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APPENDICES

Appendix A – Traffic Counts
Appendix B – LOS Calculation Worksheets
INTRODUCTION

This report summarizes the traffic analysis performed for the proposed 1715 Elm Street townhouse (project). This report includes information on analysis methodology, existing conditions at the project site, and potential project impacts on traffic volumes, intersection operation, site circulation, parking demands, and non-motorized forms of transportation. This report also uses the January 2006 Mitigation Negative Declaration for the previous proposal for this project site as a reference (DHA, 2006).

PROJECT LOCATION

The project site is located at 1715 Elm Street in the City of El Cerrito in Contra Costa County in the northern San Francisco Bay Area (Figure 1). The project site is located on the west side of Elm Street between Hill Street and Blake Street (Figure 2). The site is primarily surrounded by residential neighborhoods and by the Keystone Montessori abutting the south side of the project site (Figure 3). Windrush School is across Elm Street to the north. The El Cerrito del Norte BART Station is west of the project site.

PROJECT DESCRIPTION

The project would involve on-site relocation and restoration of the original house, construction of 13 townhouses, and provision of a small pocket park along the Elm Street frontage (Figure 4). Project parking would be provided in ground floor garages at a ratio of 1.5 spaces per unit, or 21 spaces. The project would include a car share program on-site and a location for community bike storage. Project construction activities would commence in 2010 and conclude in 2011.

METHODOLOGY AND ASSUMPTIONS

The scope and methodologies used for this traffic study are based on the 2005 traffic analysis performed by Crane Transportation Group as documented in the January 2006 Mitigation Negative Declaration for the previous proposal for this project site. It is important to note that the Crane Transportation Group traffic study was not available for review.

In addition, this study incorporates an increase in students and teachers at the Windrush School based on the 2007 approval by the City of El Cerrito Planning Commission of an amendment to the Windrush School's use permit to increase their student body and for their 20-year master plan. This study also considers the installation of a stop sign at the Elm Street / Richmond Street / Blake Street intersection (City of El Cerrito, 2009).

PROJECT STUDY AREA

The project study area, as defined through consultation with City staff, encompasses three intersections (Figure 5):

- Elm Street / Hill Street / Key Boulevard (signalized)
- Elm Street / Richmond Street / Blake Street (unsignalized, all-way stop controlled)
- Richmond Avenue / Potrero Avenue (signalized)
LEVEL OF SERVICE (LOS) METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment or intersection under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, travel speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. A complete description of the meaning of level of service can be found in the 2000 Highway Capacity Manual (HCM) and a brief description is shown in Table 1.

<table>
<thead>
<tr>
<th>LOS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No approach phase is fully utilized by traffic, and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.</td>
</tr>
<tr>
<td>B</td>
<td>This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are nearing full use. Many drivers begin to feel restricted within platoons of vehicles.</td>
</tr>
<tr>
<td>C</td>
<td>This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.</td>
</tr>
<tr>
<td>D</td>
<td>This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.</td>
</tr>
<tr>
<td>E</td>
<td>Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.</td>
</tr>
<tr>
<td>F</td>
<td>This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.</td>
</tr>
</tbody>
</table>


LOS designation is reported differently for signalized intersections and unsignalized intersections, as described below.

SIGNALIZED INTERSECTIONS

The two signalized intersections were analyzed for the weekday AM and PM peak hour conditions. Average vehicle delay was determined using the methodology found in Chapter 16 of the 2000 Highway Capacity Manual (HCM), using the Traffix (version 8.0) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection level of service. Table 2 summarizes the delay thresholds for signalized intersections.
Figure 1
Project Regional Location

Source: ESRI Streetmap USA
Figure 2
Project Vicinity Map
Figure 4
Project Site Plan

Source: Eddie Biggs Development

Not to Scale
### Table 2
#### Level of Service (LOS) Thresholds for Signalized Intersections

<table>
<thead>
<tr>
<th>Average Control Delay per Vehicle (Seconds/Vehicle)</th>
<th>Level of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 ( \leq ) 10.0</td>
<td>A</td>
</tr>
<tr>
<td>10.1 to 20.0</td>
<td>B</td>
</tr>
<tr>
<td>21.1 to 35.0</td>
<td>C</td>
</tr>
<tr>
<td>35.1 to 55.0</td>
<td>D</td>
</tr>
<tr>
<td>55.1 to 80.0</td>
<td>E</td>
</tr>
<tr>
<td>( \geq ) 80.0</td>
<td>F</td>
</tr>
</tbody>
</table>


### Unsignalized Intersections

The one unsignalized intersection was analyzed for the weekday AM and PM peak hour conditions. The vehicle delay and levels of service were determined based upon the procedures found in Chapter 17 of the 2000 Highway Capacity Manual (HCM), using the Traffix (version 8.0) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS. **Table 3** summarizes the delay thresholds for unsignalized intersections.

### Table 3
#### Level of Service (LOS) Thresholds for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Average Control Delay per Vehicle (Seconds/Vehicle)</th>
<th>Level of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 ( \leq ) 10.0</td>
<td>A</td>
</tr>
<tr>
<td>10.1 to 15.0</td>
<td>B</td>
</tr>
<tr>
<td>15.1 to 25.0</td>
<td>C</td>
</tr>
<tr>
<td>25.1 to 35.0</td>
<td>D</td>
</tr>
<tr>
<td>35.1 to 50.0</td>
<td>E</td>
</tr>
<tr>
<td>( \geq ) 50.1</td>
<td>F</td>
</tr>
</tbody>
</table>


### Level of Service (LOS) Thresholds of Significance

Study area intersections were analyzed during the weekday AM and PM peak period to assess potential traffic impacts with the implementation of the project. The City of El Cerrito consider LOS D as the lowest acceptable operating condition at study intersections. For this study, the addition of the project’s traffic to an intersection was considered significant if it degraded intersection LOS from acceptable (LOS D or better) to unacceptable (LOS E or F). If an intersection is operating at an unacceptable LOS in the cumulative baseline condition, the project is considered to have a significant impact if it would add any delay to an intersection.
STUDY SCENARIOS

This traffic study analyzed the following four traffic scenarios:

- **Existing Conditions.** Existing conditions are represented by existing AM and PM peak hour traffic volumes at study intersection based on traffic counts collected in October 2009 by National Data Services, a qualified data collection firm.

- **Existing Plus Project Conditions.** Estimated project traffic volumes were added to the existing AM and PM peak hour traffic volumes at study intersections. Existing Plus Project Conditions were evaluated relative to Existing Conditions in order to determine potential project impacts on study intersection operating conditions.

- **Cumulative Conditions.** Cumulative Conditions represent the year 2025 conditions at study intersections. Cumulative Conditions traffic volumes were derived by adding 0.5 percent per year growth to existing volumes. Cumulative Conditions also incorporate traffic from proposed and approved development projects in the vicinity of the project site. For this study, two related development projects were added to the Cumulative Conditions. The first project is the previously mentioned expansion of the Windrush School from 250 to 330 students. The second project is the redevelopment of the former Target store (11450 San Pablo Avenue) to a Safeway and other on-site retail stores.

- **Cumulative Plus Project Conditions.** Estimated project traffic volumes were added to Cumulative Conditions in order to evaluate the project’s potential impacts on study intersection operating conditions.

All study scenarios analyzed potential impacts of the project on traffic operations at selected study area intersections for the weekday AM peak hour (7:00-9:00 AM) and PM peak hour (4:00-6:00 PM) time periods. These time periods were used to represent a worst-case scenario at study intersections resulting from implementation of the project.

EXISTING CONDITIONS

This section documents the existing conditions in the study area. Figure 6 displays the intersection configurations and traffic control at study intersections while the following describes the study areas roadway characteristics.

ROADWAY SYSTEM

Regional access to the project site is provided by Interstate 80 (I-80) and Interstate 580 (I-580) freeways located west of the project site. Local access to the project site is provided by Elm Street, Richmond Street, Hill Street, Key Boulevard, Blake Street, and Potrero Avenue. All roadways in the immediate project vicinity serve primarily residential neighborhoods, and have curbs, gutters, sidewalks, on-street parking, and maximum posted speed limits of 25 miles per hour. On-street parking is limited to four hours (except by residential permit) between 7:00 AM and 6:00 PM due to the close proximity of the El Cerrito del Norte BART station. The following describes the local roadways that would serve the project.

- **Elm Street.** Within the study area, Elm Street is a two-lane, north-south discontinuous roadway extending from Cutting Boulevard on the north to Blake Street on the south. South of Blake Street, Elm Street restarts from a T-intersection with Blake Street one block west of the Elm Street / Richmond Street / Blake Street intersection and continues to Schmidt Lane on the...
south. Elm Street has a minimum width of 40 feet curb-to-curb. Parking along Elm Street is limited to four hours (except by residential permit) between 7:00 AM and 6:00 PM with parking prohibited near driveways, fire hydrants, and intersections. The posted speed limit is 25 miles per hour, with a posted speed limit of 20 miles per hour near the project site as Elm Street curves to meet Richmond Street at Blake Street.

- **Richmond Street** Richmond Street is a two-lane, north-south roadway extending from Blake Street on the north to Fairmont Avenue on the south. On the northbound approach to the Elm Street / Richmond Street / Blake Street intersection, the posted speed limit on Richmond Street is reduced from 25 to 20 miles per hour as it curves to meet Elm Street at Blake Street.

- **Hill Street** Hill Street is a two-lane, east-west roadway extending from San Pablo Avenue on the west to Elm Street on the east. Hill Street fronts the south side of the El Cerrito del Norte BART station.

- **Key Boulevard.** Key Boulevard is a two-lane, primarily north-south roadway extending from McLaughlin Street on the north to Elm Street on the south. Key Boulevard fronts the east side of the El Cerrito del Norte BART station.

- **Blake Street.** Blake Street is a two-lane, east-west roadway extending from San Pablo Avenue on the west to Navellier Street on the east.

- **Potrero Avenue.** Potrero Avenue is a two-lane, east-west roadway extending from Carlson Boulevard in the City of Richmond on the west Arlington Boulevard on the east. Potrero Avenue provides access to I-80.

**PARKING**

PMC conducted two days of 12 hours of hourly surveys of on-street parking along Elm Street between Hill Street and Blake Street on a Tuesday and Thursday in October 2009. As indicated in Table 4, less than a third of the 40 on-street parking spaces within the surveyed Elm Street segment were occupied at any given time. It is worth noting that the observed on-street parking utilization in October 2009 was markedly lower than what was observed in September 2005. The average number of occupied parking spaces was seven in 2009 and was 17 in 2005 for all observed time periods.

<table>
<thead>
<tr>
<th></th>
<th>Occupied Spaces</th>
<th>Unoccupied Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning (AM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:00</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>7:00</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>8:00</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>9:00</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>10:00</td>
<td>9</td>
<td>31</td>
</tr>
</tbody>
</table>

**TABLE 4**

**EXISTING ON-STREET PARKING**
<table>
<thead>
<tr>
<th>Time</th>
<th>Occupied Spaces</th>
<th>Unoccupied Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>4:00</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>5:00</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>6:00</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>7:00</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>8:00</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>9:00</td>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>10:00</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td>11:00</td>
<td>7</td>
<td>33</td>
</tr>
</tbody>
</table>

**BICYCLE AND PEDESTRIAN FACILITIES**

Shared roadway bicycle markings were observed on Elm Street, Richmond Street, Hill Street, Key Boulevard, and Potrero Avenue from the BART overcrossing / Ohlone Greenway westward into the City of Richmond. About 2 blocks west of the project site, the Ohlone Greenway is a pedestrian and bicycle path that spans from the City of Berkeley to the City Richmond and runs adjacent to the BART elevated tracks. Pedestrian access to the project site is via paved sidewalks. Pedestrian crosswalks were observed at all legs of the study intersections with the exception of the north leg of the Elm Street / Hill Street / Key Boulevard intersection due to the unique intersection configuration.

**TRANSIT SERVICE**

The El Cerrito del Norte BART station is located about two block from the project site. BART trains operate in nine- to 16-minute intervals between 4:00 AM and 1:00 AM Monday through Friday; 6:00 AM to 1:00 AM on Saturdays; and 8:00 AM to 1:00 AM on Sundays and major holidays. The El Cerrito del Norte BART station is also served by AC Transit Routes 7, 71, 72, 72M, 72R, 76, and 376; Golden Gate Transit Routes 40 and 42; Fairfield-Suisun Transit Route 90; Vallejo Transit Route 80; WestCAT Routes 30Z, J, J L, J PX, J R, and J X; and the regional All Nighter (BART, 2009).

North of the project site, AC Transit operates Lines 683 and 684 along Hill Street providing supplementary bus service to area schools including, El Cerrito High School, Portola Middle School, Windrush School, and John F. Kennedy High School. South of the project site, AC Transit operates Line G along Richmond Street from Potrero Avenue to Fairmont Avenue and provides weekday peak hour service to the San Francisco Transbay Terminal (AC Transit, 2009).

**CONGESTION MANAGEMENT PROGRAM**

The Contra Costa Transportation Authority’s regional Congestion Management Program (CMP) monitors the performance of key regional arterials over time by working with local governments to gather regular updates on the LOS. The goal is to maintain acceptable LOS throughout the CMP network. The nearest monitoring station on the CMP network to the project site is the San Pablo Avenue / Cutting Boulevard intersection, where the CCTA endeavors to maintain an LOS E or better (CCTA, 2007).
Figure 6
Existing Conditions

Legend
- Study Intersection
- Project Site

Source: Contra Costa County, PMC
INTERSECTION LEVELS OF SERVICE

Existing weekday AM and PM peak period volumes in the study area (Figure 7) were collected in October 2009. Appendix A provides the existing traffic counts in the study area.

The existing peak hour traffic volumes were input into the Traffix (Version 8.0) software to determine the existing LOS in the study area. Table 5 presents the results of the existing LOS analysis for signalized and unsignalized intersections, while the LOS calculation worksheets are provided in Appendix B. Data from three study intersections show current operations at acceptable levels of service during weekday AM and PM peak hour timeframes.

### TABLE 5
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) SUMMARY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing Weekday AM Peak Hour</th>
<th>Existing Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay</td>
<td>LOS</td>
</tr>
<tr>
<td>Signalized Elm Street / Hill Street / Key Boulevard</td>
<td>24.8</td>
<td>C</td>
</tr>
<tr>
<td>AWSC Elm Street / Richmond Street / Blake Street</td>
<td>11.5</td>
<td>B</td>
</tr>
<tr>
<td>Signalized Richmond Avenue / Potrero Avenue</td>
<td>13.9</td>
<td>B</td>
</tr>
</tbody>
</table>

EXISTING PLUS PROJECT CONDITIONS

PROJECT TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

The ITE Trip Generation Manual (7th Edition, 2003) was used to determine the traffic generated by the proposed project. As shown in Table 6, the proposed project is estimated to generate 86 daily trips, with one inbound and five outbound trips during the AM peak hour, and five inbound and three outbound trips during the PM peak hour.

### TABLE 6
PROJECT TRIP GENERATION

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Size</th>
<th>Daily</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Single-Family Detached Housing (ITE Code 210)</td>
<td>per dwelling unit</td>
<td>9.57</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>1 dwelling unit</td>
<td>10</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Residential Condominium / Townhouse (ITE Code 230)</td>
<td>per dwelling unit</td>
<td>5.86</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>13 dwelling units</td>
<td>76</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>86</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: ITE, 2003

Project trip distribution patterns were based on current traffic patterns. The project trip assignments at each study intersection are shown in Figure 8 (weekday and weekend PM peak hour volumes).
TRAFFIC VOLUMES

Existing plus project weekday and weekend PM peak hour volumes were determined by adding the project trip assignment to the existing traffic volumes. Figure 9 illustrates the resulting existing plus project weekday and weekend PM peak hour traffic volumes.

PEAK HOUR INTERSECTION LEVEL OF SERVICE

Table 7 presents the results of the existing plus project intersection LOS analysis. Existing plus project LOS calculation sheets are provided in Appendix B. All of the study’s intersections are forecast to operate at acceptable levels of service during all peak hour scenarios.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Existing Plus Project Weekday AM Peak Hour</th>
<th>Existing Plus Project Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay</td>
<td>LOS</td>
</tr>
<tr>
<td>Signalized Elm Street / Hill Street Key Boulevard</td>
<td>24.8</td>
<td>C</td>
</tr>
<tr>
<td>AWSC Elm Street / Richmond Street / Blake Street</td>
<td>11.6</td>
<td>B</td>
</tr>
<tr>
<td>Signalized Richmond Avenue / Potrero Avenue</td>
<td>13.9</td>
<td>B</td>
</tr>
</tbody>
</table>

CUMULATIVE CONDITIONS

Cumulative Conditions represent the year 2025 conditions at study intersections. Cumulative Conditions traffic volumes were derived by adding 0.5 percent per year growth to existing volumes. Cumulative Conditions also incorporate traffic from proposed and approved development projects in the vicinity of the project site. For this study, two related development projects were added to the Cumulative Conditions. The first project is the expansion of the Windrush School from 250 to 330 students. The second project is the redevelopment of the former Target store (11450 San Pablo Avenue) to a Safeway and other on-site retail stores.

Trip generation estimates for the related projects were developed using trip rates provided in the ITE Trip Generation, 7th Edition. As illustrated in Table 8, the two approved/pending projects are forecast to generate approximately 7,607 weekday daily trips, with 302 AM peak hour trips (180 inbound and 122 outbound) and 795 PM peak hour trips (402 inbound and 393 outbound).

TRAFFIC VOLUMES

Figure 10 illustrates Cumulative Conditions traffic volumes at the study intersections.
Figure 7
Existing Weekday AM / PM Traffic Volumes
Figure 8
Project Weekday AM / PM Traffic Volumes

Legend
- Study Intersection
- Project Site

Source: Contra Costa County, PUC
Figure 9
Existing Plus Project Weekday AM / PM Traffic Volumes

Legend
- Study Intersection
- Project Site

Source: Contra Costa County PCD
Figure 10
Cumulative Weekday AM / PM Traffic Volumes

Legend
- Study Intersection
- Project Site

Source: Contra Costa County PEC
### TABLE 8
CUMULATIVE PROPOSED AND APPROVED PROJECTS TRIP GENERATION

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Size</th>
<th>Daily</th>
<th>Weekday AM Peak Hour</th>
<th>Weekday PM Peak Hour</th>
<th>Source: ITE, 2003; Safeway, 2009; City of El Cerrito, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>In</td>
<td>Out</td>
<td>Total</td>
</tr>
<tr>
<td>Windrush School</td>
<td>per student</td>
<td>2.78</td>
<td>55%</td>
<td>45%</td>
<td>0.90</td>
</tr>
<tr>
<td>Private School (K-8)</td>
<td>80 student</td>
<td>222</td>
<td>40</td>
<td>32</td>
<td>72</td>
</tr>
<tr>
<td>(ITE Code 534)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safeway and Retail Stores</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supermarket (ITE Code 850)</td>
<td>per KSF</td>
<td>102.24</td>
<td>61%</td>
<td>39%</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>66,511 KSF</td>
<td>6,800</td>
<td>132</td>
<td>84</td>
<td>216</td>
</tr>
<tr>
<td>Shopping Center (ITE Code 820)</td>
<td>per KSF</td>
<td>42.94</td>
<td>61%</td>
<td>39%</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td>13,602 KSF</td>
<td>584</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>7,607</td>
<td>180</td>
<td>122</td>
<td>302</td>
</tr>
</tbody>
</table>

PEAK HOUR INTERSECTION LEVEL OF SERVICE

Table 9 presents the results of the cumulative (i.e. surrounding projects plus ambient traffic growth) intersection LOS analysis. Cumulative LOS calculation sheets are provided in Appendix B. All of the study’s intersections are forecast to operate at acceptable levels of service during all peak hour scenarios. It should be noted that for future scenarios (i.e., cumulative, cumulative plus project), all intersection geometrics are the same as under existing conditions.

### TABLE 9
CUMULATIVE INTERSECTION LEVEL OF SERVICE (LOS) SUMMARY

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Cumulative Weekday AM Peak Hour</th>
<th>Cumulative Weekday PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay</td>
<td>LOS</td>
</tr>
<tr>
<td>Signalized Elm Street / Hill Street Key Boulevard</td>
<td>27.6</td>
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CUMULATIVE PLUS PROJECT CONDITIONS

TRAFFIC VOLUMES

Cumulative plus project weekday and weekend PM peak hour volumes were determined by adding the project trip assignment to the cumulative volumes. Figure 11 illustrates the resulting cumulative plus project weekday and weekend PM levels of service. No changes in intersection geometrics were assumed.
Peak Hour Intersection Level of Service

Table 10 presents the results of the cumulative plus project intersection LOS analysis. Cumulative plus project LOS calculation sheets are provided in Appendix B. All of the study’s signalized intersections are forecast to operate at acceptable levels of service during all peak hour scenarios.

**Table 10**  
**Cumulative Plus Project Intersection Level of Service (LOS) Summary**

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**Impacts and Mitigation Measures**

Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?

**Less than significant impact.** The project would generate six weekday AM peak hour trips and eight weekday PM peak hour trips. When compared to existing and cumulative conditions, the project would not substantially increase traffic volumes or congestion in the study area. As reflected in Table 7 and Table 10, the project would not create any project-related significant impacts by degrading LOS at study intersections to unacceptable levels during the existing plus project condition or the cumulative plus project condition.

Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

**Less than significant impact.** The project would generate six weekday AM peak hour trips and eight weekday PM peak hour trips. According to CCTA guidelines for traffic studies, projects generating less than 100 peak hour trips are considered to have a less than significant impact on the CMP roadway network.

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

**No Impact.** The project is a residential development and is not located in the vicinity of any public or private airports.
Figure 11
Cumulative Plus Project Weekday AM / PM Traffic Volumes

Legend
- Study Intersection
- Project Site

Source: Contra Costa County, BWC
Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

**Less than significant impact.** The project would not modify existing intersections or roadways, including Elm Street. Other than improving the sidewalk fronting the project along Elm Street, the project would not alter the existing travel flow of vehicles, bicyclists or pedestrians. The project driveway is consistent with City code requirements at 20 feet in width. Because the project is a residential project in a predominately residential neighborhood, the project would not introduce any incompatible uses.

Previous speed measurements of through traffic along Elm Street and Richmond Street suggested a possible hazardous condition due to the combination of vehicle speeds and limited sight distance (DHA, 2006). However, since those observations were conducted, the intersection of Elm Street / Richmond Street / Blake Street has been modified to include stops for the northbound and southbound through movements. This has effectively reduced the speed along Elm Street and Richmond Street such that the limited sight distance would not result in a hazardous condition.

Would the project result in inadequate parking capacity?

**Less than significant impact.** The project would meet City code requirements for multi-family residential off-street parking (i.e., two spaces per dwelling unit or 28 parking spaces) when considering the project’s proximity to the El Cerrito del Norte BART station, which reduces the parking requirement by 25 percent for a total off-street parking supply of 21 spaces. In addition, the project would include ground floor garages and an on-site car sharing program (El Cerrito, 2009).

As indicated in Table 4, there is a sufficient supply of on-street parking along Elm Street throughout the day. Although the project may result in some additional on-street parking demand, the available capacity is considered ample to meet that demand as less than a third of the existing on-street parking supply is currently utilized throughout the day.

Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

**Less than significant impact.** The project would not conflict with any adopted policies, plans, or programs supporting alternative transportation. Although the project would provide a location for on-street bicycle storage, it is unclear whether the project would meet City code requirements for bicycle parking (i.e., four long-term and two short-term bicycle parking spaces). Because the provision of the bicycle parking is a code requirement and the applicant is not seeking a bicycle parking variance, it can be assume for purposes of this analysis that the on-site bicycle storage will meet code requirements.

REFERENCES


City of El Cerrito. 2009. RFP, 1715 Elm Street.


APPENDICES
APPENDIX A – TRAFFIC COUNTS
## All Traffic Data

(916) 771-8700  
F (916) 786-2879

### EL CERRITO

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<td>1.5</td>
<td>1.7</td>
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<td>1.6</td>
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<td>1.6</td>
<td>39.3</td>
<td>2.9</td>
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</table>

### Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45
### Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 17:00

<table>
<thead>
<tr>
<th>Time</th>
<th>PHF</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>In</th>
<th>Out</th>
<th>Total</th>
</tr>
</thead>
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<tr>
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<tr>
<td>17:00</td>
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<tr>
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<td>1</td>
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<td>8</td>
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<td>19</td>
<td>19</td>
<td>66</td>
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<td>106</td>
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</table>

% App. Total

<table>
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<tr>
<th>Time</th>
<th>PHF</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>In</th>
<th>Out</th>
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<tr>
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<td>17:00</td>
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<td></td>
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<tr>
<td>17:15</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:30</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>17:45</td>
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<td></td>
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<td></td>
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<tr>
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<td>574</td>
<td>0</td>
<td>106</td>
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<td>212</td>
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</table>

% App. Total
### Groups Printed - Unshifted

<table>
<thead>
<tr>
<th>Start Time</th>
<th>RICHMOND ST. Southbound</th>
<th>POTRERO AVE. Westbound</th>
<th>RICHMOND ST. Northbound</th>
<th>POTRERO AVE. Eastbound</th>
<th>Int. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00</td>
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<td>15</td>
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</tr>
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### Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1

<table>
<thead>
<tr>
<th>Start Time</th>
<th>RICHMOND ST. Southbound</th>
<th>POTRERO AVE. Westbound</th>
<th>RICHMOND ST. Northbound</th>
<th>POTRERO AVE. Eastbound</th>
<th>Int. Total</th>
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<tr>
<td>07:45</td>
<td>2</td>
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<td>8</td>
<td>87</td>
<td>3</td>
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<tr>
<td>08:00</td>
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<td>93</td>
<td>9</td>
<td>111</td>
<td>4</td>
</tr>
<tr>
<td>08:15</td>
<td>5</td>
<td>79</td>
<td>21</td>
<td>105</td>
<td>3</td>
</tr>
<tr>
<td>08:30</td>
<td>3</td>
<td>81</td>
<td>12</td>
<td>96</td>
<td>5</td>
</tr>
<tr>
<td>08:45</td>
<td>5</td>
<td>68</td>
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<td>53</td>
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### Grand Total

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<tr>
<th>RICHMOND ST. Southbound</th>
<th>POTRERO AVE. Westbound</th>
<th>RICHMOND ST. Northbound</th>
<th>POTRERO AVE. Eastbound</th>
<th>Int. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>831</td>
<td>140</td>
<td>1018</td>
<td>131</td>
</tr>
<tr>
<td>1.4</td>
<td>24.4</td>
<td>4.1</td>
<td>29.9</td>
<td>21.6</td>
</tr>
</tbody>
</table>

### PHF

0.528 .887 .595 .899 0.750 .852 .585 .882 .875 .653 .417 .695 .875 .750 .620 .729 .863

---

*** BREAK ***

---

### Peak Hour for Entire Intersection Begins at 07:45

---

### File Name: 09-7421-001 RICHMOND-POTRERO-F

---

### Site Code: 00000000

---

### Start Date: 10/21/2009

---

### Page No: 1
### All Traffic Data

**File Name**: 09-7421-001 RICHMOND-POTRERO-F  
**Site Code**: 00000000  
**Start Date**: 10/21/2009  
**Page No**: 2

#### EL CERRITO

<table>
<thead>
<tr>
<th>POTRERO AVE.</th>
<th>RICHMOND ST.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Right</strong></td>
<td><strong>Left</strong></td>
</tr>
<tr>
<td>50</td>
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</tr>
<tr>
<td>30</td>
<td>19</td>
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<td><strong>Total</strong></td>
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<tr>
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</tr>
</tbody>
</table>

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#### Peak Hour Data

**Peak Hour Begins at 07:45**  
Unshifted

<table>
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<tr>
<th>Time</th>
<th>In</th>
<th>Thru</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
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<td>32</td>
<td>93</td>
</tr>
<tr>
<td>9:15</td>
<td>48</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>9:30</td>
<td>34</td>
<td>19</td>
<td>53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>In</strong></td>
<td><strong>Thru</strong></td>
<td><strong>Out</strong></td>
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<tr>
<td>159</td>
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<td><strong>In</strong></td>
<td><strong>Out</strong></td>
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</tr>
<tr>
<td>4.5</td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
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</table>

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#### Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1

**Peak Hour for Entire Intersection Begins at 16:45**

<table>
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<tr>
<th>Time</th>
<th>In</th>
<th>Thru</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:45</td>
<td>16</td>
<td>21</td>
<td>37</td>
</tr>
<tr>
<td>16:50</td>
<td>14</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>16:55</td>
<td>12</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>In</strong></td>
<td><strong>Thru</strong></td>
<td><strong>Out</strong></td>
</tr>
<tr>
<td>49</td>
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</tr>
<tr>
<td><strong>PHF</strong></td>
<td><strong>In</strong></td>
<td><strong>Out</strong></td>
<td></td>
</tr>
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<td>13.6</td>
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#### PHF

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</tbody>
</table>

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**Total Volume**  

<table>
<thead>
<tr>
<th>Time</th>
<th>In</th>
<th>Thru</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:45</td>
<td>16</td>
<td>21</td>
<td>37</td>
</tr>
<tr>
<td>16:50</td>
<td>14</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>16:55</td>
<td>12</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>In</strong></td>
<td><strong>Thru</strong></td>
<td><strong>Out</strong></td>
</tr>
<tr>
<td>49</td>
<td>37</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td><strong>PHF</strong></td>
<td><strong>In</strong></td>
<td><strong>Out</strong></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**% App. Total**  

| PHF | 4.5 | 78.2 | 17.3 | 13.6 | 76.3 | 10.2 | 15 | 77.8 | 7.2 | 20.6 | 49.1 | 30.3 |

---

**Total Volume**  

<table>
<thead>
<tr>
<th>Time</th>
<th>In</th>
<th>Thru</th>
<th>Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:45</td>
<td>16</td>
<td>21</td>
<td>37</td>
</tr>
<tr>
<td>16:50</td>
<td>14</td>
<td>18</td>
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<tr>
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<td>15</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>In</strong></td>
<td><strong>Thru</strong></td>
<td><strong>Out</strong></td>
</tr>
<tr>
<td>49</td>
<td>37</td>
<td>86</td>
<td></td>
</tr>
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<td><strong>PHF</strong></td>
<td><strong>In</strong></td>
<td><strong>Out</strong></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
All Traffic Data

(916) 771-8700
F (916) 786-2879

File Name: 09-7421-001 RICHMOND-POTRERO-F
Site Code: 00000000
Start Date: 10/21/2009
Page No.: 3

POTRERO AVE.

EL CERRITO

RICHMOND ST.

Peak Hour Begins at 16:45
Unshifted

Left 31
Thru 336
Right 69

Out 190
In 228
Total 418

Left 65
Thru 112
Right 31

Out 243
In 432
Total 675

Peak Hour Data

North
APPENDIX B – LOS CALCULATION WORKSHEETS
Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Elm St / Hill St / Key Bl

| Cycle (sec): | 100 | Critical Vol./Cap.(X): | 0.318 |
| Loss Time (sec): | 0 | Average Delay (sec/veh): | 24.8 |
| Optimal Cycle: | 33 | Level Of Service: | C |

| Street Name: | Elm St | Hill St / Key Bl |
| Approach: | North Bound | South Bound | East Bound | West Bound |
| Movement: | L - T - R | L - T - R | L - T - R | L - T - R |
| Rights: | Include | Include | Include | Include |
| Min. Green: | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 1 0 1 0 0 | 0 1 0 1 | 1 0 0 2 | 0 0 0 0 |

Volume Module: >> Count Date: 21 Oct 2009 <<

| Base Vol: | 176 | 148 | 0 | 0 | 207 | 7 | 149 | 0 | 0 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 176 | 148 | 0 | 0 | 207 | 7 | 149 | 0 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 176 | 148 | 0 | 0 | 207 | 7 | 149 | 0 | 317 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 176 | 148 | 0 | 0 | 207 | 7 | 149 | 0 | 317 |
| PCE Adj: | 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 |
| FinalVolume: | 176 | 148 | 0 | 0 | 207 | 7 | 149 | 0 | 317 |

Saturation Flow Module:

| Sat/Lane: | 1900 1900 | 1900 1900 | 1900 1900 | 1900 1900 | 1900 1900 | 1900 1900 | 1900 1900 | 1900 1900 |
| Adjustment: | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Lanes: | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 1805 | 1900 | 0 | 0 | 1900 | 1615 | 1805 | 0 | 2842 |

Capacity Analysis Module:

| Vol/Sat: | 0.10 | 0.08 | 0.00 | 0.00 | 0.11 | 0.00 | 0.08 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 |
| Crit Moves: | ** | ** | ** | ** | ** | ** | ** | ** |
| Green/Cycle: | 0.31 | 0.31 | 0.00 | 0.00 | 0.00 | 0.34 | 0.34 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| Volume/Cap: | 0.32 | 0.25 | 0.00 | 0.00 | 0.00 | 0.32 | 0.01 | 0.24 | 0.00 | 0.32 | 0.00 | 0.00 |
| Delay/Veh: | 27.0 | 26.3 | 0.0 | 0.0 | 24.5 | 21.7 | 23.2 | 0.0 | 23.9 | 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: | 27.0 | 26.3 | 0.0 | 0.0 | 24.5 | 21.7 | 23.2 | 0.0 | 23.9 | 0.0 | 0.0 | 0.0 |
| LOS by Move: | C | C | A | A | C | C | C | A | C | A | A | A |
| HCM2kAvgQ0: | 4 | 3 | 0 | 0 | 5 | 0 | 3 | 0 | 4 | 0 | 0 | 0 |

Note: Queue reported is the number of cars per lane.
City of El Cerrito
1715 Elm Street

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

Cycle (sec): 100  Critical Vol./Cap.(X): 0.549
Loss Time (sec): 0  Average Delay (sec/veh): 11.5
Optimal Cycle: 0  Level Of Service: B

Street Name: Elm St / Richmond St / Blake St
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 0 0 0 0 0 0 0 0 0 0 0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 9 264 8 29 357 124 19 7 25 12 14 27
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: 9 264 8 29 357 124 19 7 25 12 14 27
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 9 264 8 29 357 124 19 7 25 12 14 27
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 9 264 8 29 357 124 19 7 25 12 14 27
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 Volume: 9 264 8 29 357 124 19 7 25 12 14 27

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: 0.03 0.97 1.00 0.08 0.92 1.00 0.37 0.14 0.49 0.23 0.26 0.51
Final Sat.: 22 651 770 53 650 818 220 81 290 135 157 303

Capacity Analysis Module:
Vol/Sat: 0.41 0.41 0.01 0.55 0.55 0.15 0.09 0.09 0.09 0.09 0.09 0.09
Crit Moves: **** **** **** ****
Delay/Veh: 11.4 11.4 7.3 13.6 13.6 7.8 8.9 8.9 8.9 8.9 8.9 8.9
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: 11.4 11.4 7.3 13.6 13.6 7.8 8.9 8.9 8.9 8.9 8.9 8.9
LOS by Move: B B B B B A A A A A A
ApproachDel: 11.3 12.2 8.9 8.9
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 11.3 12.2 8.9 8.9
LOS by Appr: B B A A
AllWayAvgQ: 0.6 0.6 0.0 1.1 1.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1

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

Traffic 8.0.0715 (c) 2008 Dowling Assoc. Licensed to PMC, TORRANCE
City of El Cerrito
1715 Elm Street

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100         Critical Vol./Cap.(X): 0.337
Loss Time (sec): 0         Average Delay (sec/veh): 13.9
Optimal Cycle: 22         Level Of Service: B

Street Name: Richmond St                        Potrero Av
Approach: North Bound      South Bound       East Bound       West Bound
Movement: L               T               R    L               T               R    L               T               R
          -----------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-----------
Control:  Permitted        Permitted        Permitted        Permitted
Rights:   Include          Include          Include          Include
Min. Green: 0    0     0     0    0     0     0    0     0    0     0    0     0    0     0
Y+R:       4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0  4.0   4.0  4.0   4.0  4.0   4.0
Lanes:     0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol:  42  201    10    19  330    50    28  117    62    15  150    22
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: 42  201    10    19  330    50    28  117    62    15  150    22
User Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume: 42  201    10    19  330    50    28  117    62    15  150    22
Reduct Vol: 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
Reduced Vol: 42  201    10    19  330    50    28  117    62    15  150    22
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 Volume: 42  201    10    19  330    50    28  117    62    15  150    22

Saturation Flow Module:
Sat/Lane:  1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment: 0.90 0.90  0.90  0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97
Lanes:     0.17 0.79  0.04  0.05 0.83  0.12  0.14 0.56  0.30  0.08 0.80  0.12
Final Sat.: 283 1355    67    87 1517  230  235 981   520   146 1462   214

Capacity Analysis Module:
Vol/Sat:  0.15 0.15  0.15  0.22 0.22  0.22  0.12 0.12  0.12  0.10 0.10  0.10
Crit Moves:    ****    ****
Green/Cycle: 0.65 0.65  0.65  0.65 0.65  0.65  0.35 0.35  0.35  0.35 0.35  0.35
Volume/Cap:  0.23 0.23  0.23  0.34 0.34  0.34  0.34 0.34  0.34  0.34 0.34  0.34
Delay/Veh:   7.5  7.5  7.5  8.2 8.2  8.2  24.0 24.0  24.0  23.5 23.5  23.5
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:  7.5  7.5  7.5  8.2 8.2  8.2  24.0 24.0  24.0  23.5 23.5  23.5
LOS by Move:  A    A    A    A    A    A    C    C    C    C    C    C
HCM2kAvgQ:  3  3  3  6  6  6  5  5  5  4  4  4

Note: Queue reported is the number of cars per lane.
# Level Of Service Computation Report
## 2000 HCM Operations Method (Base Volume Alternative)

### Intersection #1 Elm St / Hill St / Key Bl

**Cycle (sec):** 100  
**Critical Vol./Cap.(X):** 0.298  
**Loss Time (sec):** 0  
**Average Delay (sec/veh):** 22.2  
**Optimal Cycle:** 32  
**Level Of Service:** C

<table>
<thead>
<tr>
<th>Street Name:</th>
<th>Elm St</th>
<th>Hill St / Key Bl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
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<tr>
<td>Rights:</td>
<td>Include</td>
<td>Include</td>
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<tr>
<td>Min. Green:</td>
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<tr>
<td>Y+R:</td>
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<td>4.0</td>
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<tr>
<td>Lanes:</td>
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<tr>
<td>Volume Module:</td>
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<tr>
<td>Base Vol:</td>
<td>266</td>
<td>136</td>
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<tr>
<td>Growth Adj:</td>
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<tr>
<td>Initial Bse:</td>
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<td>136</td>
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<tr>
<td>User Adj:</td>
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</tr>
<tr>
<td>PHF Adj:</td>
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<td>1.00</td>
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<tr>
<td>PHF Volume:</td>
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<tr>
<td>Reduct Vol:</td>
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<tr>
<td>Reduced Vol:</td>
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<td>136</td>
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<tr>
<td>PCE Adj:</td>
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<td>FinalVolume:</td>
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<td>Capacity Module:</td>
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<tr>
<td>Vol/Sat:</td>
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<td>Crit Moves:</td>
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<tr>
<td>Delay Adj:</td>
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<tr>
<td>Delay/Veh:</td>
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<td>User DelAdj:</td>
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<td>AdjDel/Veh:</td>
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<tr>
<td>LOS by Move:</td>
<td>B B</td>
<td>A A</td>
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</tbody>
</table>

**Note:** Queue reported is the number of cars per lane.
City of El Cerrito  
1715 Elm Street

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
<th>100</th>
<th>Critical Vol./Cap.(X):</th>
<th>0.516</th>
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<tbody>
<tr>
<td>Loss Time (sec):</td>
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<td>Average Delay (sec/veh):</td>
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<td>Optimal Cycle:</td>
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<td>Level Of Service:</td>
<td>B</td>
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<table>
<thead>
<tr>
<th>Street Name:</th>
<th>Elm St / Richmond St / Blake St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach:</td>
<td>North Bound  South Bound  East Bound  West Bound</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign  Stop Sign  Stop Sign  Stop Sign</td>
</tr>
<tr>
<td>Rights:</td>
<td>Include  Include  Include  Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0  0  0  0  0  0  0  0  0  0  0  0</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0  1  0  0  1  0  1  0  0  1  0  0  1  0  0  0  1  0  0</td>
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<thead>
<tr>
<th>Volume Module:</th>
<th>&gt;&gt; Count Date:</th>
<th>21 Oct 2009</th>
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<tbody>
<tr>
<td>Base Vol:</td>
<td>16 346 17 74 186 28 28 11 21 12 9 27</td>
<td></td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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</tr>
<tr>
<td>Initial Bse:</td>
<td>16 346 17 74 186 28 28 11 21 12 9 27</td>
<td></td>
</tr>
<tr>
<td>User Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
</tr>
<tr>
<td>PHF Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
</tr>
<tr>
<td>PHF Volume:</td>
<td>16 346 17 74 186 28 28 11 21 12 9 27</td>
<td></td>
</tr>
<tr>
<td>Reduct Vol:</td>
<td>0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Reduced Vol:</td>
<td>16 346 17 74 186 28 28 11 21 12 9 27</td>
<td></td>
</tr>
<tr>
<td>PCE Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
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<tr>
<td>MLP Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
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<td>FinalVol:</td>
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<tr>
<th>Saturation Flow Module:</th>
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<td>Adjustment:</td>
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<td>Lanes:</td>
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<td>Final Sat.:</td>
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<tr>
<th>Capacity Analysis Module:</th>
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<tbody>
<tr>
<td>Vol/Sat:</td>
</tr>
<tr>
<td>Crit Moves:</td>
</tr>
<tr>
<td>Delay/Veh:</td>
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<td>AdjDel/Veh:</td>
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<td>LOS by Move:</td>
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<td>AllWayAvgQ:</td>
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Note: Queue reported is the number of cars per lane.
City of El Cerrito
1715 Elm Street

Level of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Richmond St / Potrero Av

| Cycle (sec):         | 100                | Critical Vol./Cap.(X):         | 0.382 |
| Loss Time (sec):     | 0                  | Average Delay (sec/veh):       | 13.6  |
| Optimal Cycle:       | 23                 | Level Of Service:              | B     |

<table>
<thead>
<tr>
<th>Street Name:</th>
<th>Richmond St</th>
<th>Potrero Av</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Permitted</td>
<td>Permitted</td>
</tr>
<tr>
<td>Rights:</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Y+R:</td>
<td>4.0</td>
<td>4.0</td>
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<tr>
<td>Lanes</td>
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<td>0</td>
</tr>
</tbody>
</table>

Volume Module:

<table>
<thead>
<tr>
<th>Base Vol: (veh/h)</th>
<th>Growth Adj</th>
<th>Initial Bse (veh/h)</th>
<th>User Adj</th>
<th>PHF Adj</th>
<th>PHF Volume (veh/h)</th>
<th>Reduct Vol</th>
<th>Reduced Vol (veh/h)</th>
<th>PCE Adj</th>
<th>MLF Adj</th>
<th>Final Volume (veh/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 336</td>
<td>1.00</td>
<td>65 336</td>
<td>1.00</td>
<td>1.00</td>
<td>65 336</td>
<td>0.0</td>
<td>65 336</td>
<td>1.00</td>
<td>65 336</td>
<td>65 336</td>
</tr>
</tbody>
</table>

Saturation Flow Module:

| Sat/Lane:          | 1900       | 1900               |
| Adjustment:        | 0.92       | 0.92               |
| Lanes:             | 0.15       | 0.17               |
| Final Sat.:        | 263 1361   | 81 1427            |

Capacity Analysis Module:

| Vol/Sat:           | 0.25       | 0.25               |
| Crit Moves:        | ****       |                    |
| Green/Cycle:       | 0.65       | 0.65               |
| Volume/Cap:        | 0.38       | 0.38               |
| Uniform Del:       | 8.3        | 8.3                |
| IncremntDel:       | 0.0        | 0.0                |
| InitQueuDel:       | 0.0        | 0.0                |
| Delay Adj:         | 1.00       | 1.00               |
| Delay/Veh:         | 8.5        | 8.5                |
| User DelAdj:       | 1.00       | 1.00               |
| AdjDel/Veh:        | 8.5        | 8.5                |
| LOS by Move:       | A          | A                  |
| HCM2kAvgQ:         | 6          | 6                  |

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

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**Level Of Service Computation Report**

2000 HCM Operations Method (Future Volume Alternative)

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**Intersection #1 Elm St / Hill St / Key Bl**

---

**Cycle (sec):** 100

**Critical Vol./Cap.(X):** 0.319

**Optimal Cycle:** 33

**Level Of Service:** C

---

**Street Name:** Elm St

**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

**Rights:** Include

**Min. Green:** 0

**Y+R:** 4.0

**Lanes:** 1

---

**Volume Module:**

- **Base Vol:** 176 148 0 0 207 7 149 0 317 0 0
- **Growth Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Initial Bse:** 176 148 0 0 207 7 149 0 317 0 0
- **Added Vol:** 2 1 0 0 0 0 0 0 0 0 0
- **PasserByVol:** 0 0 0 0 0 0 0 0 0 0 0
- **Initial Fut:** 178 149 0 0 207 7 149 0 317 0 0
- **User Adj:** 1.00 1.00
- **PHF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **PHF Volume:** 178 149 0 0 207 7 149 0 317 0 0
- **Reduct Vol:** 0 0 0 0 0 0 0 0 0 0 0
- **Reduced Vol:** 178 149 0 0 207 7 149 0 317 0 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
- **MLF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **FinalVolume:** 178 149 0 0 207 7 149 0 317 0 0

---

**Saturation Flow Module:**

- **Sat/Lane:** 1900 1900 1900 1900 1900 1900 1900 1900 1900
- **Adjustment:** 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- **Lanes:** 1.00 1.00 0.00 0.00 1.00 1.00 1.00 2.00 2.00 2.00 2.00
- **Final Sat.:** 1805 1900 0 0 1900 1615 1805 0 2842 0 0

---

**Capacity Analysis Module:**

- **Vol/Sat:** 0.10 0.08 0.00 0.00 0.11 0.00 0.08 0.00 0.11 0.00 0.00 0.00
- **Crit Moves:** **** ****
- **Green/Cycle:** 0.31 0.31 0.00 0.00 0.34 0.34 0.35 0.00 0.35 0.00 0.00 0.00
- **Volume/Cap:** 0.32 0.25 0.00 0.00 0.32 0.01 0.24 0.00 0.32 0.00 0.00 0.00
- **Uniform Del:** 26.5 25.9 0.0 0.0 24.3 21.8 23.1 0.0 23.8 0.0 0.0 0.0
- **IncremntDel:** 0.3 0.2 0.0 0.0 0.3 0.0 0.2 0.0 0.2 0.0 0.0 0.0
- **InitQueueDel:** 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
- **Delay Adj:** 1.00 1.00 0.00 0.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00 0.00
- **Delay/Veh:** 26.8 26.1 0.0 0.0 24.6 21.8 23.3 0.0 24.0 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:** 26.8 26.1 0.0 0.0 24.6 21.8 23.3 0.0 24.0 0.0 0.0 0.0
- **LOS by Move:** C C A A C C A C A A A
- **HCM2kAvgQ:** 4 3 0 0 4 0 0 0 0 0 0 0

---

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

---

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City of El Cerrito  
1715 Elm Street

Level Of Service Computation Report  
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

Cycle (sec): 100  
Critical Vol./Cap.(X): 0.552

Loss Time (sec): 0  
Average Delay (sec/veh): 11.6

Optimal Cycle: 0  
Level Of Service: B

Street Name: Elm St / Richmond St  
Blake St

Movement: 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 0 1 0 1 0 1 0 0 1 0

Volume Module: >> Count Date: 21 Oct 2009 <<

Base Vol: 9 264 8 29 357 124 19 7 25 12 14 27

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 9 264 8 29 357 124 19 7 25 12 14 27

Added Vol: 0 0 0 0 2 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 9 264 8 29 359 124 19 7 25 12 14 27

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 9 264 8 29 359 124 19 7 25 12 14 27

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 9 264 8 29 359 124 19 7 25 12 14 27

PCE Adj: 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

FinalVolume: 9 264 8 29 359 124 19 7 25 12 14 27

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.03 0.97 1.00 0.07 0.93 1.00 0.37 0.14 0.49 0.23 0.26 0.51

Final Sat.: 22 651 770 53 650 818 220 81 289 135 157 303

Capacity Analysis Module:

Vol/Sat: 0.41 0.41 0.01 0.55 0.55 0.15 0.09 0.09 0.09 0.09 0.09 0.09

Crit Moves: ****  ****  ****  ****  ****  ****  ****  ****  ****  ****  ****  ****

Delay/Veh: 11.4 11.4 7.3 13.7 13.7 7.8 8.9 8.9 8.9 8.9 8.9 8.9

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: 11.4 11.4 7.3 13.7 13.7 7.8 8.9 8.9 8.9 8.9 8.9 8.9

LOS by Move: B B A B A A A A A A

ApproachDel: 11.3 12.3 8.9 8.9

Delay Adj: 1.00 1.00 1.00 1.00

ApprAdjDel: 11.3 12.3 8.9 8.9

LOS by Appr: B B A A

AllWayAvgQ: 0.6 0.6 1.2 1.2 0.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100  Critical Vol./Cap.(X): 0.338
Loss Time (sec): 0  Average Delay (sec/veh): 13.9
Optimal Cycle: 22  Level Of Service: B

Street Name: Richmond St  Street Name: Potrero Av
Approach: North Bound  South Bound  East Bound  West Bound

Movement: L          -          T          -          R
          L          -          T          -          R
          L          -          T          -          R
          L          -          T          -          R

Control: Permitted  Permitted  Permitted  Permitted
Rights: Include  Include  Include  Include
Min. Green: 0  0  0  0  0  0  0  0  0  0  0  0
Y+R: 4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0  4.0
Lanes: 0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 42  201  10  19  330  50  28  117  62  15  150  22
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: 42  201  10  19  330  50  28  117  62  15  150  22
Added Vol: 0  0  0  0  0  0  0  0  0  0  0  0
PasserByVol: 0  0  0  0  0  0  0  0  0  0  0  0
Initial Fut: 42  201  10  19  332  50  28  117  62  15  150  22
User Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume: 42  201  10  19  332  50  28  117  62  15  150  22
Reduct Vol: 0  0  0  0  0  0  0  0  0  0  0  0
Reduced Vol: 42  201  10  19  332  50  28  117  62  15  150  22
PCE Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
MLF Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
FinalVolume: 42  201  10  19  332  50  28  117  62  15  150  22

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.90 0.90 0.90 0.97 0.97 0.97 0.92 0.92 0.92 0.92 0.92
Lanes: 0.17 0.79 0.14 0.14 0.14 0.14 0.14 0.14 0.14 0.14 0.14 0.14
Final Sat.: 283 1355 67 87 1520 229 235 981 520 146 1462 214

Capacity Analysis Module:
Vol/Sat: 0.15 0.15 0.15 0.22 0.22 0.22 0.12 0.12 0.12 0.10 0.10 0.10
Crit Moves: ****  ****
Green/Cycle: 0.65 0.65 0.65 0.65 0.65 0.65 0.35 0.35 0.35 0.35 0.35 0.35
Volume/Cap: 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.34 0.34 0.34
Uniform Del: 7.3 7.3 7.3 8.0 8.0 8.0 23.8 23.8 23.8 23.8 23.8 23.8
IncremmtDel: 0.1 0.1 0.1 0.2 0.2 0.2 0.3 0.3 0.3 0.3 0.3 0.3
InitQueuDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Delay/Veh: 7.4 7.4 7.4 8.1 8.1 8.1 24.1 24.1 24.1 24.1 24.1 24.1
User DelAdj: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay/Veh: 7.4 7.4 7.4 8.1 8.1 8.1 24.1 24.1 24.1 24.1 24.1 24.1
AdjDel/Veh: 7.4 7.4 7.4 8.1 8.1 8.1 24.1 24.1 24.1 24.1 24.1 24.1
LOS by Move: A A A A A A A C C C C C C
HCM2kAvgQ: 3 3 3 6 6 5 5 5 4 4 4 4

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

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# Level of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

### Intersection #1 Elm St / Hill St / Key Bl

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Vol./Cap. (X):</td>
<td>0.299</td>
</tr>
<tr>
<td>Optimal Cycle:</td>
<td>33</td>
</tr>
<tr>
<td>Level Of Service:</td>
<td>C</td>
</tr>
</tbody>
</table>

### Street Name: Elm St / Hill St / Key Bl

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
</tbody>
</table>

### Control:

- Split Phase

### Rights:

- Include
- Include
- Include
- Include

### Min. Green:

- 0 0 0 0 0 0 0 0 0 0 0 0

### Y+R:

- 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

### Lanes:

- 1 0 1 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

### Volume Module:

| Base Vol: | 266 136 0 0 120 10 157 0 162 0 0 0 |
| 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: | 266 136 0 0 120 10 157 0 162 0 0 0 |
| Added Vol: | 1 1 0 0 1 0 0 0 2 0 0 0 |
| PasserByVol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| Initial Fut: | 267 137 0 0 121 10 157 0 164 0 0 0 |
| User Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Adj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| PHF Volume: | 267 137 0 0 121 10 157 0 164 0 0 0 |
| Reduct Vol: | 0 0 0 0 0 0 0 0 0 0 0 0 |
| Reduced Vol: | 267 137 0 0 121 10 157 0 164 0 0 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 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 Volume: | 267 137 0 0 121 10 157 0 164 0 0 0 |

### Saturation Flow Module:

| Sat/Lane: | 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 |
| Adjustment: | 0.95 1.00 1.00 1.00 0.85 0.95 1.00 0.75 1.00 1.00 1.00 1.00 |
| Lanes: | 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 Sat.: | 1805 1900 0 0 1900 1615 1805 0 2842 0 0 0 |

### Capacity Analysis Module:

| Vol/Sat: | 0.15 0.07 0.00 0.00 0.06 0.01 0.09 0.00 0.06 0.00 0.00 0.00 |
| Crit Moves: | **** **** **** |
| Green/Cycle: | 0.50 0.50 0.00 0.00 0.21 0.21 0.29 0.00 0.29 0.00 0.00 0.00 |
| Volume/Cap: | 0.30 0.15 0.00 0.00 0.30 0.30 0.30 0.30 0.20 0.00 0.00 0.00 |
| Uniform Del: | 14.9 13.7 0.0 0.0 33.1 31.1 27.5 0.0 26.6 0.0 0.0 0.0 |
| IncremntDel: | 0.2 0.1 0.0 0.0 0.4 0.0 0.3 0.0 0.1 0.0 0.0 0.0 |
| InitQueuDel: | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Delay Adj: | 1.00 1.00 0.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| Delay/Veh: | 15.1 13.8 0.0 0.0 33.5 31.2 27.8 0.0 26.8 0.0 0.0 0.0 |
| User DelAdj: | 1.00 1.00 0.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| AdjDel/Veh: | 15.1 13.8 0.0 0.0 33.5 31.2 27.8 0.0 26.8 0.0 0.0 0.0 |
| LOS by Move: | B B A A C C C A A A A |
| HCM2kAvgQ: | 5 2 0 0 3 0 2 0 0 0 0 0 |

Note: Queue reported is the number of cars per lane.
## Level Of Service Computation Report

**2000 HCM 4-Way Stop Method (Future Volume Alternative)**

### Intersection #2 Elm St / Richmond St / Blake St

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
<th>100</th>
<th>Critical Vol./Cap.(X):</th>
<th>0.519</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss Time (sec):</td>
<td>0</td>
<td>Average Delay (sec/veh):</td>
<td>11.4</td>
</tr>
<tr>
<td>Optimal Cycle:</td>
<td>0</td>
<td>Level Of Service:</td>
<td>B</td>
</tr>
</tbody>
</table>

**Street Name:** Elm St / Richmond St / Blake St  
**Approach:** North Bound      South Bound       East Bound       West Bound  
**Movement:** L  T  R  L  T  R  L  T  R  L  T  R

<table>
<thead>
<tr>
<th>Control:</th>
<th>Stop Sign</th>
<th>Stop Sign</th>
<th>Stop Sign</th>
<th>Stop Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rights:</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
</tr>
</tbody>
</table>

| Lanes: | 0 1 0 0 | 0 1 0 0 | 0 0 0 0 | 0 0 0 0 |

**Volume Module:** >> Count Date: 21 Oct 2009 <<  
**Base Vol:** 16 346 17 74 186 28 28 11 21 12 9 27  
**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:** 16 346 17 74 186 28 28 11 21 12 9 27  
**Added Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0  
**PasserByVol:** 0 0 0 0 0 0 0 0 0 0 0 0 0  
**Initial Fut:** 16 348 17 74 187 28 28 11 21 12 9 27  
**User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
**PHF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
**PHF Volume:** 16 348 17 74 187 28 28 11 21 12 9 27  
**Reduct Vol:** 0 0 0 0 0 0 0 0 0 0 0 0 0  
**Reduced Vol:** 16 348 17 74 187 28 28 11 21 12 9 27  
**PCE Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
**MLF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00  
**FinalVolume:** 16 348 17 74 187 28 28 11 21 12 9 27  

**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:** 0.04 0.96 1.00 0.28 0.72 1.00 0.47 0.18 0.35 0.25 0.19 0.56  
**Final Sat.:** 31 670 811 191 483 795 279 110 209 153 114 343  

**Capacity Analysis Module:**  
**Vol/Sat:** 0.52 0.52 0.02 0.39 0.39 0.04 0.10 0.10 0.10 0.08 0.08 0.08  
**Crit Moves:** ****  ****  ****  ****  
**Delay/Veh:** 13.0 13.0 7.1 11.1 11.1 7.3 9.0 9.0 9.0 8.7 8.7 8.7  
**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:** 13.0 13.0 7.1 11.1 11.1 7.3 9.0 9.0 9.0 8.7 8.7 8.7  
**LOS by Move:** B  B  A  B  A  A  A  A  A  A  A  A  
**ApproachDel:** 12.7 10.8 9.0 8.7  
**Delay Adj:** 1.00 1.00 1.00 1.00  
**ApprAdjDel:** 12.7 10.8 9.0 8.7  
**LOS by Appr:** B  B  A  A  
**AllWayAvgQ:** 1.0 1.0 0.0 0.6 0.6 0.0 0.1 0.1 0.1 0.1 0.1 0.1  

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

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

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100   Critical Vol./Cap.(X): 0.383
Loss Time (sec): 0   Average Delay (sec/veh): 13.6
Optimal Cycle: 23   Level Of Service: B

Street Name: Richmond St                        Potrero Av
Approach: North Bound      South Bound       East Bound       West Bound
Movement: L      T      R    L      T      R    L      T      R    L      T      R
Control: Permitted        Permitted        Permitted        Permitted
Rights: Include          Include          Include          Include
Min. Green: 0
Y+R: 4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0   4.0  4.0   4.0
Lanes: 0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0    0  0  1! 0  0

Volume Module:
Base Vol:  65  336    31     9  158    35    47  112    69    16   90    12
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: 65  336    31
Added Vol:  0    2     0     0    1     0     0    0     0     0    0     0
PasserByVol: 0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut: 65  338    31     9  159    35    47  112    69    16   90    12
User Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume: 65  338    31     9  159    35    47  112    69    16   90    12
Reduc Vol:  0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol: 65  338    31     9  159    35    47  112    69    16   90    12
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 Volume: 65  338    31     9  159    35    47  112    69    16   90    12

Saturation Flow Module:
Sat/Lane: 1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment: 0.92 0.92  0.92  0.96 0.96  0.96  0.89 0.89  0.89  0.94 0.94  0.94
Lanes: 0.15 0.78  0.07  0.04 0.79  0.17  0.21 0.49  0.30  0.14 0.76  0.10
Final Sat.: 262 1362   125    81 1429   315   349  831   512   243 1366   182

Capacity Analysis Module:
Vol/Sat: 0.25 0.25  0.25  0.11 0.11  0.11 0.13 0.13  0.13 0.07 0.07  0.07
Crit Moves: ****
HCM2kAvgQ: 6    6     6     2    2     2    1    1  1    1  1    1
Note: Queue reported is the number of cars per lane.

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City of El Cerrito
1715 Elm Street

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

Intersection #1 Elm St / Hill St / Key Bl

Cycle (sec): 100
Critical Vol./Cap.(X): 0.370
Optimal Cycle: 36

Loss Time (sec): 0
Average Delay (sec/veh): 27.6
Level Of Service: C

Street Name: Elm St
Approach: North Bound
Movement: L - T - R
Min. Green: 0
Y+R: 4.0
Lanes: 1

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 176
Growth Adj: 1.08
Initial Bse: 191
Added Vol: 3
PasserByVol: 0
Initial Fut: 194
User Adj: 1.00
PHF Adj: 1.00
PHF Volume: 194
Reduct Vol: 0
Reduced Vol: 194
FCE Adj: 1.00
MLF Adj: 1.00
FinalVolume: 194

Saturation Flow Module:
Sat/Lane: 1900
Adjustment: 0.95
Lanes: 1.00
Final Sat.: 1805

Capacity Analysis Module:
Vol/Sat: 0.11
Cirt Moves: ****

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

Cycle (sec): 100  Critical Vol./Cap.(X): 0.643
Loss Time (sec): 0  Average Delay (sec/veh): 13.4
Optimal Cycle: 0  Level Of Service: B

Street Name: Elm St / Richmond St  Blake St
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  0  1  0  1  0  0  1  0  0  1  0  0  1  0  0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 9  264  8  29  357  124  19  7  25  12  14  27
Growth Adj: 1.08  1.08  1.08  1.08  1.08  1.08  1.08  1.08  1.08  1.08  1.08  1.08
Initial Bse: 10  286  9  31  387  134  21  8  27  13  15  29
Added Vol: 10  17  0  2  19  24  5  2  1  0  3  3
PasserByVol: 0  0  0  0  0  0  0  0  0  0  0  0
Initial Fut: 20  303  9  33  406  158  26  10  28  13  18  32
User Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj: 1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Volume: 20  303  9  33  406  158  26  10  28  13  18  32
Reduced Vol: 20  303  9  33  406  158  26  10  28  13  18  32
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 Volume: 20  303  9  33  406  158  26  10  28  13  18  32

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: 0.06  0.94  1.00  0.08  0.92  1.00  0.40  0.15  0.45  0.20  0.29  0.51
Final Sat.: 40  607  735  52  631  789  224  84  246  115  161  286

Capacity Analysis Module:
Vol/Sat: 0.50  0.50  0.01  0.64  0.64  0.20  0.11  0.11  0.11  0.11  0.11  0.11
Crit Moves: ****  ****  ****  ****
Delay/Veh: 13.3  13.3  7.5  16.6  16.6  8.3  9.5  9.5  9.5  9.4  9.4  9.4
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: 13.3  13.3  7.5  16.6  16.6  8.3  9.5  9.5  9.5  9.4  9.4  9.4
LOS by Move: B  B  A  C  C  A  A  A  A  A  A  A
ApproachDel: 13.1  14.4  9.5  9.4
Delay Adj: 1.00  1.00  1.00  1.00
ApprAdjDel: 13.1  14.4  9.5  9.4
LOS by Appr: B  B  A  A
AllWayAvgQ: 0.9  0.9  0.0  1.6  1.6  0.2  0.1  0.1  0.1  0.1  0.1  0.1

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

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City of El Cerrito
1715 Elm Street

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

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100  Critical Vol./Cap.(X): 0.381
Loss Time (sec): 0  Average Delay (sec/veh): 14.1
Optimal Cycle: 23  Level Of Service: B

Street Name: Richmond St
Potrero Av

Approach: North Bound  South Bound  East Bound  West Bound
Movement: L - T - R  L - T - R  L - T - R  L - T - R

Control: Permitted  Permitted  Permitted  Permitted
Rights: Include  Include  Include  Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 42 201 10 19 330 50 28 117 62 15 150 22
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 45 218 11 21 357 54 30 127 67 16 162 24
Added Vol: 4 22 0 2 16 2 2 1 3 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 49 240 11 23 373 56 32 128 70 16 163 27
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 49 240 11 23 373 56 32 128 70 16 163 27
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 49 240 11 23 373 56 32 128 70 16 163 27
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 49 240 11 23 373 56 32 128 70 16 163 27

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.88 0.88 0.88 0.96 0.96 0.96 0.96 0.91 0.91 0.91 0.96 0.96
Lanes: 0.16 0.80 0.04 0.05 0.83 0.12 0.14 0.56 0.80 0.13 0.03 0.79 0.13
Final Sat.: 277 1343 61 91 1509 227 242 955 525 143 1437 236

Capacity Analysis Module:
Vol/Sat: 0.18 0.18 0.18 0.25 0.25 0.25 0.13 0.13 0.13 0.11 0.11 0.11
Crit Moves: ****  ****
Green/Cycle: 0.65 0.65 0.65 0.65 0.65 0.65 0.35 0.35 0.35 0.35 0.35 0.35
Volume/Cap: 0.27 0.27 0.27 0.27 0.27 0.27 0.38 0.38 0.38 0.38 0.38 0.38
Uniform Del: 7.5 7.5 7.5 8.2 8.2 8.2 24 24 24 24 24 24
IncremntDel: 0.1 0.1 0.1 0.2 0.2 0.2 0.4 0.4 0.4 0.4 0.4 0.4
InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Delay/Veh: 7.6 7.6 7.6 8.4 8.4 8.4 24.7 24.7 24.7 24.7 24.7 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: 7.6 7.6 7.6 8.4 8.4 8.4 24.7 24.7 24.7 24.7 24.7 24.7
HCM2kAvgs: 4 4 4 5 5 5 5 5 5 5 5 5

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

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

Intersection #1 Elm St / Hill St / Key Bl

Cycle (sec): 100  Critical Vol./Cap.(X): 0.414
Loss Time (sec): 0  Average Delay (sec/veh): 25.7
Optimal Cycle: 39  Level Of Service: C

Street Name: Elm St
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
Rights: Include
Min. Green: 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0
Lanes: 1 0 0 1 0 0 1 0 1 1 0 1 1 0 1

Volume Module:
Base Vol: 266 136 0 0 120 10 157 0 162 0 0 0
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 288 147 0 0 130 11 170 0 175 0 0 0
Added Vol: 8 6 12 5 57 0 50 7 31 13 8 5
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 296 153 12 5 187 11 220 7 206 13 8 5
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 296 153 12 5 187 11 220 7 206 13 8 5
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 296 153 12 5 187 11 220 7 206 13 8 5
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 Volume: 296 153 12 5 187 11 220 7 206 13 8 5

Capacity Analysis Module:
Vol/Sat: 0.16 0.09 0.09 0.10 0.10 0.01 0.13 0.07 0.07 0.01 0.01 0.01
Crit Moves: **** ***** ****
Green/Cycle: 0.40 0.40 0.40 0.24 0.24 0.24 0.32 0.32 0.32 0.03 0.03 0.03
Volume/Cap: 0.41 0.22 0.22 0.41 0.41 0.03 0.41 0.20 0.20 0.41 0.41 0.41
Uniform Del: 21.8 20.0 20.0 31.8 31.8 28.8 26.3 24.4 24.4 47.3 47.3 47.3
IncremntDel: 0.4 0.2 0.2 0.6 0.6 0.0 0.3 0.3 0.0 4.4 4.4 4.4
InitQueuDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Delay/Veh: 22.2 20.1 20.1 32.4 32.4 28.8 26.6 24.4 24.4 51.7 51.7 51.7
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: 22.2 20.1 20.1 32.4 32.4 28.8 26.6 24.4 24.4 51.7 51.7 51.7
LOS by Move: C C C C C C C C C C D D D
HCM2kAvgQ: 7 3 6 5 3 3 1 1 1

Note: Queue reported is the number of cars per lane.
Cumulative PM
Wed Nov 11, 2009 15:37:15
Page 3-1

City of El Cerrito
1715 Elm Street

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

| Cycle (sec): | 100 |
| Loss Time (sec): | 0 |
| Optimal Cycle: | 0 |

Critical Vol./Cap.(X): 0.658
Average Delay (sec/veh): 14.0
Level Of Service: B

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Elm St / Richmond St / Blake St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle (sec):</td>
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<tr>
<td>Loss Time (sec):</td>
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<td>Optimal Cycle:</td>
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Critical Vol./Cap.(X): 0.658
Average Delay (sec/veh): 14.0
Level Of Service: B

### Traffic Analysis

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
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<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
</tr>
<tr>
<td>Rights:</td>
<td>Include</td>
<td>Include</td>
<td>Include</td>
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<td>Min. Green:</td>
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<tr>
<td>Lanes:</td>
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<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 16 346 17 74 186 28 28 11 21 12 9 27
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 17 375 18 80 201 30 30 12 23 13 10 29
Added Vol: 27 14 0 4 38 59 7 8 3 0 8 4
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 44 389 18 84 239 89 37 20 26 13 18 33
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 44 389 18 84 239 89 37 20 26 13 18 33
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 389 18 84 239 89 37 20 26 13 18 33
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 44 389 18 84 239 89 37 20 26 13 18 33

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: 0.10 0.90 1.00 0.26 0.74 1.00 0.45 0.24 0.31 0.20 0.28 0.52
Final Sat.: 67 591 755 167 476 750 245 131 169 111 152 285

Capacity Analysis Module:
Vol/Sat: 0.66 0.66 0.02 0.50 0.50 0.12 0.15 0.15 0.15 0.12 0.12 0.12
Crit Moves: **** **** **** ****
Delay/Veh: 17.5 17.5 7.5 13.4 13.4 8.0 9.9 9.9 9.9 9.5 9.5 9.5
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: 17.5 17.5 7.5 13.4 13.4 8.0 9.9 9.9 9.9 9.5 9.5 9.5
LOS by Move: C C A B A A A A A A
ApproachDel: 17.1 12.3 9.9 9.5
Delay Adj: 1.00 1.00 1.00 1.00
ApprAdjDel: 17.1 12.3 9.9 9.5
LOS by Appr: C C B A A
AllWayAvgQ: 1.7 1.7 0.0 0.9 0.9 0.1 0.1 0.1 0.1 0.1 0.1 0.1

Note: Queue reported is the number of cars per lane.
City of El Cerrito
1715 Elm Street

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

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100 Critical Vol./Cap.(X): 0.455
Loss Time (sec): 0 Average Delay (sec/veh): 13.9
Optimal Cycle: 26 Level Of Service: B

Street Name: Richmond St Potrero Av
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 0 0 1! 0 0 0 0 1! 0 0 0 1! 0 0

Volume Module:
Base Vol: 65 336 31 9 158 35 47 112 69 16 90 12
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 70 364 34 10 171 38 51 121 75 17 97 13
Added Vol: 11 34 0 6 34 1 1 2 11 0 2 6
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 81 398 34 16 205 39 52 123 86 17 99 19
Reduct Vol: 81 398 34 16 205 39 52 123 86 17 99 19
Reduced Vol: 81 398 34 16 205 39 52 123 86 17 99 19

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 Volume: 81 398 34 16 205 39 52 123 86 17 99 19

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.90 0.90 0.90 0.95 0.95 0.95 0.88 0.88 0.88 0.94 0.94 0.94
Lanes: 0.16 0.78 0.06 0.06 0.79 0.15 0.20 0.47 0.33 0.13 0.73 0.14
Final Sat.: 272 1329 112 109 1422 270 334 794 552 227 1303 249

Capacity Analysis Module:
Vol/Sat: 0.30 0.30 0.30 0.14 0.14 0.14 0.16 0.16 0.16 0.08 0.08 0.08
Crit Moves: **** ****
Green/Cycle: 0.66 0.66 0.66 0.66 0.66 0.66 0.34 0.34 0.34 0.34 0.34 0.34
Volume/Cap: 0.45 0.45 0.45 0.22 0.22 0.22 0.45 0.45 0.45 0.22 0.22 0.22
Uniform Del: 8.3 8.3 8.3 6.8 6.8 6.8 25.7 25.7 25.7 23.5 23.5 23.5
IncremmtDel: 0.3 0.3 0.3 0.1 0.1 0.1 0.6 0.6 0.6 0.2 0.2 0.2
InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Delay/Veh: 8.6 8.6 8.6 6.9 6.9 6.9 26.2 26.2 26.2 23.7 23.7 23.7
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: 8.6 8.6 8.6 6.9 6.9 6.9 26.2 26.2 26.2 23.7 23.7 23.7
LOS by Move: A A A A A A C C C C C
HCM2kAvgQ: 0 0 0 3 3 3 6 6 6 3 3 3

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Elm St / Hill St / Key Bl

| Cycle (sec): | 100 | Critical Vol./Cap.(X): | 0.371 |
| Loss Time (sec): | 0 | Average Delay (sec/veh): | 27.6 |
| Optimal Cycle: | 36 | Level Of Service: | C |

Street Name: Elm St, Hill St, Key Bl

Approach: North Bound, South Bound, East Bound, West Bound


Control: Split Phase, Split Phase, Split Phase, Split Phase

Rights: Include, Include, Include, Include

Min. Green: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

Y+R: 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0, 4.0

Lanes: 1, 0, 0, 1, 0, 0, 1, 0, 0, 1, 0, 0, 1

Volume Module: >> Count Date: 21 Oct 2009 <<

Base Vol: 176, 148, 0, 0, 207, 7, 149, 0, 317, 0, 0

Growth Adj: 1.08, 1.08, 1.08, 1.08, 1.08, 1.08, 1.08, 1.08, 1.08, 1.08

Initial Bse: 191, 160, 0, 0, 224, 8, 161, 0, 343, 0, 0

Added Vol: 5, 2, 20, 8, 21, 0, 12, 12, 8, 16, 10, 6

PasserByVol: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

Initial Fut: 196, 162, 20, 8, 245, 8, 173, 12, 351, 16, 10, 6

User Adj: 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00

PHF Adj: 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00

PHF Volume: 196, 162, 20, 8, 245, 8, 173, 12, 351, 16, 10, 6

Reduced Vol: 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

Reduced Vol: 196, 162, 20, 8, 245, 8, 173, 12, 351, 16, 10, 6

FCE Adj: 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00

MLF Adj: 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00

FinalVolume: 196, 162, 20, 8, 245, 8, 173, 12, 351, 16, 10, 6

Saturation Flow Module:

Sat/Lane: 1900, 1900, 1900, 1900, 1900, 1900, 1900, 1900, 1900, 1900, 1900, 1900

Adjustment: 0.95, 0.98, 0.98, 1.00, 1.00, 0.85, 0.84, 0.84, 0.95, 0.95, 0.95

Lanes: 1.00, 0.89, 0.11, 0.03, 0.97, 1.00, 0.97, 0.07, 1.96, 0.50, 0.31, 0.19

Final Sat.: 1805, 1664, 205, 60, 1836, 1615, 1553, 107, 3146, 904, 565, 339

Capacity Analysis Module:

Vol/Sat: 0.11, 0.10, 0.10, 0.13, 0.13, 0.00, 0.11, 0.11, 0.11, 0.02, 0.02, 0.02

Crit Moves: ****, ****, ****, ****

Green/Cycle: 0.29, 0.29, 0.29, 0.36, 0.36, 0.36, 0.30, 0.30, 0.30, 0.05, 0.05, 0.05

Volume/Cap: 0.37, 0.33, 0.33, 0.37, 0.37, 0.37, 0.01, 0.37, 0.37, 0.37, 0.37, 0.37

Uniform Del: 28.1, 27.8, 27.8, 23.7, 23.7, 20.6, 27.5, 27.5, 27.5, 46.2, 46.2, 46.2

IncremntDel: 0.4, 0.4, 0.4, 0.3, 0.3, 0.0, 0.2, 0.2, 0.2, 2.7, 2.7, 2.7

InitQueuDel: 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0

Delay Adj: 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00

Delay/Veh: 28.6, 28.1, 28.1, 24.0, 24.0, 20.6, 27.7, 27.7, 27.7, 48.9, 48.9, 48.9

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: 28.6, 28.1, 28.1, 24.0, 24.0, 20.6, 27.7, 27.7, 27.7, 48.9, 48.9, 48.9


HCM2kAvgQ: 5, 4, 5, 6, 6, 5, 6, 5, 6, 5, 1, 1, 1

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

Cycle (sec): 100 Critical Vol./Cap. (X): 0.646
Loss Time (sec): 0 Average Delay (sec/veh): 13.4
Optimal Cycle: 0 Level Of Service: B

Street Name: Elm St / Richmond St / Blake St
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 0 1 0 1 0 1
- 0 1 0 0 1 0 1 0 1
- 0 1 0 0 1 0 1 0 1
- 0 1 0 0 1 0 1 0 1
Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 9 264 8 29 357 124 19 7 25 12 14 27
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 10 286 9 31 387 134 21 8 27 13 15 29
Added Vol: 10 17 0 2 21 24 5 2 1 0 3 3
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 20 303 9 33 408 158 26 10 28 13 18 32
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 20 303 9 33 408 158 26 10 28 13 18 32
Reduced Vol: 20 303 9 33 408 158 26 10 28 13 18 32
Reduced Vol: 20 303 9 33 408 158 26 10 28 13 18 32
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 Volume: 20 303 9 33 408 158 26 10 28 13 18 32

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: 0.06 0.94 1.00 0.08 0.92 1.00 0.40 0.15 0.45 0.20 0.29 0.51
Final Sat.: 40 606 734 52 631 789 224 84 246 115 161 285

Capacity Analysis Module:
Vol/Sat: 0.50 0.50 0.01 0.65 0.65 0.20 0.11 0.11 0.11 0.11 0.11 0.11
Crit Moves: 0.50 0.50 0.01 0.65 0.65 0.20 0.11 0.11 0.11 0.11 0.11 0.11
Delay/Veh: 13.3 13.3 7.5 16.7 16.7 8.3 9.5 9.5 9.5 9.4 9.4 9.4
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
Adj Del/Veh: 13.3 13.3 7.5 16.7 16.7 8.3 9.5 9.5 9.5 9.4 9.4 9.4
LOS by Move: B B A C C A A A A A
Approach Del: 13.1 14.5 9.5 9.4
Delay Adj: 1.00 1.00 1.00 1.00
Appr Adj Del: 13.1 14.5 9.5 9.4
LOS by Approach: B B A A
All Way Avg Q: 0.9 0.9 0.0 1.7 1.7 0.2 0.1 0.1 0.1 0.1 0.1 0.1

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Richmond St / Potrero Av

Cycle (sec): 100  Critical Vol./Cap.(X): 0.382
Loss Time (sec): 0  Average Delay (sec/veh): 14.1
Optimal Cycle: 23  Level Of Service: B

Street Name: Richmond St  Potrero Av
Approach: North Bound  South Bound  East Bound  West Bound
Movement: L - T - R  L - T - R  L - T - R  L - T - R
Control: Permitted  Permitted  Permitted  Permitted
Rights: Include  Include  Include  Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 0 0 1! 0 0 0 0 1! 0 0 0 1!

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 42 201 70 19 330 50 28 117 62 15 150 22
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 45 218 11 21 357 54 30 127 67 16 162 24
Added Vol: 4 23 0 2 18 2 2 1 3 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 49 241 11 23 375 56 32 128 70 16 163 27
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 Volume: 49 241 11 23 375 56 32 128 70 16 163 27
Reduced Vol: 49 241 11 23 375 56 32 128 70 16 163 27
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 Volume: 49 241 11 23 375 56 32 128 70 16 163 27

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.88 0.88 0.88 0.88 0.86 0.96 0.96 0.96 0.91 0.91 0.91 0.96 0.96 0.96
Lanes: 0.16 0.16 0.16 0.16 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04
Final Sat.: 276 1344 60 91 1510 226 242 955 525 143 1437 236

Capacity Analysis Module:
Vol/Sat: 0.18 0.18 0.18 0.25 0.25 0.25 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13
Crit Moves: ****  ****
Green/Cycle: 0.65 0.65 0.65 0.65 0.65 0.65 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35
Volume/Cap: 0.28 0.28 0.28 0.28 0.28 0.28 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38
Uniform Del: 7.4 7.4 7.4 8.1 8.1 8.1 24.4 24.4 24.4 23.9 23.9 23.9
IncremmtDel: 0.1 0.1 0.1 0.2 0.2 0.2 0.4 0.4 0.4 0.3 0.3 0.3
InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Delay/Veh: 7.6 7.6 7.6 8.3 8.3 8.3 24.8 24.8 24.8 24.2 24.2 24.2
User 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
Adj Delay/Veh: 7.6 7.6 7.6 8.3 8.3 8.3 24.8 24.8 24.8 24.2 24.2 24.2
LOS by Move: A A A A A A C C C C C C
HCM2kAvgQ: 4 6 6 6 6 6

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

Trafficix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to PMC, TORRANCE
# Level Of Service Computation Report

## 2000 HCM Operations Method (Future Volume Alternative)

### Intersection #1 Elm St / Hill St / Key Bl

<table>
<thead>
<tr>
<th>Cycle (sec):</th>
<th>100</th>
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<td>Loss Time (sec):</td>
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<tr>
<td>Optimal Cycle:</td>
<td>39</td>
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</table>

**Critical Vol./Cap.(X):** 0.415

**Average Delay (sec/veh):** 25.7

**Level Of Service:** C

### Street Name:
- Elm St
- Hill St / Key Bl

### Approach:
- North Bound
- South Bound
- East Bound
- West Bound

### Movement:
- L
- T
- R
- L
- T
- R
- L
- T
- R

### Control:
- Split Phase
- Split Phase
- Split Phase
- Split Phase

### Rights:
- Include
- Include
- Include
- Include

### Min. Green:
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0
- 0

### Y+R:
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0
- 4.0

### Lanes:
- 1
- 0
- 0
- 1
- 0
- 0
- 1
- 0
- 0
- 1

### Volume Module:

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<th>10</th>
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<td>1.08</td>
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<td>0</td>
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<td>11</td>
<td>170</td>
<td>0</td>
<td>175</td>
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<td>Added Vol:</td>
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<td>6</td>
<td>12</td>
<td>5</td>
<td>58</td>
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<td>PasserByVol:</td>
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<td>0</td>
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<td>0</td>
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<td>12</td>
<td>5</td>
<td>188</td>
<td>11</td>
<td>220</td>
<td>7</td>
<td>208</td>
<td>13</td>
<td>8</td>
</tr>
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<td>User Adj:</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
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</tr>
<tr>
<td>PHF Volume:</td>
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<td>153</td>
<td>12</td>
<td>5</td>
<td>188</td>
<td>11</td>
<td>220</td>
<td>7</td>
<td>208</td>
<td>13</td>
<td>8</td>
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<td>Reduct Vol:</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Reduced Vol:</td>
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<td>153</td>
<td>12</td>
<td>5</td>
<td>188</td>
<td>11</td>
<td>220</td>
<td>7</td>
<td>208</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>PCE Adj:</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>MLF Adj:</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
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<td>297</td>
<td>153</td>
<td>12</td>
<td>5</td>
<td>188</td>
<td>11</td>
<td>220</td>
<td>7</td>
<td>208</td>
<td>13</td>
<td>8</td>
</tr>
</tbody>
</table>

### Saturation Flow Module:

| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 0.99 | 1.00 | 1.00 | 0.85 | 0.86 | 0.86 | 0.95 |
| Lanes: | 1.00 | 0.97 | 1.00 | 1.00 | 0.99 | 0.97 |
| Final Sat.: | 1805 | 1743 | 136 | 49 | 1849 | 1615 | 1633 | 106 |

### Capacity Analysis Module:

| Vol/Sat: | 0.16 | 0.09 | 0.09 | 0.10 | 0.10 | 0.01 | 0.13 | 0.07 | 0.07 | 0.01 | 0.01 | 0.01 |
| Crit Moves: | **** | **** | **** | **** | **** | **** | **** | **** | **** |
| Green/Cycle: | 0.40 | 0.40 | 0.40 | 0.24 | 0.24 | 0.24 | 0.32 | 0.32 | 0.32 | 0.03 | 0.03 | 0.03 |
| Volume/Cap: | 0.42 | 0.22 | 0.22 | 0.42 | 0.42 | 0.03 | 0.42 | 0.20 | 0.20 | 0.42 | 0.42 | 0.42 |
| Uniform Del: | 21.8 | 20.0 | 20.0 | 31.7 | 31.7 | 28.7 | 26.4 | 24.4 | 24.4 | 47.3 | 47.3 | 47.3 |
| IncremntDel: | 0.4 | 0.2 | 0.2 | 0.6 | 0.6 | 0.0 | 0.3 | 0.0 | 0.0 | 4.4 | 4.4 | 4.4 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Delay/Veh: | 22.2 | 20.1 | 20.1 | 32.4 | 32.4 | 28.7 | 26.6 | 24.5 | 24.5 | 51.7 | 51.7 | 51.7 |
| User Del: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 22.2 | 20.1 | 20.1 | 32.4 | 32.4 | 28.7 | 26.6 | 24.5 | 24.5 | 51.7 | 51.7 | 51.7 |
| LOS by Move: | C | C | C | C | C | C | C | C | D | D | D |
| HCM2kAvgQ: | 0 | 3 | 6 | 3 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 |

**Note:** Queue reported is the number of cars per lane.
City of El Cerrito
1715 Elm Street

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Elm St / Richmond St / Blake St

Cycle (sec): 100  Critical Vol./Cap.(X): 0.660
Loss Time (sec): 0  Average Delay (sec/veh): 14.1
Optimal Cycle: 0  Level Of Service: B

Street Name: Elm St / Richmond St
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  0  1  0  1  0  0  1  0  0

Volume Module: >> Count Date: 21 Oct 2009 <<
Base Vol: 16  346  17  74  186  28  28  11  21  12  9  27
Growth Adj: 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08
Initial Bse: 17  375  18  80  201  30  30  12  23  13  10  29
Added Vol: 27  15  0  4  39  59  8  8  3  0  8  5
PasserByVol: 0  0  0  0  0  0  0  0  0  0  0  0
Initial Fut: 44  390  18  84  240  89  38  20  26  13  18  34
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 44  390  18  84  240  89  38  20  26  13  18  34
Reduced Vol: 0  0  0  0  0  0  0  0  0  0  0  0
Reduced Vol: 44  390  18  84  240  89  38  20  26  13  18  34
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 44  390  18  84  240  89  38  20  26  13  18  34

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: 0.10 0.90 1.00 0.26 0.74 1.00 0.45 0.24 0.31 0.20 0.27 0.53
Final Sat.: 67  590  754  167  476  747  248  129  166  110  150  289

Capacity Analysis Module:
Vol/Sat: 0.66 0.66 0.02 0.51 0.51 0.12 0.15 0.15 0.15 0.12 0.12 0.12
Crit Moves: ****  ****  ****  ****
Delay/Veh: 17.6 17.6 7.5 13.5 13.5 8.0 9.9 9.9 9.9 9.5 9.5 9.5
Delay Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
AdjDel/Veh: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
LOS by Move: C C C A B A A A A A A
ApproachDel: 17.2 12.3 9.9 9.5
Delay Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
ApprAdjDel: 17.2 12.3 9.9 9.5
LOS by Appr: C C A A
AllWayAvgQ: 1.7 1.7 0.0 0.9 0.9 0.1 0.1 0.1 0.1 0.1 0.1 0.1

Note: Queue reported is the number of cars per lane.
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Richmond St / Potrero Av

**Cycle (sec):** 100  
**Critical Vol./Cap.(X):** 0.455  
**Optimal Cycle:** 26  
**Street Name:** Richmond St, Potrero Av

<table>
<thead>
<tr>
<th>Movement</th>
<th>Control</th>
<th>Rights</th>
<th>Min. Green</th>
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<tr>
<td>L - T - R</td>
<td>Permitted</td>
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<td>L - T - R</td>
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<tr>
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**Volume Module:**

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<tbody>
<tr>
<td>65 336 31</td>
<td>1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.08</td>
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<td>11 36</td>
<td>0 0</td>
<td>81 400 34</td>
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<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td>81 400 34</td>
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**Saturation Flow Module:**

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<th>Final Sat.</th>
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<td>0.16 0.78 0.06 0.06 0.79 0.15 0.20 0.47 0.33 0.13 0.73 0.14</td>
<td>271 1332 112 109 1425 269 334 794 552 227 1303 249</td>
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**Capacity Analysis Module:**

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<td>****</td>
<td>****</td>
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Note: Queue reported is the number of cars per lane.