection ID:
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: EB Reliez Station Road | | | | | | |
| 12 | LTR | 29 | 516 | 0.056 | 21.9 | C |
| | | 29 | 516 | 0.056 | 21.9 | C |
| South: NB Pleasant Hill Road | | | | | | |
| 32 | LTR | 1105 | 1862 | 0.593 | 10.6 | B |
| | | 1105 | 1862 | 0.593 | 10.6 | B |
| East: WB Reliez Station Lane | | | | | | |
| 22 | LTR | 3 | 491 | 0.006 | 19.8 | B |
| | | 3 | 491 | 0.006 | 19.8 | B |
| North: SB Pleasant Hill Road | | | | | | |
| 42 | LT | 1118 | 1795 | 0.623 | 10.4 | B |
| 43 | R | 45 | 72 | 0.625* | 10.4 | B |
| | | 1163 | 1867 | 0.625 | 10.4 | B |
| ALL VEHICLES: | | 2300 | 4737 | 0.625 | 10.7 | B |
| INTERSECTION: | | 2300 | 4737 | 0.625 | 10.7 | B |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Pleasant Hill Rd/Olympic Blvd * AMF *
AM Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st | 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 702 | 392 | 6 | 1100 | 2 | | | | 0.944 | 29.6 | 1007 | |
| | 702 | 392 | 6 | 1100 | 2 | | | | 0.944 | 29.6 | 1007 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 4 | 6 | 3 | 13 | 0 | | | | 0.080 | 29.5 | 11 | |
| | 4 | 6 | 3 | 13 | 0 | | | | 0.080 | 29.5 | 11 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | | |
| 1 LTR | 2 | 338 | 490 | 830 | 2 | | | | 1.144 | 102.3 | 1670 | |
| | 2 | 338 | 490 | 830 | 2 | | | | 1.144 | 102.3 | 1670 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | | |
| 1 LTR | 399 | 10 | 561 | 970 | 2 | | | | 0.731 | 15.5 | 429 | |
| | 399 | 10 | 561 | 970 | 2 | | | | 0.731 | 15.5 | 429 | |
| ALL VEHICLES | | | | Tot Arv. 2913 | % HV 2 | | | | Max X 1.143 | Aver. Delay 45.6 | Max Queue 1670 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * AMF *
AM Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 1100 | 1165 | 0.944 | 29.6 | C |
| | | 1100 | 1165 | 0.944 | 29.6 | C |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 13 | 163 | 0.080 | 29.5 | C |
| | | 13 | 163 | 0.080 | 29.5 | C |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 830 | 726 | 1.143* | 102.3 | F |
| | | 830 | 726 | 1.143 | 102.3 | F |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 970 | 1327 | 0.731 | 15.5 | B |
| | | 970 | 1327 | 0.731 | 15.5 | B |
| ALL VEHICLES: | | 2913 | 3381 | 1.143 | 45.6 | D |
| INTERSECTION: | | 2913 | 3381 | 1.143 | 45.6 | D |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Pleasant Hill Rd/Olympic Blvd * MDF *
Midday Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 662 | 266 | 2 | 930 | 2 | | | 0.955 | 36.0 | 971 | |
| | 662 | 266 | 2 | 930 | 2 | | | 0.955 | 36.0 | 971 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 1 | 5 | 4 | 10 | 0 | | | 0.049 | 25.1 | 7 | |
| | 1 | 5 | 4 | 10 | 0 | | | 0.049 | 25.1 | 7 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 3 | 286 | 552 | 841 | 2 | | | 1.171 | 110.3 | 1712 | |
| | 3 | 286 | 552 | 841 | 2 | | | 1.171 | 110.3 | 1712 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 501 | 8 | 484 | 993 | 2 | | | 0.701 | 14.8 | 393 | |
| | 501 | 8 | 484 | 993 | 2 | | | 0.701 | 14.8 | 393 | |
| ALL VEHICLES | | | | Tot Arv. 2774 | % HV 2 | | | Max X 1.171 | Aver. Delay 50.9 | Max Queue 1712 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * MDF *
Midday Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 930 | 973 | 0.956 | 36.0 | D |
| | | 930 | 973 | 0.956 | 36.0 | D |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 10 | 205 | 0.049 | 25.1 | C |
| | | 10 | 205 | 0.049 | 25.1 | C |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 841 | 718 | 1.171* | 110.3 | F |
| | | 841 | 718 | 1.171 | 110.3 | F |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 993 | 1417 | 0.701 | 14.8 | B |
| | | 993 | 1417 | 0.701 | 14.8 | B |
| ALL VEHICLES: | | 2774 | 3314 | 1.171 | 50.9 | D |
| INTERSECTION: | | 2774 | 3314 | 1.171 | 50.9 | D |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Pleasant Hill Rd/Olympic Blvd * PMF *
PM Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

