



HEXAGON TRANSPORTATION CONSULTANTS, INC.



# The Espresso Lane – 1990 S. El Camino Real



Draft Transportation Impact Analysis

Prepared for:

City of San Mateo



November 8, 2012



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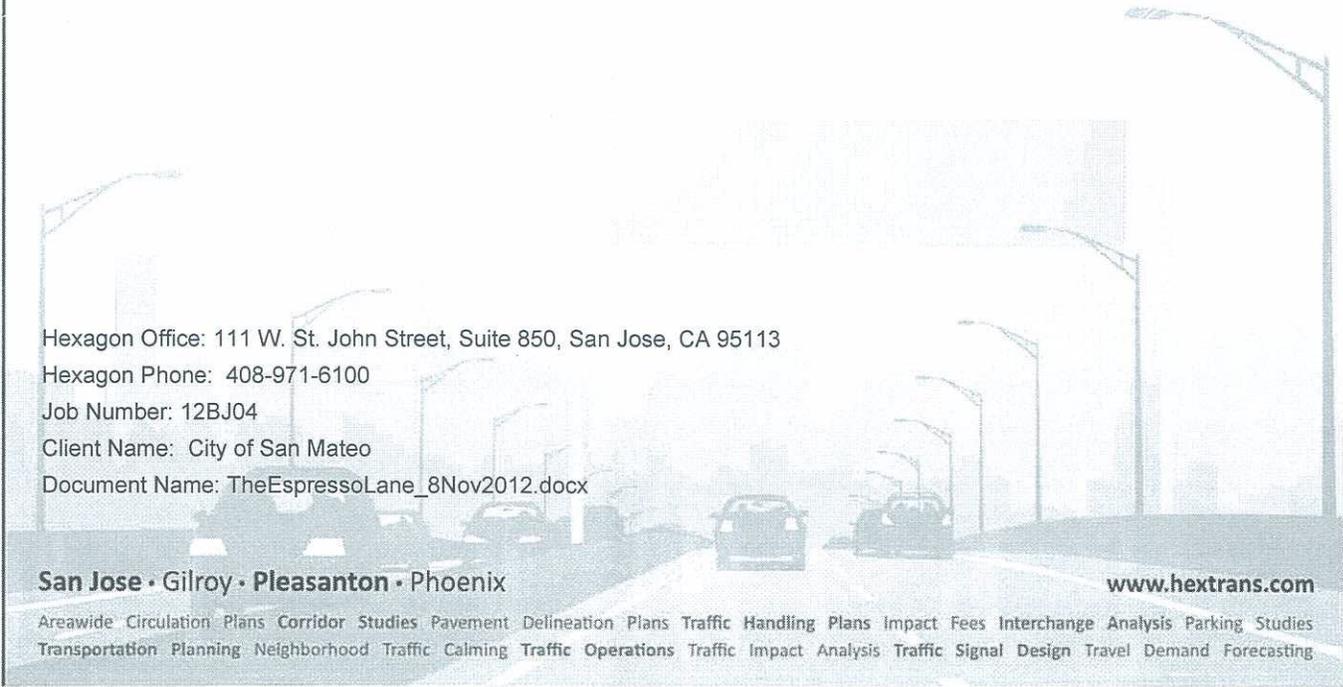
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## Executive Summary

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This report presents the results of the traffic study conducted for a proposed The Espresso Lane drive-thru coffee business located at 1990 S. El Camino Real in San Mateo, California. The project site, located on the northwest corner of S. El Camino Real and W. 20<sup>th</sup> Avenue, was formerly a Shell gas station. Two drive-thru windows and a walk-up window are proposed.

### Project Trip Generation

Trip generation estimates are based on driveway counts conducted at an existing Espresso Lane drive-thru coffee shop in Redwood City, California. That coffee shop is located on Woodside Road, a state route with similar characteristics (i.e., traffic volumes) to El Camino Real. Driveway count data were collected at the Redwood City location during the AM (7-9 AM) and PM (4-6 PM) peak hours of traffic on July 3, 2012 and on July 11, 2012. The highest count for each peak hour period was used in order to provide a conservative estimate of new trips. Based on the driveway counts, the proposed project is expected to generate 84 trips during the AM peak hour and 6 trips during the PM peak hour.

### Existing Plus Project Intersection Level of Service Analysis

The results of the existing plus project intersection level of service analysis show that the S. El Camino Real and W. 20<sup>th</sup> Avenue intersection would operate at an acceptable LOS C under existing plus project conditions during the AM and PM peak hours.

### Cumulative 2030 Intersection Level of Service Analysis

The results of the traffic study show that the project would not cause any significant impacts at the study intersection. However, the project would, as a result of its contribution to cumulative increases in traffic, be required to pay its fair share to the City of San Mateo Traffic Impact Fee.

**Impact:** The project will contribute to the growth in cumulative traffic demand. Intersection improvements identified in the City of San Mateo Traffic Mitigation Report will be required to maintain intersection levels of service within the adopted standards at some intersections.

**Mitigation:** The project will be required to pay Traffic Impact Fees based on the cumulative traffic increase. The TIF will be determined by City of San Mateo staff.

Table ES-1 shows a comparison of delay and LOS at the study intersection for all traffic scenarios.

**Table ES- 1  
Intersection Level of Service Summary**

Intersection	Peak Hour	Count Date	Existing Conditions				Cumulative 2030 Conditions			
			Without Project		With Project		Without Project		With Project	
			Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS
S. El Camino Real & W. 20th Av	AM	7/10/2012	26.6	C	27.8	C	29.9	C	30.1	C
	PM	7/10/2012	29.1	C	29.1	C	34.7	C	33.0	C

## Recommendations

**Recommendation 1:** The inbound lane of the El Camino Real driveway should be narrowed from 18 feet to 14 feet to provide more area for landscaping and to reduce the width of the pedestrian crossing.

**Recommendation 2:** The stop sign located in the asphalt area on the southeast portion of the site should be removed.

**Recommendation 3:** The project should provide a designated bicycle parking area.

# 1.

## Introduction

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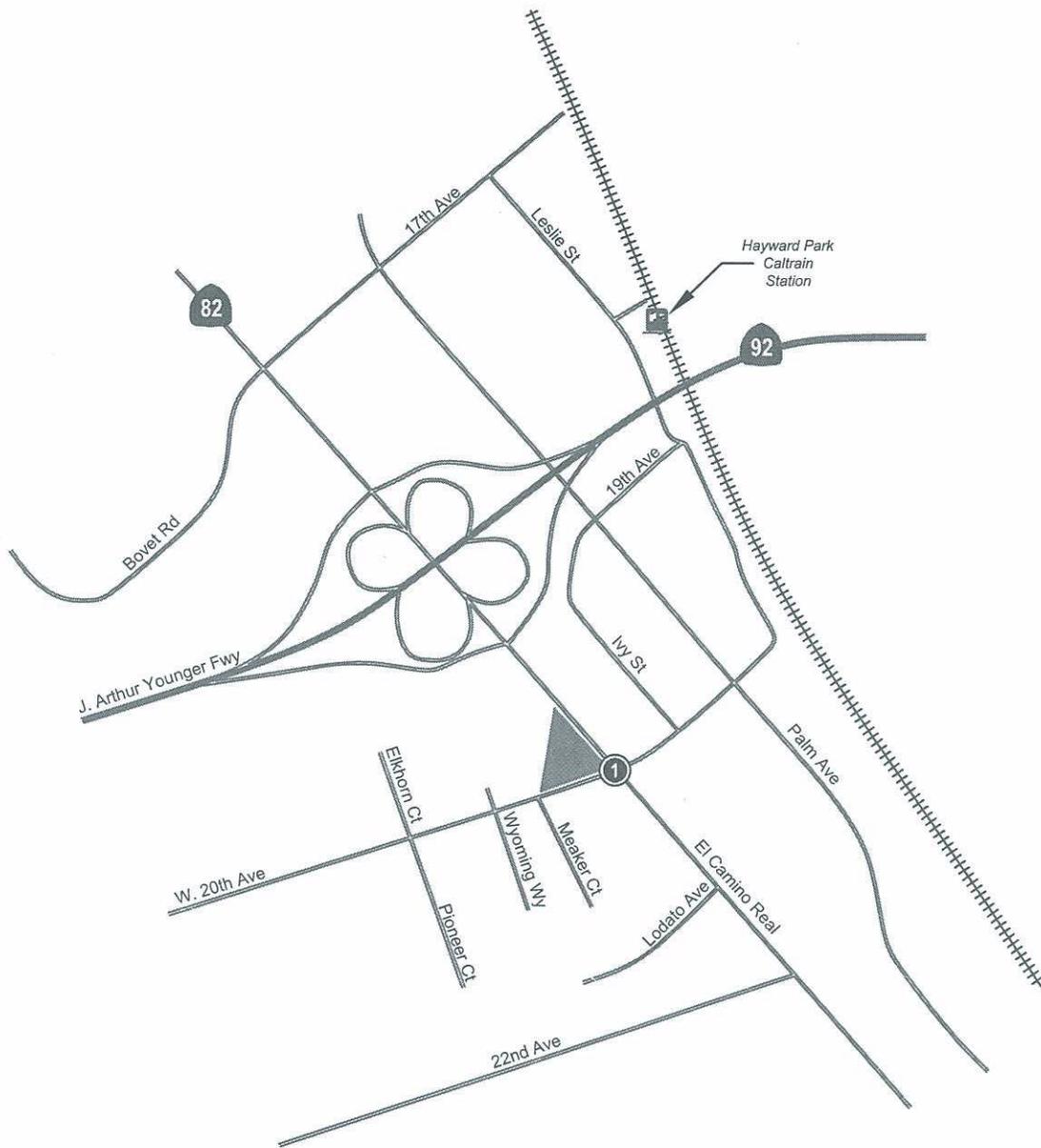
This report presents the results of the traffic study conducted for a proposed The Espresso Lane drive-thru coffee business located at 1990 S. El Camino Real in San Mateo, California. The project site, located on the northwest corner of S. El Camino Real and W. 20<sup>th</sup> Avenue, was formerly a Shell gas station. Two drive-thru windows and a walk-up window are proposed. The location of the project site and the surrounding study area are shown on Figure 1.

### Scope of Study

This study was conducted for the purpose of identifying any potential traffic impacts or site circulation issues related to the proposed development. The impacts of the project were evaluated following the standards and methodologies set forth by the City of San Mateo. The traffic study includes determining the traffic impact of the proposed development on the intersection of S. El Camino Real and W. 20<sup>th</sup> Avenue during the AM and PM peak commute periods of traffic. It is during the AM and PM peak hours that the project would have the greatest impact on traffic conditions on a typical weekday. The AM peak hour of adjacent street traffic is generally between 7:00 and 9:00 AM and the PM peak hour of adjacent street traffic is between 4:00 and 6:00 PM.

Traffic conditions were evaluated for the following scenarios:

- Scenario 1:** *Existing Conditions.* Existing intersection volumes were obtained from new manual turning-movement counts conducted in July 2012. Intersection count data are included in Appendix A.
- Scenario 2:** *Existing Plus Project Conditions.* Existing plus project conditions are defined as future traffic volumes with the project. Existing plus project traffic volumes were estimated by adding to existing traffic volumes the trips generated by the proposed project. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts on the existing roadway network.
- Scenario 3:** *2030 Cumulative Conditions.* 2030 Cumulative conditions represent future traffic volumes on the future transportation network according to the San Mateo General Plan. Cumulative conditions include traffic growth projected to occur due to the approved development projects, the proposed project, other proposed but not yet approved (pending) development projects, and general background traffic increases. Cumulative conditions without the project is typically termed 2030 Base Conditions; cumulative conditions with the project is typically termed 2030 Cumulative Conditions.



LEGEND

-  = Project Site Location
-  = Study Intersection

Figure 1  
Site Location and Study Area

## Methodology

This section describes the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

### ***Data Requirements***

The data required for the analysis were obtained from new traffic counts, the City of San Mateo, and field observations. The following data were collected from these sources:

- existing traffic volumes
- approved project trips
- intersection lane configurations
- signal timing and phasing

### ***Analysis Methodologies and Level of Service Standards***

Traffic conditions were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or forced-flow conditions with extreme delays. General descriptions of levels of service (LOS) for signalized intersections are provided in Table 1.

### **City of San Mateo Intersections**

Level of service at signalized intersections in the City of San Mateo is evaluated based on the average control delay for all movements at the intersection. The City of San Mateo level of service standard is mid-LOS D (delay of 45 seconds) or better for all signalized intersections.

## Significant Impact Criteria

The traffic impacts of the project are evaluated against the following criteria to determine whether the impacts are significant.

### ***City of San Mateo Definition of Significant Intersection Impacts***

Per the City's General Plan Policy C 2.7, all projects are required, at a minimum, to pay a transportation mitigation fee. The transportation mitigation fee is used to fund planned transportation improvements that are identified in the City of San Mateo Traffic Mitigation Program.

In addition to paying the transportation impact fee, a development project may be required to fund off-site circulation improvements which are needed as a result of project generated traffic if:

- a) The acceptable level of service at the intersection (mid-level LOS D, with an average delay of more than 45 seconds) is exceeded by 4 seconds or more when the project traffic is added, and
- b) The intersection is subject to an increase in delay of 4 or more seconds, and
- c) The needed improvement of the intersection(s) is not funded in the applicable five-year City Capital Improvement Program from the date of application approval.

The cost of the off-site improvements may be reimbursed by the City if a reimbursement program is established throughout the timeframe of the City of San Mateo's current Traffic Mitigation Program or at the time when the improvement was initially scheduled.

**Table 1  
Intersection Level of Service Definitions Based on Average Delay**

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

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

## Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes existing conditions including the existing roadway network, transit service, existing bicycle and pedestrian facilities, and existing intersection levels of service. Chapter 3 presents the intersection operations under existing plus project conditions and describes the method used to estimate project traffic. Chapter 4 presents a discussion on other transportation issues such as site access and on-site circulation. Chapter 5 presents the traffic conditions at the study intersection under 2030 cumulative conditions. Chapter 6 presents the conclusions of the traffic study.

## 2. Existing Conditions

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This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities. Also included are the existing levels of service of the key intersections in the study area.

### Existing Roadway Network

Regional access to the study area is provided via US 101, SR 92 and El Camino Real.

**US 101** is an eight-lane north/south freeway in the vicinity of the site. US 101 extends northward through San Francisco and southward through San Jose. Full interchanges exist at SR 92 and Hillsdale Boulevard.

**SR 92** is a four- to six-lane east/west freeway providing access to the site. SR 92 extends from Half Moon Bay in west San Mateo County to Hayward in Alameda County. A full interchange is present at El Camino Real.

**El Camino Real** is a state highway (SR 82) that extends from Santa Clara County through San Mateo County. In the study area, El Camino Real is a north-south major arterial that borders the project site. It has six lanes of travel adjacent to the project site. North of Second Avenue, it is a four-lane roadway. El Camino Real provides direct access to the project site.

Local access to the project site is provided via W. 20<sup>th</sup> Avenue. W. 20<sup>th</sup> Avenue is a two- to four-lane undivided collector street that extends between Alameda De Las Pulgas and El Camino Real and provides direct access to the project site. W. 20<sup>th</sup> Avenue become E. 20<sup>th</sup> Avenue east of El Camino Real and terminates shortly thereafter. The posted speed limit is 25 mph.

### Existing Bicycle and Pedestrian Facilities

According to the City of San Mateo's Pedestrian and Bike Trail System, there are no City-designated bikeways adjacent to or near the project site.

Pedestrian facilities near the project site consist of sidewalks. Crosswalks with pedestrian signal heads are located on all legs of the S. El Camino Real/W. 20<sup>th</sup> Avenue intersection. Sidewalks are located on both sides of S. El Camino Real and W. 20<sup>th</sup> Avenue. The existing network of sidewalks in the study area has good connectivity and provides pedestrians with a safe connection between the project site and other points of interest.

## Existing Transit Services

Existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans) and Caltrain. These are described below.

### SamTrans Bus Service

There are three bus lines that operate near the project site. Routes 390/391 provide companion service along El Camino Real from Redwood City to Daly City every 15 minutes during the AM and PM peak commute periods. Route 397 provides late night service (12:00 AM – 6:00 AM) only between the Palo Alto Caltrain station and downtown San Francisco, with 60-minute headways.

Routes 390, 391 and 397 all stop on southbound El Camino Real just north of the project site. The bus stop for these routes on northbound El Camino Real is located directly across the street.

### Caltrain Service

While it is unlikely that this project would result any Caltrain trips, the project site is located approximately ½ mile walking distance from the Hayward Park Caltrain station. The existing transit services within the study area are shown on Figure 2.

## Existing Intersection Lane Configuration

The existing lane configuration at the study intersection of N. El Camino Real and W. 20<sup>th</sup> Avenue was determined by aerial photographs and confirmed in the field. Currently, El Camino Real consists of one left-turn lane, two through lanes, and one shared through/right-turn lane in both the northbound and southbound directions. W. 20<sup>th</sup> Avenue consists of one left-turn lane and a shared left-turn/through/right-turn lane. E. 20<sup>th</sup> Avenue consists of a shared left-turn/through lane and a right-turn lane.

## Existing Traffic Volumes

The existing AM and PM peak hour intersection volumes were obtained from new manual turning-movement counts conducted in July 2012. Traffic counts are not normally conducted when schools are out. However, in order to expedite the traffic study, the intersection was counted in July (Summer 2012). The new traffic counts were compared against previous count data collected in February 2007. The new count data were found to be consistent with the earlier counts done in Winter 2007.

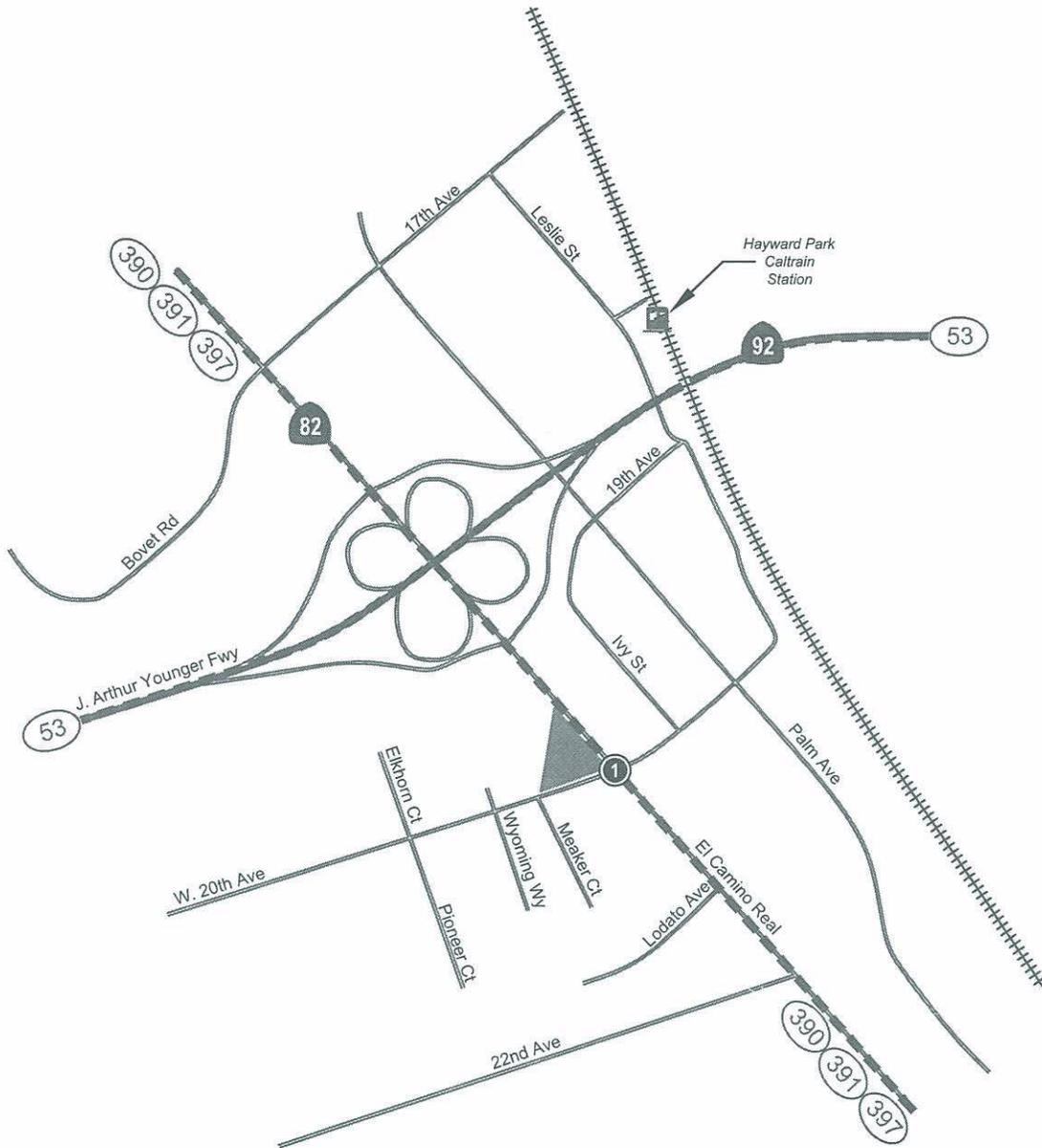
The existing traffic volumes are shown on Figure 3. The new traffic counts conducted for this study are included in Appendix A.

## Existing Intersection Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 2. The results show that the study intersection currently operates within the City’s adopted level of service standard. The level of service calculation sheets are included in Appendix B.

**Table 2**  
**Existing Intersection Levels of Service**

Intersection	Peak Hour	Count Date	Existing Conditions	
			Avg. Delay	LOS
S. El Camino Real & W. 20th Av	AM	7/10/2012	26.6	C
	PM	7/10/2012	29.1	C

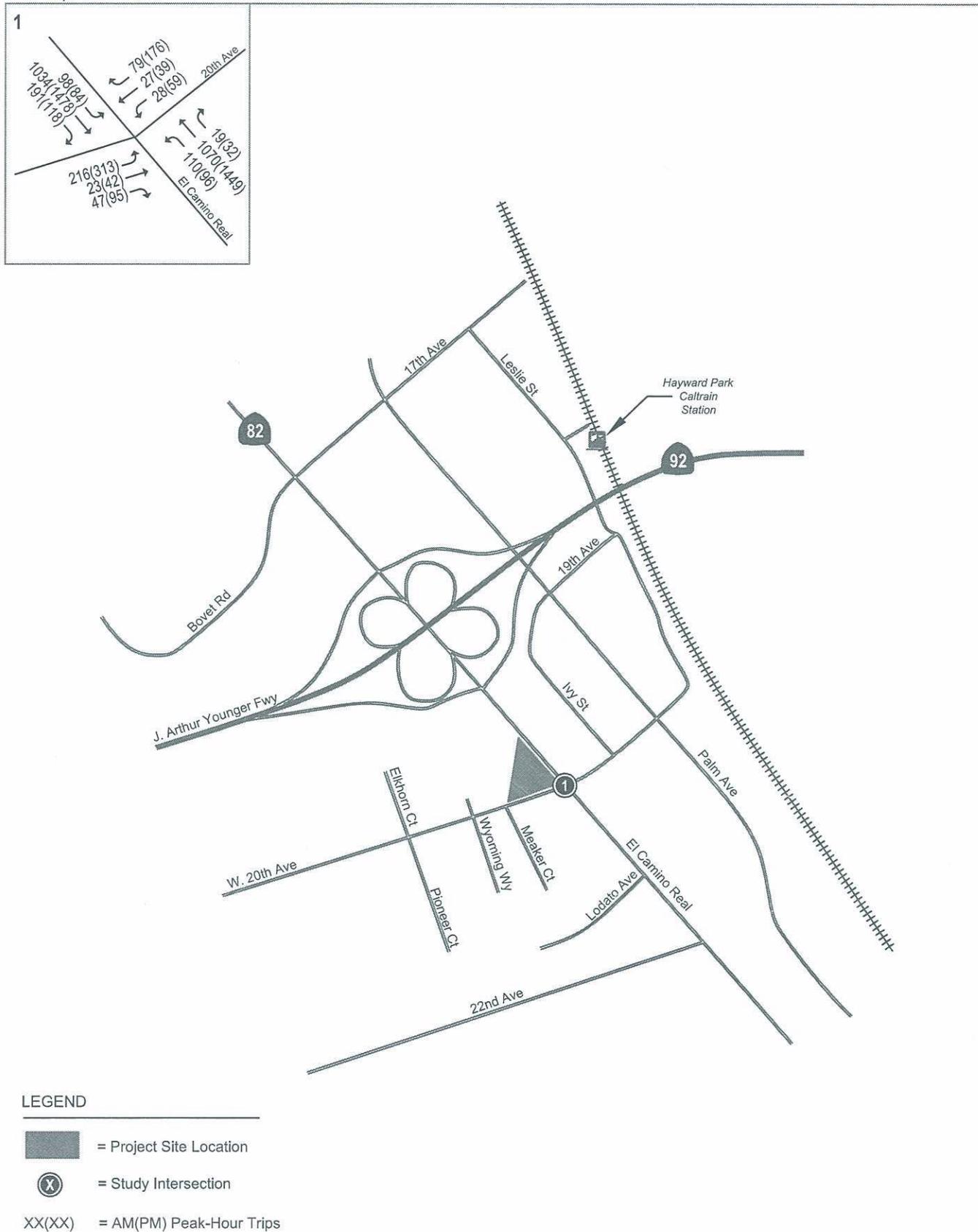


LEGEND

-  = Project Site Location
-  = Study Intersection
-  = Bus Route

**Figure 2**  
Existing Transit Services

The Espresso Lane - 1990 S. El Camino Real



**Figure 3**  
Existing Traffic Volumes

## Observed Existing Traffic Conditions

Existing traffic conditions were observed in the field during the peak periods of traffic in order to identify any operational deficiencies and to confirm the accuracy of calculated levels of service. Overall the study intersection operated well during the AM and PM peak hours of traffic, and the level of service analysis accurately reflects actual existing traffic conditions. Below is a discussion of existing traffic operations at the study intersection of S. El Camino Real and W. 20<sup>th</sup> Avenue. Field observations were conducted between approximately 7:30-8:30 AM and 4:30-5:30 PM.

During the AM and PM, the northbound and southbound through movement vehicle queues on El Camino Real are often long enough that they block access to the left-turn pockets. However, this does not negatively affect intersection operations, and vehicles on all approaches of the intersection are able to clear in one signal cycle.

Bus stops for both northbound and southbound El Camino Real are located north of the study intersection. As there are no bus bays, vehicles in the outside lanes are occasionally blocked when buses are stopped. However, this occurs infrequently and has no effect on the intersection. Pedestrian traffic at the intersection was light to moderate during both peak periods of traffic.

### 3.

## Existing Plus Project Conditions

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This chapter describes existing plus project traffic conditions, including the method by which project traffic is estimated. Existing plus project traffic volumes were estimated by adding to existing traffic volumes the trips generated by the proposed project. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts on the existing roadway network.

### Project Description

This traffic analysis assumes the project would include constructing a drive-thru coffee business (The Espresso Lane) on a former Shell gas station site, located on the northwest corner of S. El Camino Real and W. 20<sup>th</sup> Avenue. Two drive-thru windows and a walk-up window are proposed.

### Significance Criteria

The traffic impacts of the project were evaluated against the following criteria to determine whether the impacts would be significant.

#### *City of San Mateo Level of Service*

Per the City's General Plan Policy C 2.7, all projects are required, at a minimum, to pay a transportation mitigation fee. The transportation mitigation fee is used to fund planned transportation improvements that are identified in the City of San Mateo Traffic Mitigation Program.

In addition to paying the transportation impact fee, a development project may be required to fund off-site circulation improvements which are needed as a result of project generated traffic if:

- a) The acceptable level of service at the intersection (mid-level LOS D – with an average delay of more than 45 seconds) is exceeded by 4 seconds or more when the project traffic is added, and
- b) The intersection is subject to an increase in delay of 4 or more seconds, and
- c) The needed improvement of the intersection(s) is not funded in the applicable five-year City Capital Improvement Program from the date of application approval.

The cost of the off-site improvements may be reimbursed by the City if a reimbursement program is established throughout the timeframe of the City of San Mateo's current Traffic Mitigation Program or at the time when the improvement was initially scheduled.

## Transportation Network Under Existing Plus Project Conditions

Approximately 400 feet north of W. 20<sup>th</sup> Avenue, southbound S. El Camino Real widens about 9 feet and provides right-turn access to the adjacent retail center. South El Camino Real narrows again approximately 160 feet north of W. 20<sup>th</sup> Avenue along the project frontage. The project proposes to widen the 160-foot section of S. El Camino Real between the retail center and W. 20<sup>th</sup> Avenue by 9 feet to match up with the existing curb. The result would be a new dedicated southbound right-turn lane on S. El Camino Real at the study intersection.

### Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. These procedures are described further in the following sections.

#### Trip Generation

Trip generation estimates are based on driveway counts conducted at an existing Espresso Lane drive-thru coffee shop in Redwood City, California. That coffee shop is located on Woodside Road, a state route with similar characteristics (i.e., traffic volumes) to El Camino Real. Driveway count data were collected at the Redwood City location during the AM (7-9 AM) and PM (4-6 PM) peak hours of traffic on July 3, 2012 and on July 11, 2012. The highest count for each peak hour period was used in order to provide a conservative estimate of new trips. Based on the driveway counts, the proposed project is expected to generate 84 trips during the AM peak hour and 6 trips during the PM peak hour. The project trip generation estimates are presented below in Table 3.

**Table 3**  
**Project Trip Generation Estimates**

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Drive-Up Coffee Shop	42	42	84	3	3	6

Notes:  
Peak hour trips are based on driveway counts conducted at The Espresso Lane in Redwood City, CA in July 2012.

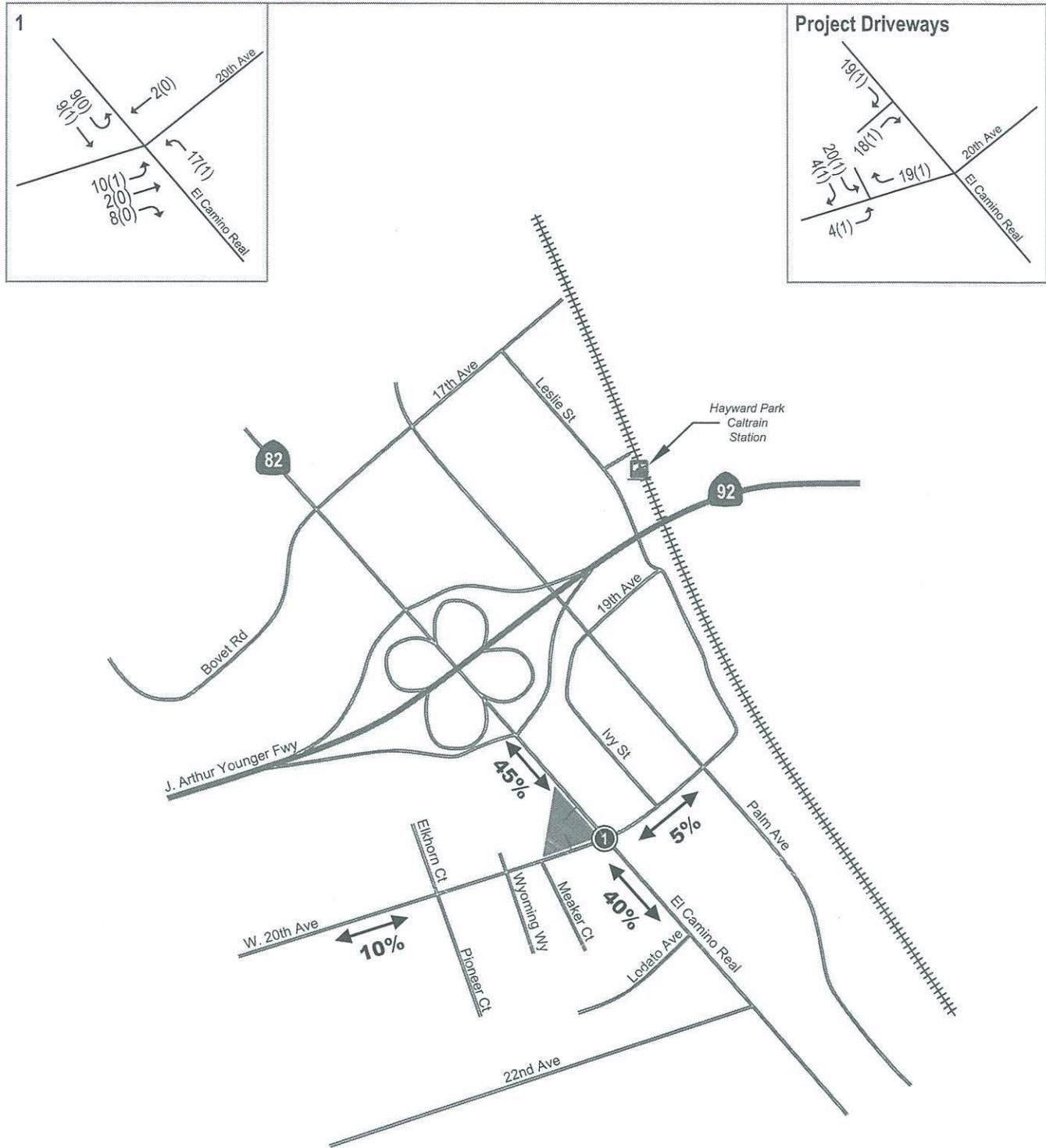
#### Trip Distribution Pattern and Trip Assignment

The trip distribution pattern for the proposed project was estimated based on existing travel patterns on the surrounding roadway system and the relative locations of complimentary land uses. The peak hour project trips were assigned to the roadway system in accordance with the trip distribution pattern. The project trip distribution pattern and trip assignment are shown on Figure 4.

### Existing Plus Project Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to existing traffic volumes to obtain existing plus project traffic volumes. The existing plus project traffic volumes are shown on Figure 5.

The Espresso Lane - 1990 S. El Camino Real

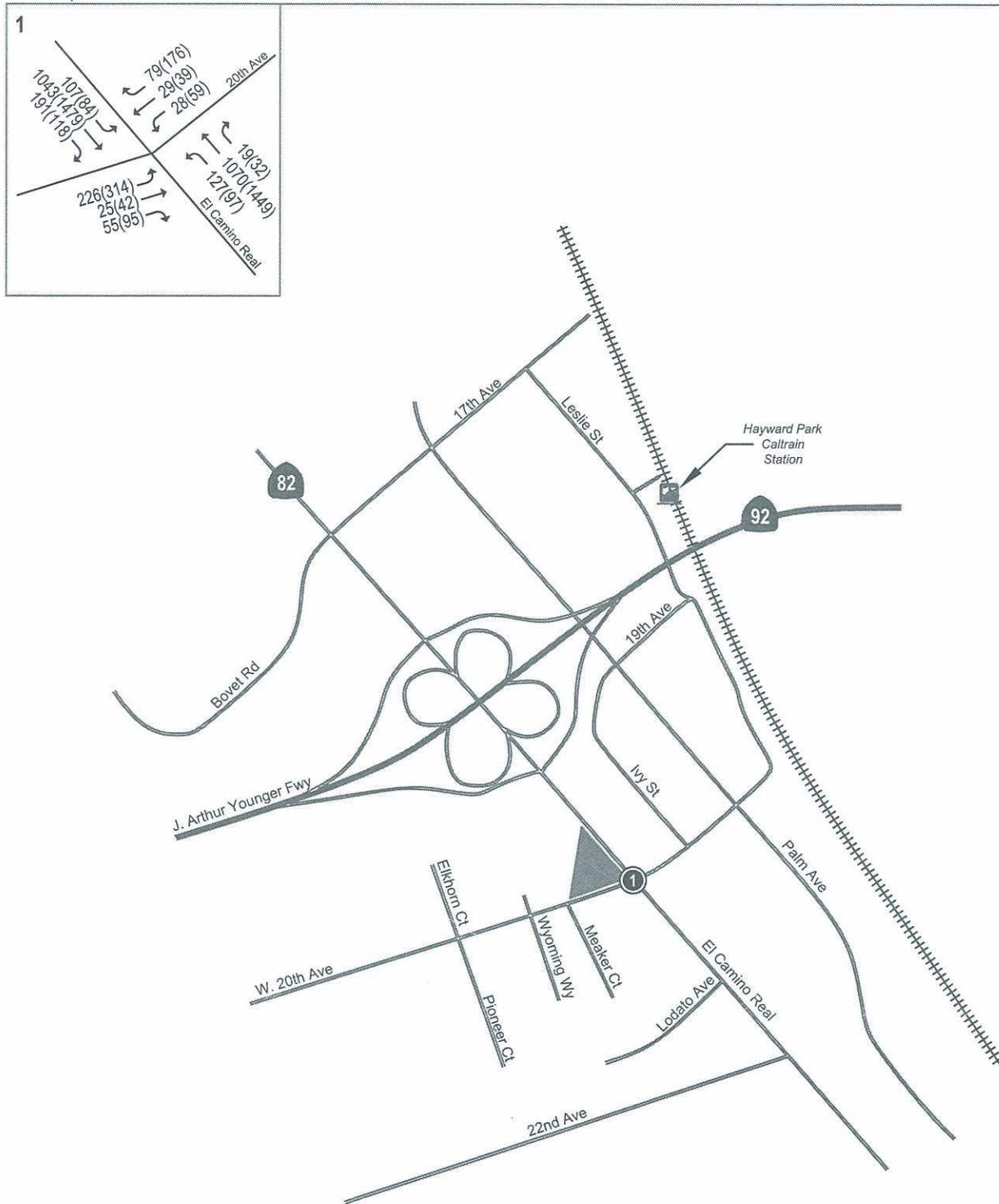


LEGEND

- = Project Site Location
- X = Study Intersection
- XX(X) = AM(PM) Peak-Hour Trips
- XX%** = Trip Distribution Percentage

**Figure 4**  
Project Trip Distribution Pattern and Trip Assignment

The Espresso Lane - 1990 S. El Camino Real



LEGEND

-  = Project Site Location
-  = Study Intersection
- XX(XX) = AM(PM) Peak-Hour Trips

**Figure 5**  
Existing Plus Project Traffic Volumes

### Intersection Levels of Service Under Existing Plus Project Conditions

The results of the intersection level of service analysis under existing plus project conditions are summarized in Table 4. The results show that the study intersection would operate within the City's adopted level of service standard under existing plus project conditions. The level of service calculation sheets are included in Appendix B.

**Table 4**  
**Existing Plus Project Intersection Levels of Service**

Intersection	Peak Hour	Count Date	Existing		Existing + Project	
			Avg. Delay	LOS	Avg. Delay	LOS
S. El Camino Real & W. 20th Av	AM	7/10/2012	26.6	C	27.8	C
	PM	7/10/2012	29.1	C	29.1	C

## 4.

# Other Transportation Issues

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This chapter presents an analysis of other transportation issues associated with the project site, including:

- Vehicular site access, on-site circulation, and queuing
- Pedestrian and bicycle site access and on-site circulation

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

### Vehicular Site Access and On-Site Circulation

This section describes the site access and circulation of the proposed project. The review is based on the October 10, 2012 site plan prepared by The Midglen Studio (see Figure 6).

#### **Site Access**

Access to the former Shell gas station was provided via two driveways on S. El Camino Real and two driveways on W. 20<sup>th</sup> Avenue. The project proposes to close off the two driveways closest to the intersection, re-utilize the westernmost full-access driveway on W. 20<sup>th</sup> Avenue, and reconstruct the northernmost right-turn only driveway on S. El Camino Real. The project would dedicate 9 feet of right-of-way along the project frontage on S. El Camino Real for a new southbound right-turn lane at the study intersection. The project proposes to replace the existing 28-foot wide driveway on S. El Camino Real with a new 36-foot wide driveway. The W. 20<sup>th</sup> Avenue driveway, which is 33 feet wide, would remain as-is. The two project driveways would be located an acceptable distance from the intersection such that they would not affect intersection operations. Both project driveways also would provide adequate sight distance in both directions of travel.

The proposed driveway on El Camino Real is wider than necessary. Hexagon recommends the inbound lane be narrowed from 18 feet to 14 feet. This would provide more area for landscaping and shorten the curb cut for pedestrians on El Camino Real.

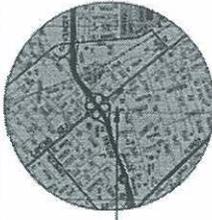
The project would make sidewalk and landscape improvements along its project frontages on S. El Camino Real and W. 20<sup>th</sup> Avenue between the driveways and the intersection.

#### **On-Site Vehicle Circulation**

The project would provide two drive-up windows. Both drive-up windows would be accessible from either project driveway. The lanes serving the drive-up windows would be sufficiently wide to allow other vehicles to pass on the outside. As proposed, on-site circulation would be intuitive. The planned signage and pavement markings would be adequate to direct traffic on-site. Note that the stop sign located in the asphalt area on the southeast portion of the site is not needed and should be removed.

The Espresso Lane - 1990 S. El Camino Real

LOCATION MAP



PARKING REQUIREMENTS

REQUIRED OFF-STREET PARKING PER SECTION (27.44 MO)  
 SUBMIT PLACES OF ASSEMBLY:  
 C. FAST FOOD, DRIVE-IN DRIVE-THRU, AND TAKE-OUT RESTAURANTE.  
 ANY PARKING SPACES FOR EACH 300 SF OF PUBLIC SERVICE AREA, PLUS ONE SPACE FOR EACH TWO EMPLOYEES.  
 PUBLIC SERVICE AREA = (0.95) PROVIDED 2 (1 ADA VAN)  
 # OF EMPLOYEES = (1) PROVIDED 1  
 REQUIRED LOADING AREA PER SECTION (27.44 MO)  
 IN FAST FOOD RESTAURANTE: 2,000 SF  
 GROSS FLOOR AREA IN STORAGE FEET 2,000.000 RECD-11/07/20  
 7,000.000 RECD-11/07/20  
 PROPOSED FLOOR AREA = 803 SF PROVIDED = 1  
 REQUIRED LOADING = 0

PROJECT DATA

APN: 024-30-200  
 LOT AREA: 13,910 SF  
 REQUIRED SETBACK: 15 FT  
 FRONT: 0 FT  
 SIDE: 0 FT  
 REAR: 0 FT  
 EXISTING FLOOR AREA: 161 SF  
 PROPOSED FLOOR AREA: 803 SF  
 TOTAL FLOOR AREA: 964 SF  
 PARKING SPACES: 2 SPACES FOR PUBLIC SERVICE AREA  
 1 REGULAR

BUILDING CODES: 2016 IBC, CBC, DSG  
 ZONING: C3.2  
 CONSTRUCTION TYPE: V-B  
 BUILDING OCCUPANCY: 9

OWNER: CLAYTON CENTER CARLOS LOPEZ  
 1855 WOODBURN ROAD  
 SAN JOSE, CA 95128  
 ARCHITECT: STEVEN PATRICK  
 831 MADISONWAY  
 SAN JOSE, CA 95128  
 950 394-8448

SCOPE OF WORK

REMODEL EXISTING CAFE/STORE FROM NORTH WARDY DRIVE THROUGH EXPRESS CAFE

DRAWING INDEX

- A1 ARCHITECTURAL SITE PLAN, PROJECT DATA, FLOOR PLAN, EXTERIOR ELEVATIONS
- A2 FLOOR PLAN, EXTERIOR ELEVATIONS
- A3 STREET VEHICLE ELEVATIONS
- C3.1 GRADING PLAN, LANDSCAPE PLAN
- C3.2 PAVING PLAN
- C3.3 STORM WATER TREATMENT PLAN, LANDSCAPE PLAN, TREE EVALUATION
- L1 SUMMARY PLANT LIST, PLANTED AREA
- R1 SITE RENDERING
- R2 STREET MEASUREMENTS
- R3 STREET MEASUREMENTS
- SU1 TOPOGRAPHIC SURVEY

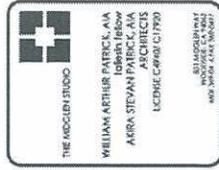
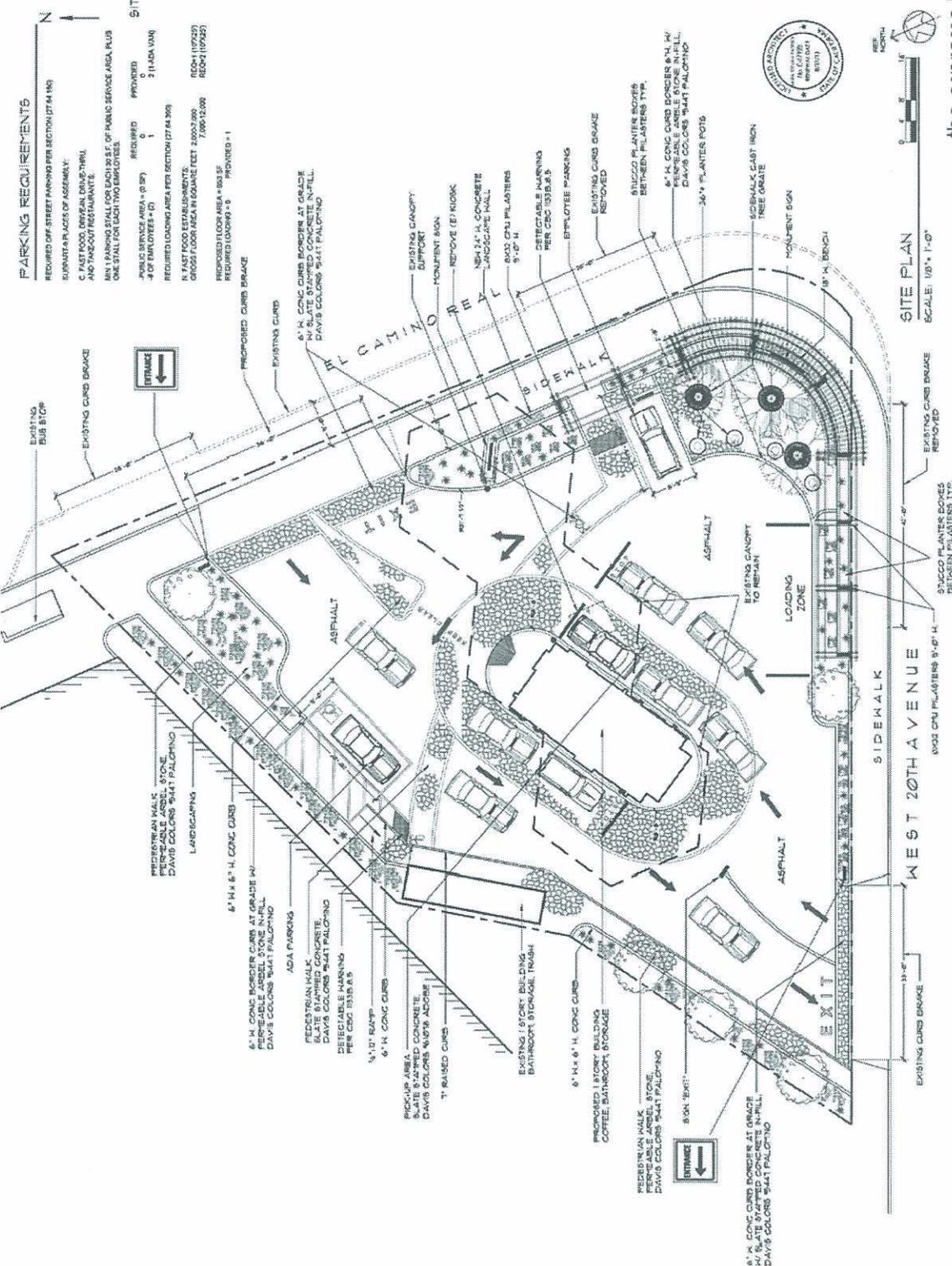


Figure 6  
 Site Plan



A1



the espresso lane  
 1990 south el camino real, san mateo

### ***Vehicle Queuing***

Based on our field observations of The Espresso Lane in Redwood City, the maximum number of vehicles expected to be waiting on the project site at any one time would be about five vehicles. According to the site plan, the project proposes to provide more than adequate on-site vehicle storage. In addition, the project would provide 1 handicapped parking space near the existing bathroom/storage structure, one regular employee parking space facing S. El Camino Real (adjacent to the El Camino Real pedestrian connection), and a loading area parallel to W. 20<sup>th</sup> Avenue.

### **Pedestrian and Bicycle Access**

Pedestrian facilities near the project site consist of sidewalks. Pedestrian traffic would be generated by employees and customers of the proposed development walking to and from the surrounding neighborhoods, nearby businesses, and transit stops. Crosswalks with pedestrian signal heads are located on all legs of the S. El Camino Real/W. 20<sup>th</sup> Avenue intersection. Sidewalks are located on both sides of S. El Camino Real and W. 20<sup>th</sup> Avenue. The existing network of sidewalks in the study area has good connectivity and would provide pedestrians with a safe connection between the project site and other points of interest. Thus, the existing pedestrian facilities would be adequate to serve the anticipated pedestrian demand.

According to the City of San Mateo's Pedestrian and Bike Trail System, there are no City-designated bikeways adjacent to or near the project site. However, since the project proposes a walk-up window, some bicyclists may choose to use 20<sup>th</sup> Avenue to access the project site. Employees may also choose to bike to work. The anticipated low number of bicycle trips is not expected to exceed the bicycle-carrying capacity of streets surrounding the site. Therefore, the project-generated bicycle trips are not expected to create a need for new bicycle facilities. Bicycle parking is not shown on the site plan. The project should provide a designated bicycle parking area.

### ***Pedestrian On-Site Circulation***

According to the site plan, the project proposes a direct pedestrian connection between the walk-up window and the sidewalk on S. El Camino Real. The site plan also shows a new pedestrian path connecting to the sidewalk on W. 20<sup>th</sup> Avenue. The proposed pedestrian connections would be adequate to serve the project.

## 5. Cumulative 2030 Conditions

Cumulative 2030 traffic conditions were evaluated for the AM and PM peak hours. The 2030 AM and PM peak hour traffic volumes at the intersection of S. El Camino Real and W. 20<sup>th</sup> Avenue were obtained from the City of San Mateo General Plan 2030 model. The 2030 model volumes include trips generated by the project. The project trips were subtracted from the 2030 traffic volumes to derive 2030 no project traffic volumes. Cumulative 2030 traffic volumes without and with the project are shown graphically on Figure 7.

### Intersection Levels of Service Under Cumulative Conditions

The intersection levels of service under Cumulative 2030 Conditions are summarized in Table 5. The results show that the study intersection of S. El Camino Real and W. 20<sup>th</sup> Avenue would operate within the City’s adopted level of service standard under 2030 conditions both without and with the project. However, the project would, as a result of its contribution to cumulative increases in traffic, be required to pay its fair share to the City of San Mateo Traffic Impact Fee.

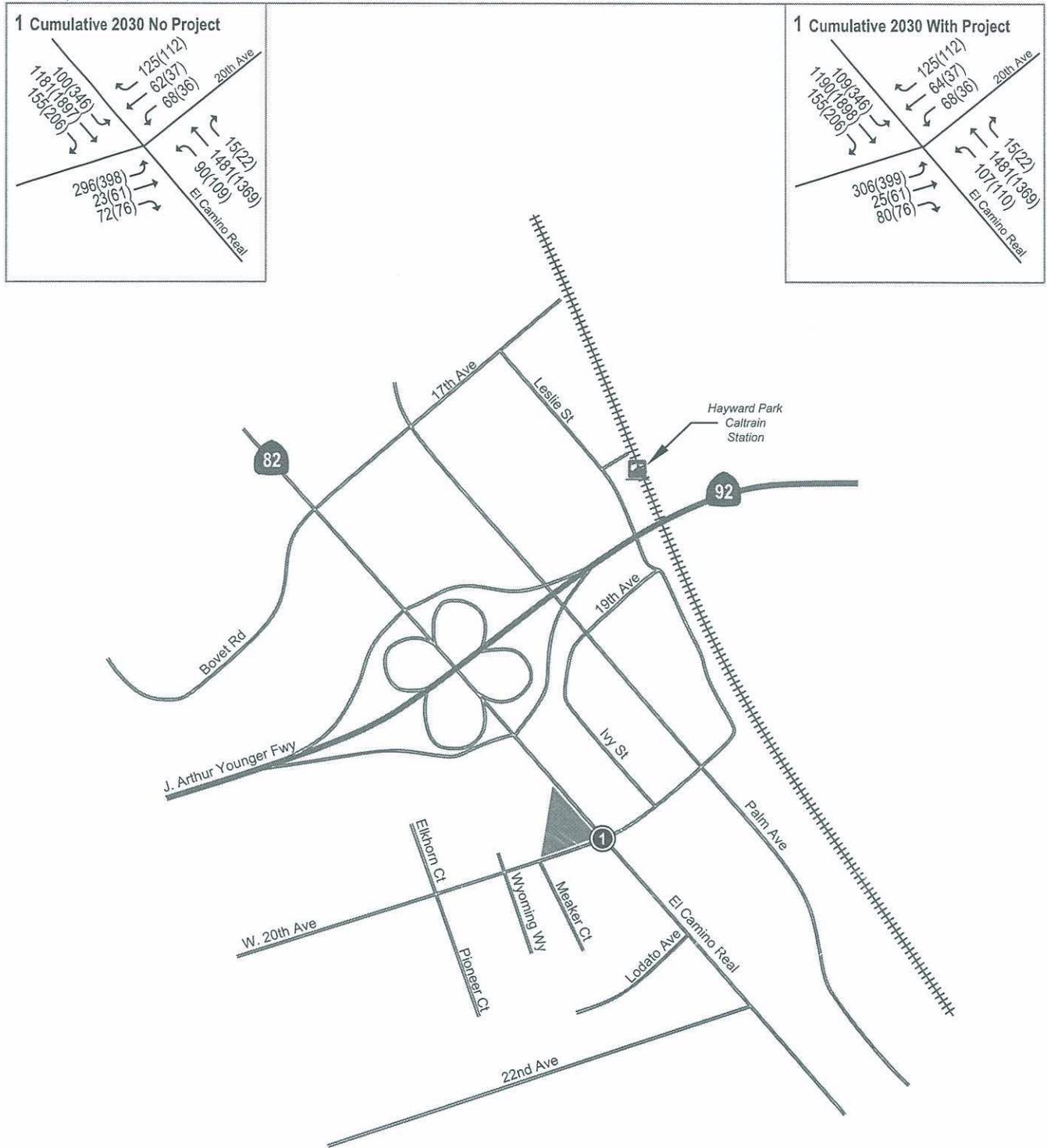
**Impact:** The project will contribute to the growth in cumulative traffic demand. Intersection improvements identified in the City of San Mateo Traffic Mitigation Report will be required to maintain intersection levels of service within the adopted standards at some intersections.

**Mitigation:** The project will be required to pay Traffic Impact Fees based on the cumulative traffic increase. The TIF will be determined by City of San Mateo staff.

**Table 5**  
**Intersection Levels of Service Under Cumulative Conditions**

Intersection	Peak Hour	Year 2030 Conditions			
		Without Project		With Project	
		Avg. Delay	LOS	Avg. Delay	LOS
S. El Camino Real & W. 20th Av	AM	29.9	C	30.1	C
	PM	34.7	C	33.0	C

The Espresso Lane - 1990 S. El Camino Real



LEGEND

-  = Project Site Location
-  = Study Intersection
- XX(X) = AM(PM) Peak-Hour Trips

**Figure 7**  
Cumulative 2030 Traffic Volumes Without and With the Project

## 6. Conclusions

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The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Mateo. The traffic study included determining the traffic impact of the proposed development on the intersection of S. El Camino Real and W. 20<sup>th</sup> Avenue during the AM and PM peak commute periods of traffic. Project impacts on other transportation facilities, such as bicycle facilities and transit service, were determined on the basis of engineering judgment.

### Existing Plus Project Intersection Level of Service Analysis

The results of the existing plus project intersection level of service analysis show that the S. El Camino Real and W. 20<sup>th</sup> Avenue intersection would operate at an acceptable LOS C under existing plus project conditions during the AM and PM peak hours.

### Cumulative 2030 Intersection Level of Service Analysis

The results of the traffic study show that the project would not cause any significant impacts at the study intersection. However, the project would, as a result of its contribution to cumulative increases in traffic, be required to pay its fair share to the City of San Mateo Traffic Impact Fee.

**Impact:** The project will contribute to the growth in cumulative traffic demand. Intersection improvements identified in the City of San Mateo Traffic Mitigation Report will be required to maintain intersection levels of service within the adopted standards at some intersections.

**Mitigation:** The project will be required to pay Traffic Impact Fees based on the cumulative traffic increase. The TIF will be determined by City of San Mateo staff.

### Recommendations

**Recommendation 1:** The inbound lane of the El Camino Real driveway should be narrowed from 18 feet to 14 feet to provide more area for landscaping and to reduce the width of the pedestrian crossing.

**Recommendation 2:** The stop sign located in the asphalt area on the southeast portion of the site should be removed.

**Recommendation 3:** The project should provide a designated bicycle parking area.

**The Espresso Lane – 1990 S. El  
Camino Real, San Mateo, CA**

Draft Transportation Impact Analysis  
**Technical Appendices**

**Appendix A**  
**New Traffic Counts**

# AM Peak-Hour Volume Count Worksheet

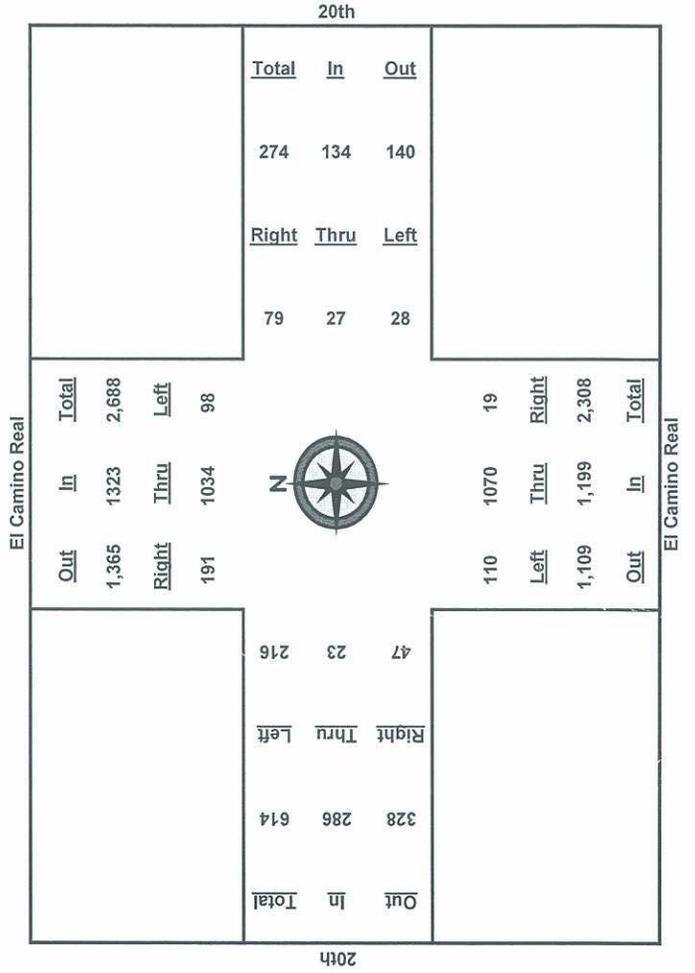
AUTO-CENSUS  
 Traffic Monitoring and Analysis  
 870 Castlewood Dr. #1  
 Los Gatos, CA 95032  
 Phone 408-826-9673 Fax 408-877-1625

Date: 7/10/12  
 Counter: Kevin and An  
 Intersection Name: El Camino and 20th  
 Weather: Clear San Mateo

Start Time	El Camino Real						20th						
	North Approach			East Approach			South Approach			West Approach			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	26	131	18	15	1	4	20	5	128	10	143	3	34
7:30	59	336	28	423	36	6	49	5	277	18	300	11	72
7:45	101	560	44	705	49	11	71	8	445	30	483	16	119
8:00	170	788	61	1,019	65	19	107	12	701	67	780	24	198
8:15	215	1,017	80	1,312	88	34	153	20	918	99	1,037	35	216
8:30	255	1,244	106	1,605	106	37	181	21	1,168	127	1,316	50	275
8:45	302	1,535	133	1,970	126	43	213	26	1,462	153	1,641	63	327
9:00	361	1,822	159	2,342	144	46	241	31	1,771	177	1,979	71	378

Peak Hour	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	PK Hour
7:00 - 8:00	170	788	61	1,019	65	19	23	107	12	701	67	780	2,104
7:15 - 8:15	189	886	62	1,137	73	33	27	133	15	790	89	894	2,396
7:30 - 8:30	196	908	78	1,182	70	31	31	132	16	891	109	1,016	2,605
7:45 - 8:45	201	975	89	1,265	77	32	33	142	18	1,017	123	1,158	2,864
8:00 - 9:00	191	1,034	98	1,323	79	27	28	134	19	1,070	110	1,199	2,942
<b>Peak Volumes:</b>	<b>191</b>	<b>1,034</b>	<b>98</b>	<b>1,323</b>	<b>79</b>	<b>27</b>	<b>28</b>	<b>134</b>	<b>19</b>	<b>1,070</b>	<b>110</b>	<b>1,199</b>	<b>2,942</b>

Cut and Paste	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	110	1,070	19	98	1,034	191	216	23	47	28	27	79



# PM Peak-Hour Volume Count Worksheet

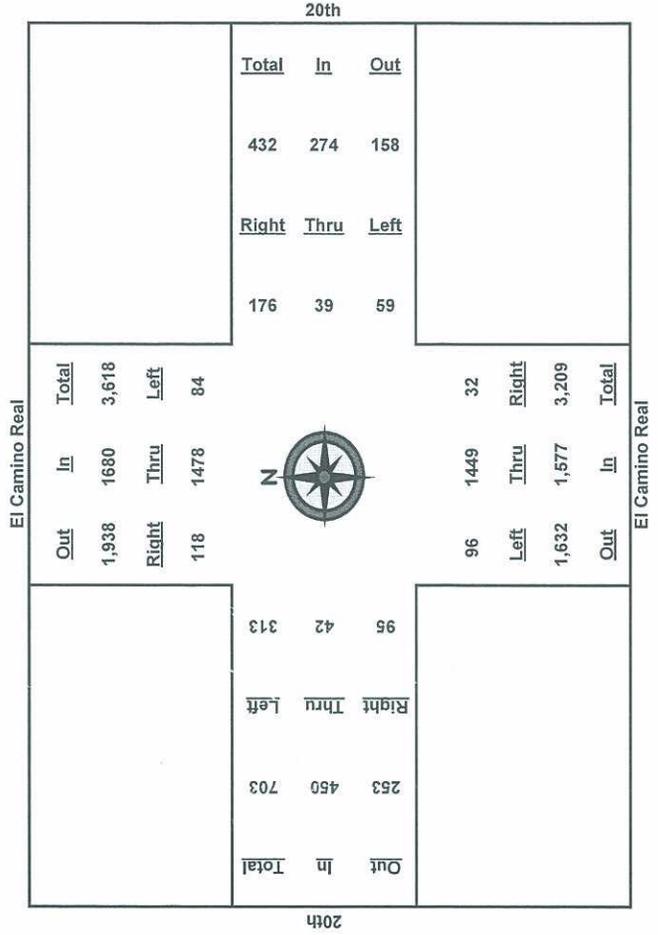
AUTO-CENSUS  
 Traffic Monitoring and Analysis  
 870 Castlewood Dr. #1  
 Los Gatos, CA 95032  
 Phone 408-826-9673 Fax 408-877-1625

Date: 7/10/12  
 Counter: Kevin and Patti  
 Intersection Name: El Camino and 20th  
 Weather: Clear San Mateo

Start Time	El Camino Real						20th						El Camino Real						20th					
	North Approach			East Approach			South Approach			West Approach			North Approach			East Approach			South Approach			West Approach		
	Right	Thru	Left	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15	31	282	26	339	55	13	86	10	293	19	322	32	7	121	160									
4:30	61	629	58	748	92	23	39	154	18	640	44	702	53	14	200	267								
4:45	82	893	89	1,064	143	38	50	231	25	949	71	1,045	87	18	386									
5:00	111	1,276	111	1,498	178	45	61	284	38	1,285	102	1,425	105	32	354	491								
5:15	132	1,600	131	1,863	232	59	77	368	41	1,647	118	1,806	134	42	440	616								
5:30	160	1,980	155	2,295	284	67	92	443	48	2,029	141	2,218	161	56	533	750								
5:45	200	2,371	173	2,744	319	77	109	505	57	2,398	167	2,622	182	60	594	836								
6:00	240	2,671	200	3,111	360	88	124	572	65	2,806	193	3,064	198	67	658	923								

Peak Hour	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	PK Hour
4:00 - 5:00	111	1,276	111	1,498	178	45	61	284	38	1,285	102	1,425	105	32	354	491	3,698
4:15 - 5:15	101	1,318	105	1,524	177	46	59	282	31	1,354	99	1,484	102	35	319	456	3,746
4:30 - 5:30	99	1,351	97	1,547	192	44	53	289	30	1,389	97	1,516	108	42	333	483	3,835
4:45 - 5:45	118	1,478	84	1,680	176	39	59	274	32	1,449	96	1,577	95	42	313	450	3,981
5:00 - 6:00	129	1,395	89	1,613	182	43	63	288	27	1,521	91	1,639	93	35	304	432	3,972
<b>Peak Volumes:</b>	<b>118</b>	<b>1,478</b>	<b>84</b>	<b>1,680</b>	<b>176</b>	<b>39</b>	<b>59</b>	<b>274</b>	<b>32</b>	<b>1,449</b>	<b>96</b>	<b>1,577</b>	<b>95</b>	<b>42</b>	<b>313</b>	<b>450</b>	<b>3,981</b>

Cut and Paste	NBL	NBT	NBR	SBL	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	96	1,449	32	84	1,478	118	42	95	59	39	176

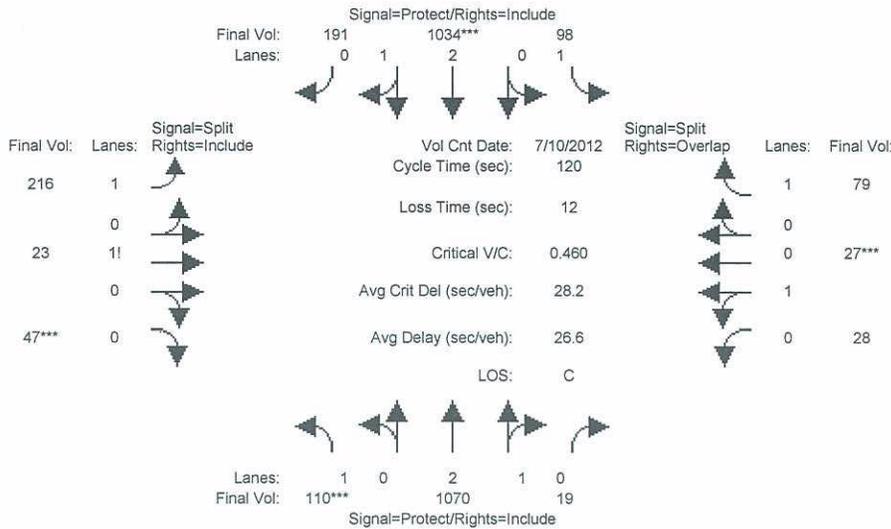


**Appendix B**  
**Level of Service Calculations**

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

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

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module: >> Count Date: 10 Jul 2012 <<

Base Vol:	110	1070	19	98	1034	191	216	23	47	28	27	79
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:	110	1070	19	98	1034	191	216	23	47	28	27	79
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:	110	1070	19	98	1034	191	216	23	47	28	27	79
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:	110	1070	19	98	1034	191	216	23	47	28	27	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	110	1070	19	98	1034	191	216	23	47	28	27	79
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:	110	1070	19	98	1034	191	216	23	47	28	27	79

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	0.99	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.95	0.05	1.00	2.52	0.48	1.61	0.13	0.26	0.51	0.49	1.00
Final Sat.:	1750	5502	98	1750	4726	873	2812	226	462	916	884	1750

Capacity Analysis Module:

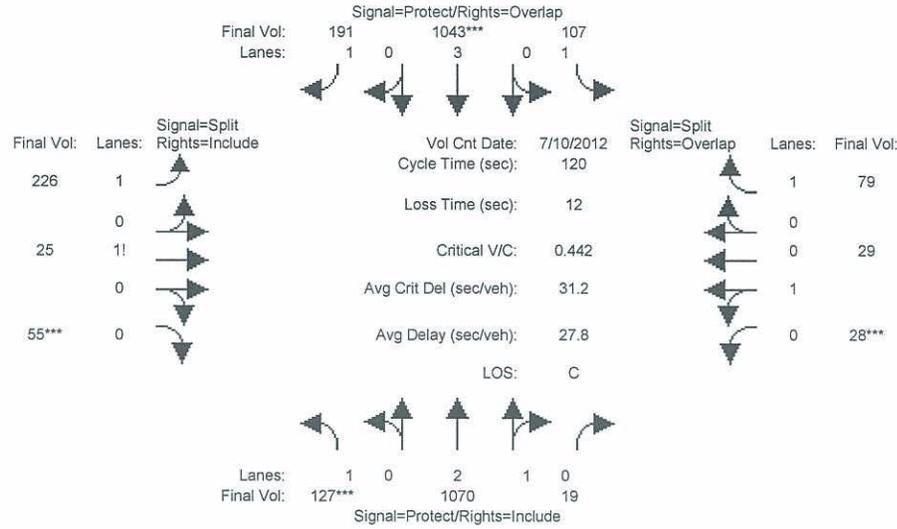
Vol/Sat:	0.06	0.19	0.19	0.06	0.22	0.22	0.08	0.10	0.10	0.03	0.03	0.05
Crit Moves:	***				****				****		****	
Green Time:	16.1	55.4	55.4	16.6	55.9	55.9	26.0	26.0	26.0	10.0	10.0	26.6
Volume/Cap:	0.47	0.42	0.42	0.40	0.47	0.47	0.35	0.47	0.47	0.37	0.37	0.20
Delay/Veh:	49.5	21.7	21.7	48.3	22.0	22.0	40.1	41.6	41.6	53.5	53.5	38.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	49.5	21.7	21.7	48.3	22.0	22.0	40.1	41.6	41.6	53.5	53.5	38.3
LOS by Move:	D	C	C	D	C	C	D	D	D	D	D	D
HCM2k95thQ:	9	17	17	8	19	19	9	12	12	5	5	5

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

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

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:	>>	Count	Date:	10 Jul 2012	<<							
Base Vol:	110	1070	19	98	1034	191	216	23	47	28	27	79
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:	110	1070	19	98	1034	191	216	23	47	28	27	79
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ProjTrips:	17	0	0	9	9	0	10	2	8	0	2	0
Initial Fut:	127	1070	19	107	1043	191	226	25	55	28	29	79
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:	127	1070	19	107	1043	191	226	25	55	28	29	79
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	127	1070	19	107	1043	191	226	25	55	28	29	79
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:	127	1070	19	107	1043	191	226	25	55	28	29	79

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.95	0.05	1.00	3.00	1.00	1.59	0.13	0.28	0.49	0.51	1.00
Final Sat.:	1750	5502	98	1750	5700	1750	2775	227	499	884	916	1750

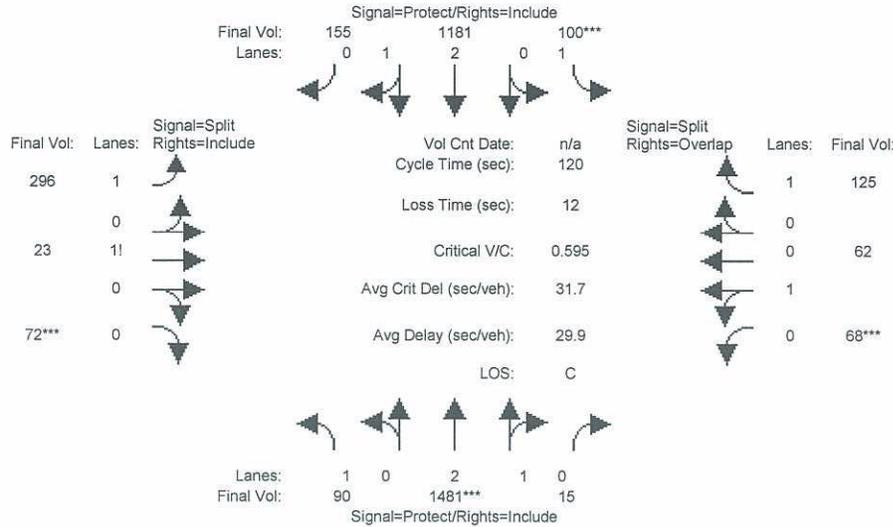
Capacity Analysis Module:												
Vol/Sat:	0.07	0.19	0.19	0.06	0.18	0.11	0.08	0.11	0.11	0.03	0.03	0.05
Crit Moves:	****			****			****		****			
Green Time:	19.4	52.1	52.1	16.4	49.0	78.6	29.5	29.5	29.5	10.0	10.0	26.4
Volume/Cap:	0.45	0.45	0.45	0.45	0.45	0.17	0.33	0.45	0.45	0.38	0.38	0.21
Delay/Veh:	46.6	24.0	24.0	49.0	25.8	8.1	37.3	38.8	38.8	53.7	53.7	38.5
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:	46.6	24.0	24.0	49.0	25.8	8.1	37.3	38.8	38.8	53.7	53.7	38.5
LOS by Move:	D	C	C	D	C	A	D	D	D	D	D	D
HCM2k95thQ:	10	18	18	9	17	6	9	13	13	5	5	5

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
2030 No Project AM

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:	90	1481	15	100	1181	155	296	23	72	68	62	125
Base Vol:	90	1481	15	100	1181	155	296	23	72	68	62	125
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:	90	1481	15	100	1181	155	296	23	72	68	62	125
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:	90	1481	15	100	1181	155	296	23	72	68	62	125
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:	90	1481	15	100	1181	155	296	23	72	68	62	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	90	1481	15	100	1181	155	296	23	72	68	62	125
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:	90	1481	15	100	1181	155	296	23	72	68	62	125

Saturation Flow Module:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	0.99	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.97	0.03	1.00	2.64	0.36	1.61	0.09	0.30	0.52	0.48	1.00
Final Sat.:	1750	5544	56	1750	4949	650	2816	166	519	942	858	1750

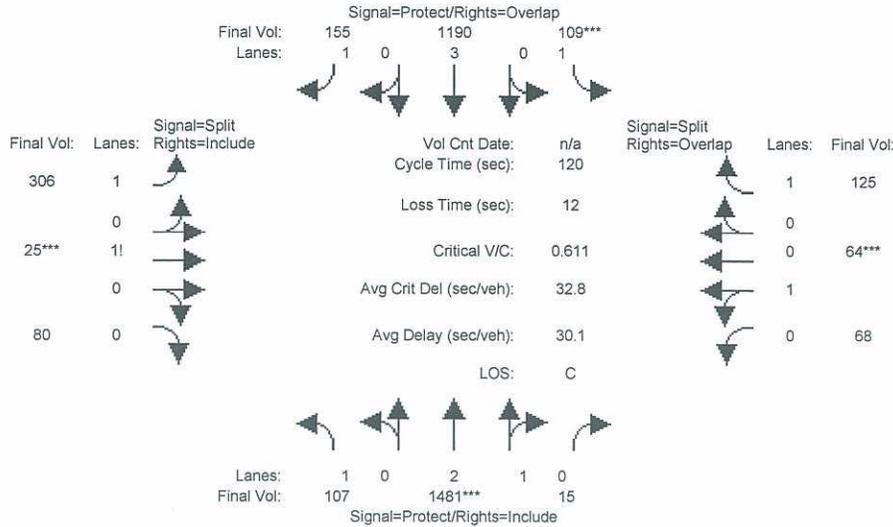
Capacity Analysis Module:	0.05	0.27	0.27	0.06	0.24	0.24	0.11	0.14	0.14	0.07	0.07	0.07
Vol/Sat:	0.05	0.27	0.27	0.06	0.24	0.24	0.11	0.14	0.14	0.07	0.07	0.07
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****
Green Time:	12.9	53.9	53.9	11.5	52.6	52.6	28.0	28.0	28.0	14.6	14.6	26.1
Volume/Cap:	0.48	0.59	0.59	0.59	0.54	0.54	0.45	0.59	0.59	0.59	0.59	0.33
Delay/Veh:	52.4	25.2	25.2	57.7	25.1	25.1	39.8	42.4	42.4	54.3	54.3	40.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	52.4	25.2	25.2	57.7	25.1	25.1	39.8	42.4	42.4	54.3	54.3	40.1
LOS by Move:	D	C	C	E	C	C	D	D	D	D	D	D
HCM2k95thQ:	8	25	25	9	22	22	12	17	17	11	11	8

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
2030 + Project AM

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:												
Base Vol:	90	1481	15	100	1181	155	296	23	72	68	62	125
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:	90	1481	15	100	1181	155	296	23	72	68	62	125
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ProjTrips:	17	0	0	9	9	0	10	2	8	0	2	0
Initial Fut:	107	1481	15	109	1190	155	306	25	80	68	64	125
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:	107	1481	15	109	1190	155	306	25	80	68	64	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	107	1481	15	109	1190	155	306	25	80	68	64	125
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:	107	1481	15	109	1190	155	306	25	80	68	64	125

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.97	0.03	1.00	3.00	1.00	1.59	0.10	0.31	0.52	0.48	1.00
Final Sat.:	1750	5544	56	1750	5700	1750	2788	170	543	927	873	1750

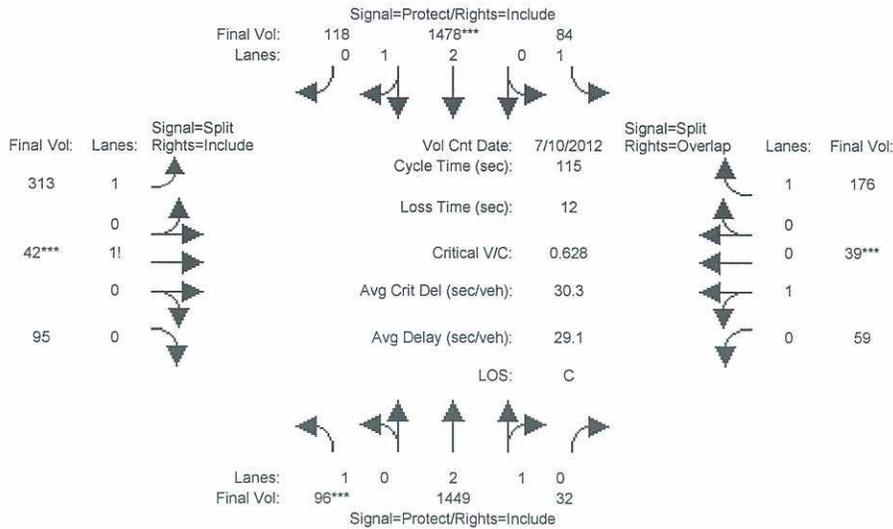
Capacity Analysis Module:												
Vol/Sat:	0.06	0.27	0.27	0.06	0.21	0.09	0.11	0.15	0.15	0.07	0.07	0.07
Crit Moves:		****		****				****			****	
Green Time:	14.6	52.4	52.4	12.2	50.0	79.0	28.9	28.9	28.9	14.4	14.4	26.6
Volume/Cap:	0.50	0.61	0.61	0.61	0.50	0.13	0.46	0.61	0.61	0.61	0.61	0.32
Delay/Veh:	51.1	26.4	26.4	57.7	26.0	7.8	39.2	42.2	42.2	55.2	55.2	39.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	51.1	26.4	26.4	57.7	26.0	7.8	39.2	42.2	42.2	55.2	55.2	39.6
LOS by Move:	D	C	C	E	C	A	D	D	D	E	E	D
HCM2k95thQ:	9	26	26	10	20	5	13	18	18	11	11	8

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

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

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module: >> Count Date: 10 Jul 2012 <<

Base Vol:	96	1449	32	84	1478	118	313	42	95	59	39	176
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:	96	1449	32	84	1478	118	313	42	95	59	39	176
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:	96	1449	32	84	1478	118	313	42	95	59	39	176
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:	96	1449	32	84	1478	118	313	42	95	59	39	176
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	96	1449	32	84	1478	118	313	42	95	59	39	176
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:	96	1449	32	84	1478	118	313	42	95	59	39	176

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	0.99	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.93	0.07	1.00	2.77	0.23	1.54	0.14	0.32	0.60	0.40	1.00
Final Sat.:	1750	5479	121	1750	5185	414	2683	250	566	1084	716	1750

Capacity Analysis Module:

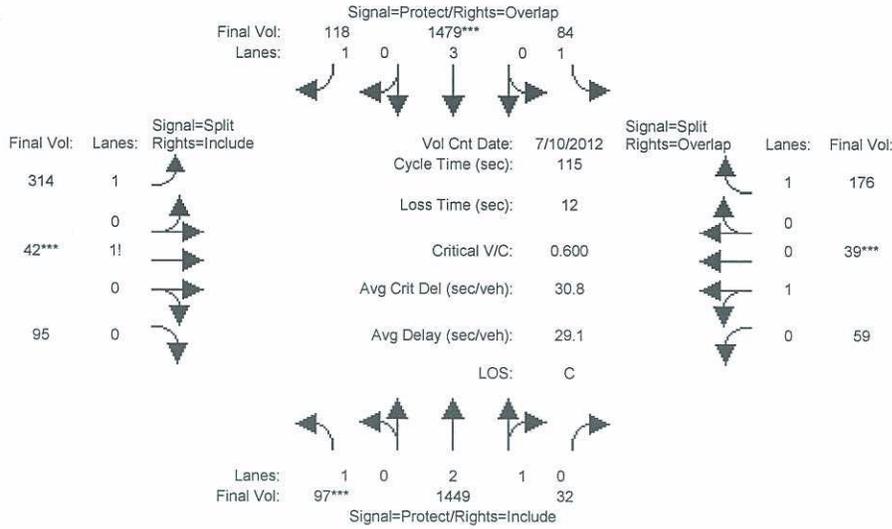
Vol/Sat:	0.05	0.26	0.26	0.05	0.29	0.29	0.12	0.17	0.17	0.05	0.05	0.10
Crit Moves:	****			****			****			****		
Green Time:	10.1	50.6	50.6	11.7	52.2	52.2	30.7	30.7	30.7	10.0	10.0	21.7
Volume/Cap:	0.63	0.60	0.60	0.47	0.63	0.63	0.44	0.63	0.63	0.63	0.63	0.53
Delay/Veh:	58.7	24.9	24.9	50.8	24.5	24.5	35.3	38.9	38.9	58.5	58.5	43.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.7	24.9	24.9	50.8	24.5	24.5	35.3	38.9	38.9	58.5	58.5	43.8
LOS by Move:	E	C	C	D	C	C	D	D	D	E	E	D
HCM2k95thQ:	9	24	24	7	26	26	13	19	19	9	9	13

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

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

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:	>>	Count	Date:	10 Jul 2012	<<							
Base Vol:	96	1449	32	84	1478	118	313	42	95	59	39	176
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:	96	1449	32	84	1478	118	313	42	95	59	39	176
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ProjTrips:	1	0	0	0	1	0	1	0	0	0	0	0
Initial Fut:	97	1449	32	84	1479	118	314	42	95	59	39	176
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	1449	32	84	1479	118	314	42	95	59	39	176
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	1449	32	84	1479	118	314	42	95	59	39	176
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	97	1449	32	84	1479	118	314	42	95	59	39	176

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.93	0.07	1.00	3.00	1.00	1.54	0.14	0.32	0.60	0.40	1.00
Final Sat.:	1750	5479	121	1750	5700	1750	2685	250	565	1084	716	1750

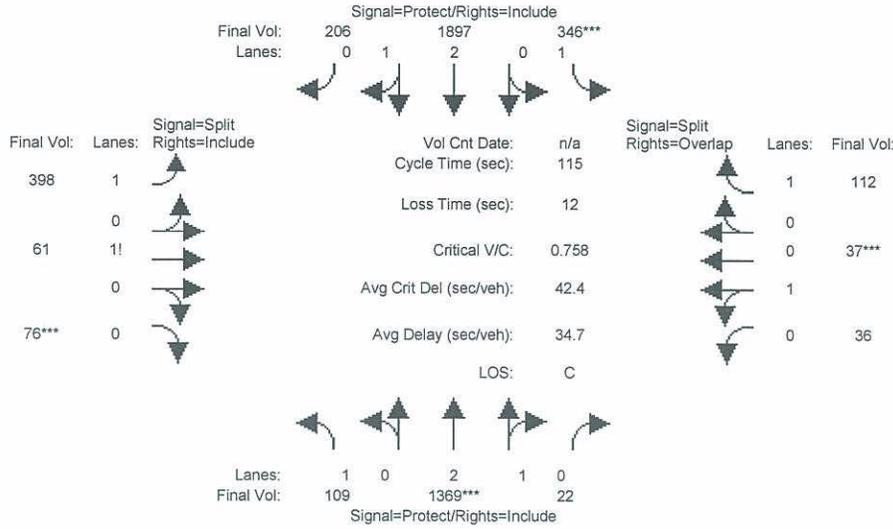
Capacity Analysis Module:												
Vol/Sat:	0.06	0.26	0.26	0.05	0.26	0.07	0.12	0.17	0.17	0.05	0.05	0.10
Crit Moves:	****			****			****			****		
Green Time:	10.6	49.1	49.1	11.3	49.7	81.9	32.2	32.2	32.2	10.4	10.4	21.7
Volume/Cap:	0.60	0.62	0.62	0.49	0.60	0.09	0.42	0.60	0.60	0.60	0.60	0.53
Delay/Veh:	56.3	26.2	26.2	51.3	25.4	5.1	34.0	37.2	37.2	56.3	56.3	43.7
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:	56.3	26.2	26.2	51.3	25.4	5.1	34.0	37.2	37.2	56.3	56.3	43.7
LOS by Move:	E	C	C	D	C	A	C	D	D	E	E	D
HCM2k95thQ:	9	25	25	7	24	3	12	19	19	9	9	13

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
2030 No Project PM

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	109	1369	22	346	1897	206	398	61	76	36	37	112
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:	109	1369	22	346	1897	206	398	61	76	36	37	112
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:	109	1369	22	346	1897	206	398	61	76	36	37	112
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:	109	1369	22	346	1897	206	398	61	76	36	37	112
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	109	1369	22	346	1897	206	398	61	76	36	37	112
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:	109	1369	22	346	1897	206	398	61	76	36	37	112

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	0.99	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.95	0.05	1.00	2.70	0.30	1.59	0.18	0.23	0.49	0.51	1.00
Final Sat.:	1750	5511	89	1750	5051	548	2786	318	396	888	912	1750

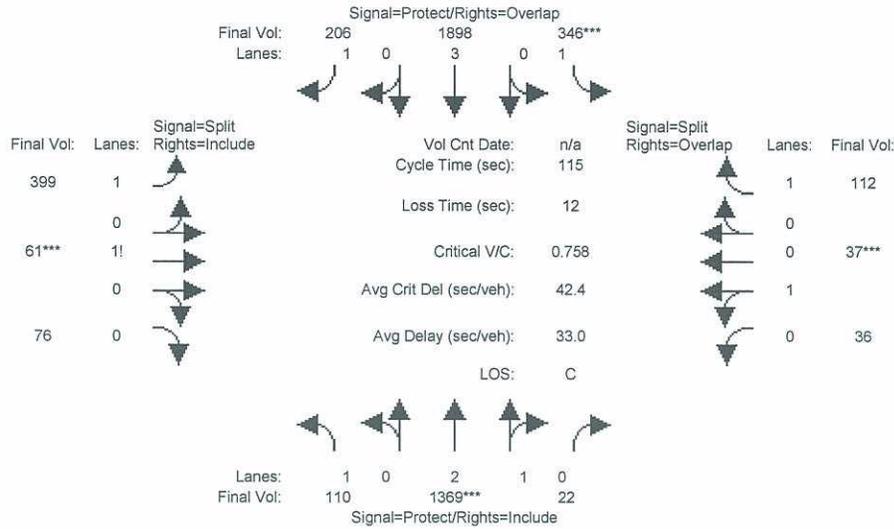
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.06	0.25	0.25	0.20	0.38	0.38	0.14	0.19	0.19	0.04	0.04	0.06
Crit Moves:	****			****			****			****		
Green Time:	9.2	36.2	36.2	28.8	55.8	55.8	28.0	28.0	28.0	10.0	10.0	38.8
Volume/Cap:	0.77	0.79	0.79	0.79	0.77	0.77	0.59	0.79	0.79	0.47	0.47	0.19
Delay/Veh:	74.9	38.4	38.4	49.5	25.9	25.9	39.4	46.9	46.9	52.2	52.2	27.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	74.9	38.4	38.4	49.5	25.9	25.9	39.4	46.9	46.9	52.2	52.2	27.1
LOS by Move:	E	D	D	D	C	C	D	D	D	D	D	C
HCM2k95thQ:	12	29	29	25	37	37	17	25	25	6	6	6

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

The Espresso Lane  
1990 S. El Camino Real  
San Mateo, CA

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
2030 + Project PM

Intersection #1: S. El Camino Real & W. 20th Ave



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

Volume Module:

Base Vol:	109	1369	22	346	1897	206	398	61	76	36	37	112
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:	109	1369	22	346	1897	206	398	61	76	36	37	112
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
ProjTrips:	1	0	0	0	1	0	1	0	0	0	0	0
Initial Fut:	110	1369	22	346	1898	206	399	61	76	36	37	112
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:	110	1369	22	346	1898	206	399	61	76	36	37	112
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	110	1369	22	346	1898	206	399	61	76	36	37	112
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:	110	1369	22	346	1898	206	399	61	76	36	37	112

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.95	0.05	1.00	3.00	1.00	1.59	0.18	0.23	0.49	0.51	1.00
Final Sat.:	1750	5511	89	1750	5700	1750	2788	317	395	888	912	1750

Capacity Analysis Module:

Vol/Sat:	0.06	0.25	0.25	0.20	0.33	0.12	0.14	0.19	0.19	0.04	0.04	0.06
Crit Moves:		****		****				****		****		
Green Time:	10.3	36.2	36.2	28.8	54.7	82.7	28.0	28.0	28.0	10.0	10.0	38.8
Volume/Cap:	0.70	0.79	0.79	0.79	0.70	0.16	0.59	0.79	0.79	0.47	0.47	0.19
Delay/Veh:	64.0	38.4	38.4	49.6	24.6	5.2	39.4	46.9	46.9	52.2	52.2	27.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.0	38.4	38.4	49.6	24.6	5.2	39.4	46.9	46.9	52.2	52.2	27.1
LOS by Move:	E	D	D	D	C	A	D	D	D	D	D	C
HCM2k95thQ:	11	29	29	25	31	5	17	25	25	6	6	6

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