| Lane No. | Arrival Flow (veh/h) L | T | R | Tot | %HV | Adj. Basic Satf. | Eff Grn (secs) 1st 2nd | Deg Sat x | Aver. Delay (sec) | 95% Queue (ft) | Shrt Lane (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 516 | 272 | 6 | 794 | 2 | | | 0.804 | 22.8 | 521 | |
| | 516 | 272 | 6 | 794 | 2 | | | 0.804 | 22.8 | 521 | |
| South: Northbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 1 | 5 | 3 | 9 | 0 | | | 0.027 | 18.7 | 5 | |
| | 1 | 5 | 3 | 9 | 0 | | | 0.027 | 18.7 | 5 | |
| East: Westbound Olympic Blvd | | | | | | | | | | | |
| 1 LTR | 2 | 376 | 554 | 932 | 2 | | | 1.002 | 44.6 | 1170 | |
| | 2 | 376 | 554 | 932 | 2 | | | 1.002 | 44.6 | 1170 | |
| North: Southbound Pleasant Hill | | | | | | | | | | | |
| 1 LTR | 455 | 7 | 530 | 992 | 2 | | | 0.859 | 20.6 | 671 | |
| | 455 | 7 | 530 | 992 | 2 | | | 0.859 | 20.6 | 671 | |
| ALL VEHICLES | | | | Tot Arv. 2727 | % HV 2 | | | Max X 1.002 | Aver. Delay 29.4 | Max Queue 1170 | |

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Values printed in this table are back of queue (vehicles).

Pleasant Hill Rd/Olympic Blvd * PMF *
PM Peak Hour - Future Conditions with Roundabout
Intersection ID: 5
Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE (HCM STYLE)

| Mov No. | Mov Typ | Total Flow (veh /h) | Total Cap. (veh /h) | Deg. of Satn (v/c) | Aver. Delay (sec) | LOS |
|---|---|---|---|---|---|---|
| West: Eastbound Olympic Blvd | | | | | | |
| 12 | LTR | 794 | 988 | 0.804 | 22.8 | C |
| | | 794 | 988 | 0.804 | 22.8 | C |
| South: Northbound Pleasant Hill | | | | | | |
| 32 | LTR | 9 | 335 | 0.027 | 18.7 | B |
| | | 9 | 335 | 0.027 | 18.7 | B |
| East: Westbound Olympic Blvd | | | | | | |
| 22 | LTR | 932 | 930 | 1.002* | 44.6 | D |
| | | 932 | 930 | 1.002 | 44.6 | D |
| North: Southbound Pleasant Hill | | | | | | |
| 42 | LTR | 992 | 1154 | 0.860 | 20.6 | C |
| | | 992 | 1154 | 0.860 | 20.6 | C |
| ALL VEHICLES: | | 2727 | 3407 | 1.002 | 29.4 | C |
| INTERSECTION: | | 2727 | 3407 | 1.002 | 29.4 | C |

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods