

**1706 El Camino Real Medical Offices
Transportation Impact Analysis**

Final Report

Prepared for

City of Menlo Park

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Executive Summary

This study provides an evaluation of traffic issues related to the proposed medical office development located at 1706 El Camino Real in the City of Menlo Park, California. The project proposes to construct an approximately 10,166 square feet of medical office use. The project site is currently occupied by a vacant restaurant use and a part-time specialty retail use (not open during peak hours). The project is bounded by El Camino Real to the west and Buckthorn Way to the north. Vehicular access to the site would be provided via an existing driveway, shared with other uses, along El Camino Real adjacent and to the south of the proposed project. This driveway would continue to provide right-turn ingress and egress from El Camino Real.

This report provides a description of the transportation facilities in the project vicinity and summarizes existing, near-term, near-term plus project, and long range cumulative conditions at nine study intersections and one study roadway segments. In addition, this report analyzes potential improvement measures at study intersections which may experience potentially significant impacts related to the proposed project.

The proposed project is estimated to generate 27 AM peak hour trips and 41 PM peak hour trips. The proposed project would result in potentially significant impacts at the study intersections of El Camino Real/Buckthorn Way (PM peak hour) and El Camino Real/Spruce Avenue (PM peak hour) under the near-term plus project scenario.

Both of the study intersections that would experience potentially significant impacts are one-way stop controlled intersections where a local street intersects with El Camino Real. The impacts are primarily related to the large amounts of delay for vehicles turning left onto southbound of El Camino Real. The addition of project related trips would result in significant increases to the average delays at these intersections.

Under the long range cumulative no project conditions, AM peak hour level of service would decrease from LOS D to LOS E at the intersection of El Camino Real/Buckthorn Way, which is considered a potentially significant cumulative impact. The proposed project would contribute to the potentially significant cumulative impact at this intersection. During the PM peak hour, the addition of cumulative traffic would result in a potentially significant increase in delay to the already deficient intersections of El Camino Real/Buckthorn Way and at El Camino Real/Spruce Avenue.

A review of the site plan for access and circulation shows that adequate sight distance for vehicles turning into the site may be limited with on-street parking. On-street parking should not be allowed along the project's frontage on El Camino Real. Similarly, vehicles turning onto El Camino Real from the project site may have restricted sight distances, and on-street parking on El Camino Real along the project frontage should be prohibited.

Based on the available site plan, the project site provides adequate parking supply to accommodate the peak parking demand.

1. INTRODUCTION

This study provides an evaluation of traffic and transportation issues related to the proposed 10,166 square feet of medical office use at 1706 El Camino Real. Particular attention is given to the potential traffic related impacts in the vicinity of the project site.

Project Description

The proposed project involves replacing a vacant restaurant and a partially occupied specialty retail space. For the purposes of this analysis, and based on observations of activity during the peak analysis periods, the project site is assumed to be vacant and the analysis would not assume any credit for the current occupancy. The project site is bounded by El Camino Real to the west and Buckthorn Way. Vehicular access to the site would be provided via an existing driveway, shared with other uses, along El Camino Real adjacent and to the south of the proposed project. This driveway would continue to provide right-turn ingress and egress from El Camino Real.

Study Methodology

This study was prepared according to the methodology recommended in the City of Menlo Park Transportation Impact Analysis (TIA) Guidelines. The following nine intersections were analyzed as part of the traffic impact analysis:

1. El Camino Real / Encinal Avenue
2. El Camino Real / Valparaiso Avenue
3. El Camino Real / Oak Grove Avenue
4. El Camino Real / Santa Cruz Avenue
5. El Camino Real / Ravenswood Avenue
6. El Camino Real / Watkins Avenue (unsignalized)
7. El Camino Real / Spruce Avenue (unsignalized)
8. El Camino Real / Buckthorn Way (unsignalized)
9. El Camino Real / Stone Pine Lane (unsignalized)

In addition, the roadway segment Buckthorn Way: El Camino Real to Stone Pine Lane was analyzed for potential impacts related to added daily traffic.

The San Mateo County Congestion Management Program (CMP) Land Use Analysis Program guidelines require that Routes of Regional Significance be evaluated to determine the impact of added project-generated trips for projects that create more than 100 PM peak hour trips. Because the proposed project is projected to generate fewer than 100 peak hour trips, a CMP analysis was not conducted.

The analysis of the study intersection concentrated on the primary commute periods of the day - the weekday AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak hours. The following analysis scenarios were evaluated as part of this study:

- Existing Conditions. This scenario represents peak traffic conditions that exist today. Existing conditions at the study intersections were based on counts

collected in October 2006 (signalized intersections) and August, 2007 (unsignalized intersections). Since some counts were conducted in the summer, these volumes were scaled upward to reflect peak season traffic conditions.

- Near Term Conditions. This scenario assumes full occupancy of planned/approved developments near the project vicinity that would be completed in the near term future. Near Term conditions at the study intersection were based on projected volumes provided by City of Menlo Park staff in the City's Circulation System Assessment (CSA). Traffic conditions for the Near Term scenario are based on the year 2007.
- Near-Term plus Project Conditions. This scenario represents traffic conditions that would exist in the near term future, plus the addition of project generated traffic from the proposed development. Project conditions were analyzed for a project scenario based on the proposed land use. Because the site is currently vacant, no credit was applied for the former restaurant use on the project site.
- Cumulative Analysis. This scenario represents traffic conditions based on a 10-year horizon (year 2017) with an assumed ambient growth of one percent per year plus the addition of near term development traffic.
- Cumulative plus Project Conditions. This scenario represents traffic conditions based on a 10-year horizon with an assumed ambient growth of one percent per year plus the addition of near term developments and project generated traffic from the proposed development.

Approved/Planned Developments

A complete list of planned developments in Menlo Park is included in **Appendix B**. The current list (May 2008) was provided by City of Menlo Park staff and includes projects that are currently planned or approved but have not yet been occupied. It is anticipated that these projects would be fully implemented and occupied as part of the Near Term Scenario. These future near-term projects are anticipated to add traffic to the Menlo Park roadway network and, in some cases, would add traffic to the intersection studied in this analysis. The peak hour trips assigned to the local roadway network are based on trip distribution patterns outlined by the City of Menlo Park in the CSA TRAFFIX analysis.

Programmed/Planned Transportation Facility Improvements

Per City staff, a p.m. peak hour left-turn restriction has recently been implemented for the westbound approach on Watkins Avenue at its intersection with El Camino Real. The 2007-2008 existing p.m. peak hour traffic volumes and levels of service at that intersection have been adjusted to account for that turn restriction. In addition, a right-turn (channelization) lane for the northbound right turn movements on El Camino Real at its intersection with Spruce Avenue has recently been constructed. This improvement has been assumed in-place for the Near-Term and Cumulative horizon years.

Directional Convention

For the purpose of this study, it is assumed that El Camino Real provides travel in the north-south direction, and Buckthorn Way, and other parallel streets, provides travel in the east-west direction.

2. EXISTING CONDITIONS

This section summarizes existing conditions in the project vicinity including a description of the existing project site, the roadway network, vehicular traffic conditions, and bicycle, pedestrian, and transit facilities within the project vicinity.

Project Site

The project site is located on El Camino Real at Buckthorn Way. The existing building consists of a vacant restaurant space and an occupied psychic office. Based on observations during the peak periods, the psychic services was not open during the peak traffic periods. At the time data were collected, the building was vacant. The proposed project site would close the existing northernmost driveway on El Camino Real, just south of Buckthorn Way, but continue to utilize the shared right-turn in/out only driveway adjacent and south of the project site. There would be no direct project access on Buckthorn Way. In addition to the existing building, the Red Cottages Inn and Suites motel is currently located on the east side of the property, and is accessed via a driveway connecting to El Camino Real through the project site property with an existing access easement. The access is also shared by the 1702 El Camino Real project (Cindy's Nails).

Roadway Network

The existing roadway network within the project vicinity is illustrated in **Figure 1**. Arterial streets within the project area include Middlefield Road, El Camino Real, and Valparaiso Avenue. A number of collector streets serve the project vicinity, which includes Encinal Street and Watkins Avenue.

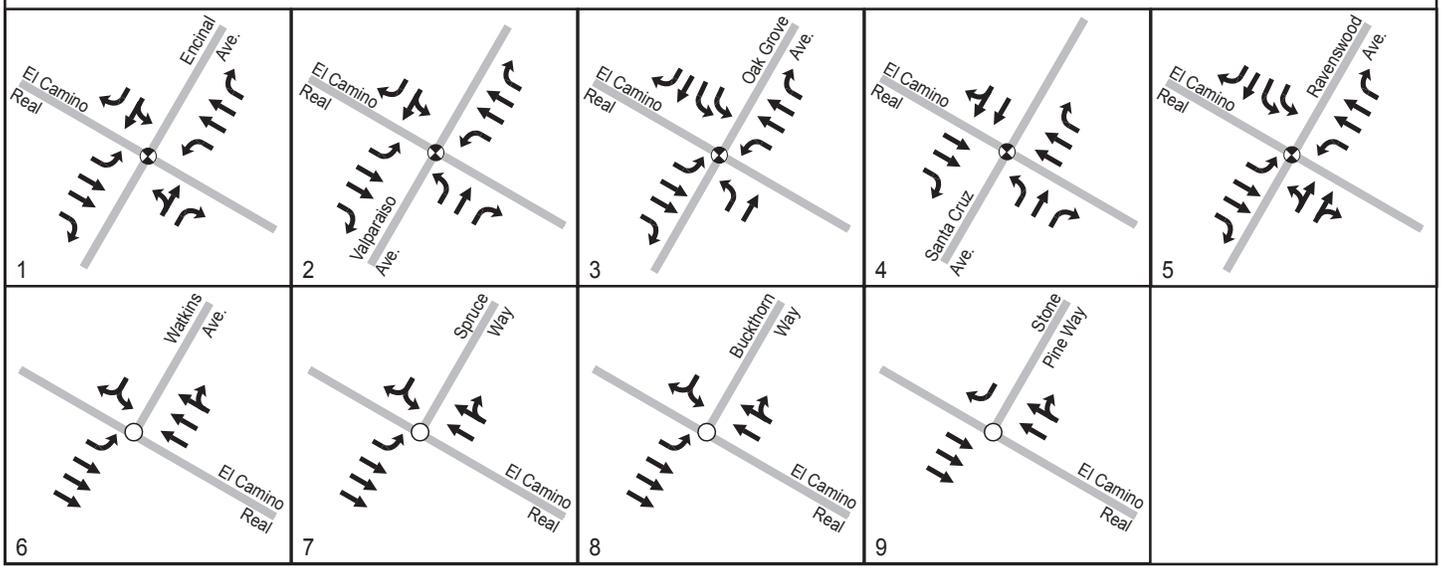
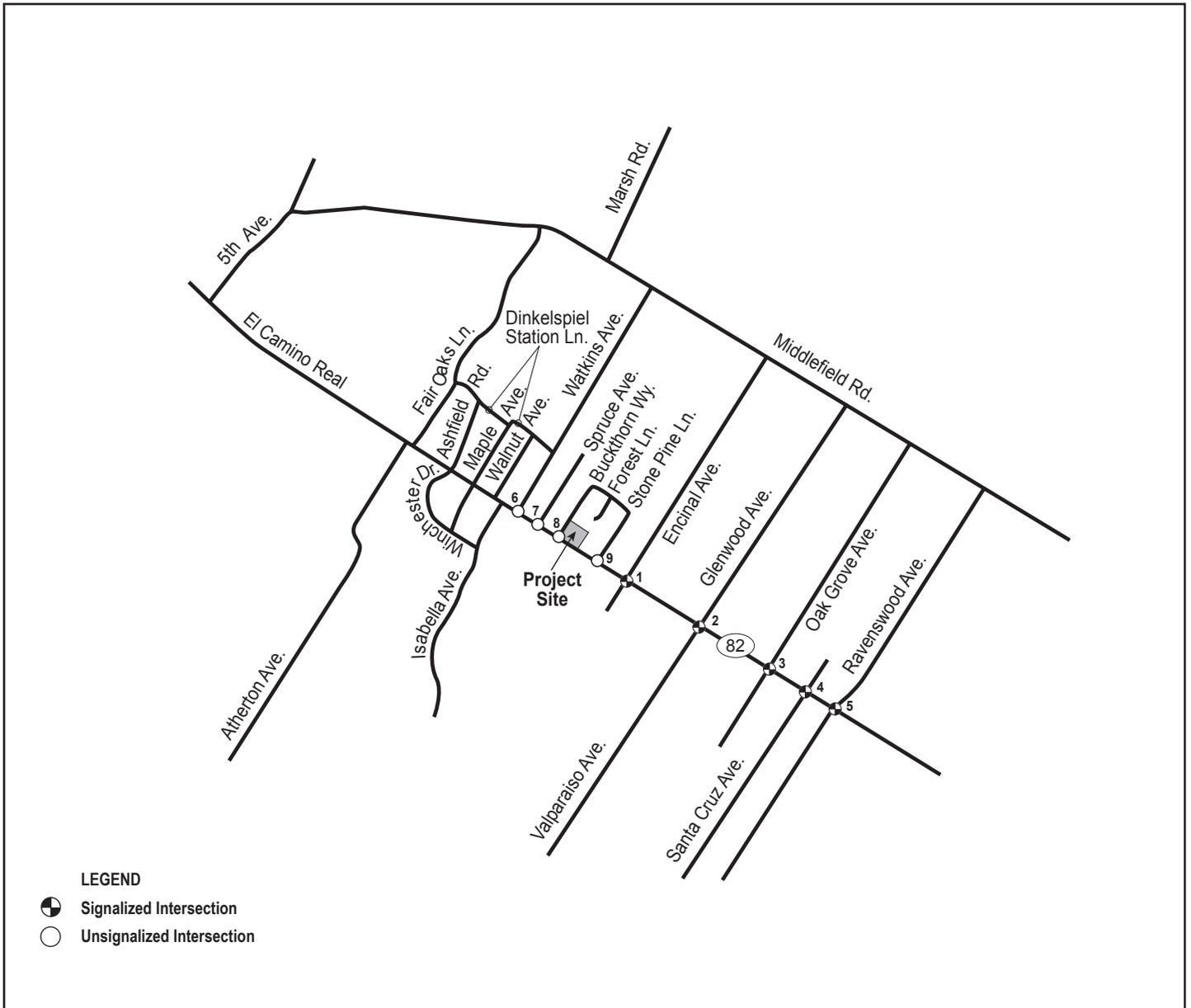
El Camino Real. El Camino Real is a north-south state-controlled facility (State Route 82), which extends through San Mateo County and Santa Clara County. El Camino Real is five lanes wide (2 northbound lanes and 3 southbound lanes) south of Spruce Street and expands to six lanes north of Spruce Street. In the project vicinity, El Camino Real has numerous unsignalized intersections and left-turn bays as well as many commercial driveways. The land uses abutting El Camino Real are mostly commercial and residential. El Camino Real is classified as a primary arterial.

Middlefield Road. Middlefield Road is a two- to four-lane, north-south minor arterial that stretches across Menlo Park and Atherton. Middlefield Road is two lanes wide as it approaches Watkins Avenue. Middlefield Road provides access mainly to residential and school areas in the project vicinity. In the vicinity of the project, there is one left turn lane onto Watkins Avenue. There are bike lanes along Middlefield Road.

Valparaiso Avenue. Valparaiso Avenue is an east-west minor arterial connecting downtown Menlo Park to West Menlo Park and Atherton. In the vicinity of the project, Valparaiso Avenue is a two-lane roadway with left-turn bays. Land use along Valparaiso Avenue is mostly residential in nature, with several schools located on the north side of the roadway (on the Atherton side of the street).

Watkins Avenue. Watkins Avenue is an east-west collector street primarily traveling through the Town of Atherton, connecting El Camino Real and Middlefield Road. Land use consists primarily of residential single-family homes and a public park along this two-lane

roadway. Watkins Avenue is adjacent to the project site at the El Camino Real intersection in the Town of Atherton.



07185-000-Merito Park 1706 ECR Study Area ai-11.6.07

Level of Service Significance Criteria

Levels of service for this study were calculated based on the San Mateo City/County Association of Governments Congestion Management Program (CMP) Traffic Impact Guidelines and the City of Menlo Park Traffic Impact Analysis Guidelines. Per the CMP guidelines, a project will be considered to have a CMP impact if the project will cause the intersection to operate at a level of service that violates the standard adopted in the current CMP. If an intersection operates at a level of service that violates the standard and the proposed project increases average control delay, by 0.8 seconds or more for a signalized intersection or four (4) seconds or more for a stop-controlled intersection, then a potentially significant impact may occur. The LOS significance threshold for each study intersection is presented below in **Table 1**.

Table 1 Intersection LOS Thresholds

Study Intersection	Control	Jurisdiction	Acceptable LOS Criteria	Significance Threshold for Unacceptable LOS
1 El Camino Real /Encinal Avenue	Signal	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 0.8 second increase to critical <u>local</u> approaches if LOS is currently E or F
2 El Camino Real /Valparaiso Avenue	Signal	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 0.8 second increase to critical <u>local</u> approaches if LOS is currently E or F
3 El Camino Real /Oak Grove Avenue	Signal	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 0.8 second increase to critical <u>local</u> approaches if LOS is currently E or F
4 El Camino Real /Santa Cruz Avenue	Signal	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 0.8 second increase to critical <u>local</u> approaches if LOS is currently E or F
5 El Camino Real /Ravenswood Avenue	Signal	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 0.8 second increase to critical <u>local</u> approaches if LOS is currently E or F
6 El Camino Real/Watkins Avenue	Stop	State/Atherton	D	LOS becomes E or F <u>OR</u> 4.0 second increase to critical <u>worst</u> approach if LOS is currently E or F
7 El Camino Real/Spruce Avenue	Stop	State/Atherton	D	LOS becomes E or F <u>OR</u> 4.0 second increase to critical <u>worst</u> approach if LOS is currently E or F
8 El Camino Real/Buckthorn Way	Stop	State/Atherton	D	LOS becomes E or F <u>OR</u> 4.0 second increase to critical <u>worst</u> approach if LOS is currently E or F
9 El Camino Real/Stone Pine Lane	Stop	State/Menlo Park	D	LOS becomes E or F <u>OR</u> 4.0 second increase to critical <u>worst</u> approach if LOS is currently E or F

The City of Menlo Park has established impact criteria for the study roadway segments. Per the City's TIA guidelines, the definition of potentially significant impacts for roadway segments is as follows:

Minor Arterials. The existing Average Daily Traffic Volume (ADT) is: (1) greater than 18,000 (90 percent of capacity) and there is a net increase of 100 trips or more in ADT due to project-related traffic; (2) the ADT is greater than 10,000 (50 percent of capacity) but less than 18,000, and the project-related traffic increases the ADT by 12.5 percent or the ADT becomes 18,000 or more; or (3) the ADT is less than 10,000 and the project-related traffic increases the ADT by 25 percent.

Collector Streets. The existing ADT is: (1) greater than 9,000 (90 percent of capacity) and there is a net increase of 50 trips or more in ADT due to project-related traffic; (2) the ADT is greater than 5,000 (50 percent of capacity) but less than 9,000, and the project-related traffic increases the ADT by 12.5 percent or the ADT becomes 9,000 or more; or (3) the ADT is less than 5,000 and the project-related traffic increases the ADT by 25 percent.

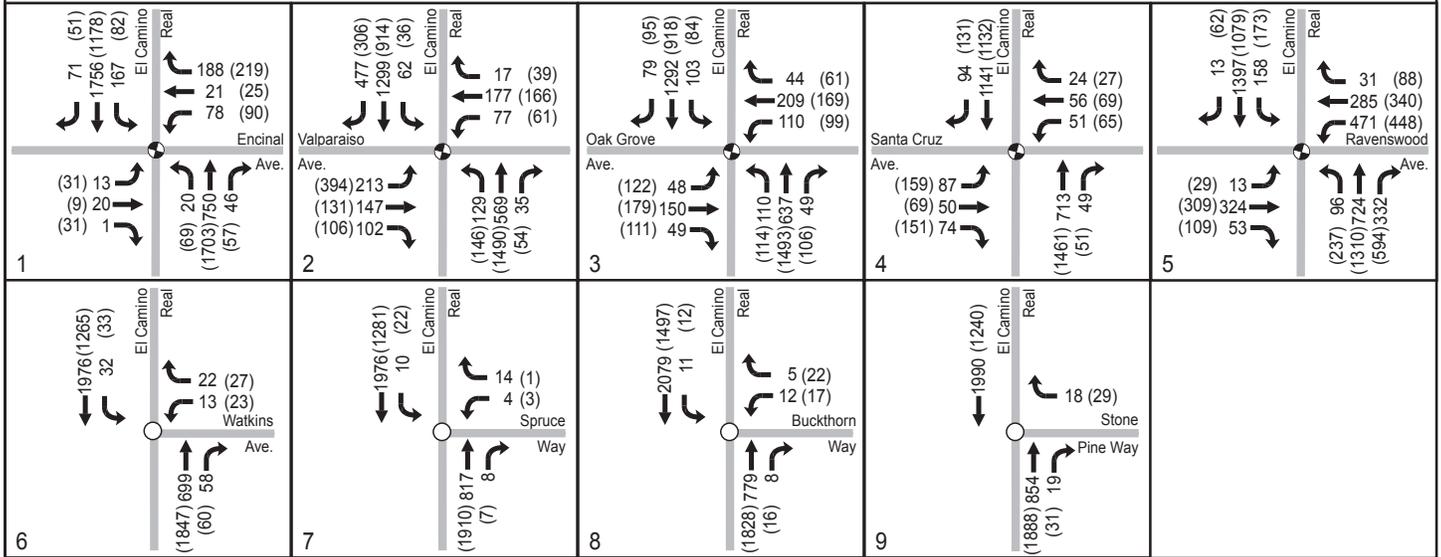
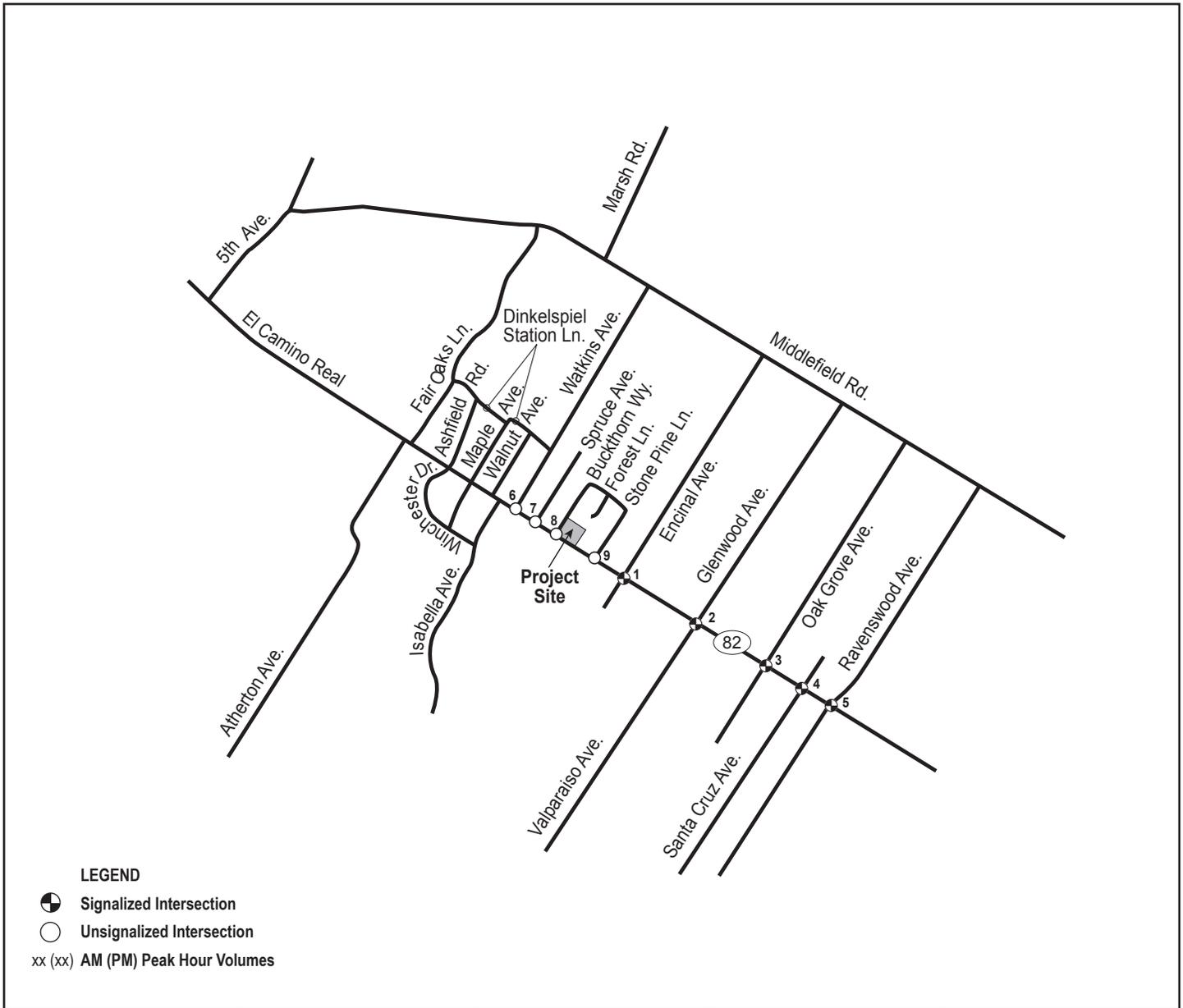
Local Streets. The existing ADT is: (1) greater than 1,350 (90 percent of capacity) and there is a net increase of 25 trips or more in ADT due to project-related traffic; (2) the ADT is greater than 750 (50 percent of capacity) but less than 1,350, and the project-related traffic increases the ADT by 12.5 percent or the ADT becomes 1,350; or (3) the ADT is less than 750 and the project related-traffic increases the ADT by 25 percent.

Intersection Traffic Volumes and Levels of Service

Existing conditions at the study intersections were based on traffic counts taken in October 2006 and August 2007. The traffic volumes traveling along El Camino Real at the unsignalized study intersections were increased to reflect peak fall season traffic conditions by applying a seasonal growth factor. The growth factor was based on the differences between counts taken during the fall of 2006 and summer of 2007 at the intersection of El Camino Real and Encinal Avenue. Analysis of the study intersections were based on the analysis methodologies and assumptions used in the Highway Capacity Manual (Transportation Research Board, 2000) and the City's Circulation System Assessment Document (February, 2005) (CSA). **Figure 2** illustrates the existing AM and PM peak hour traffic volumes at the study intersections. The volumes at the unsignalized intersections represent the adjusted turning movement counts.

Existing peak hour intersection levels of service are summarized in **Table 2**. For two-way (or one-way) stop controlled intersections, the average delay is calculated for each of the minor street approaches and the reported level of service is based on the worst approach.

Each of the signalized study intersections operate at LOS D or better during both the AM and PM peak hours. The study intersections of El Camino Real at Spruce Avenue and El Camino Real at Buckthorn Way operate at acceptable conditions during the AM peak hour but at a deficient LOS F during the PM peak hour. The deficient LOS F is primarily due to the high delays for left-turning vehicle traffic at the stop controlled approach onto southbound El Camino Real. Detailed calculations are provided in the **Appendix C**.



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Figure 2
Existing Peak Hour Traffic Volumes

Table 2 Existing Intersection Levels of Service

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay ^a	LOS ^b	Delay	LOS ^b
1. El Camino Real / Encinal Avenue	19.2	B	19.9	B
2. El Camino Real / Valparaiso Avenue	39.3	D	47.8	D
3. El Camino Real / Oak Grove Avenue	30.0	C	31.2	C
4. El Camino Real / Santa Cruz Avenue	24.1	C	26.1	C
5. El Camino Real / Ravenswood Avenue	43.1	D	52.5	D
6. El Camino Real / Watkins Avenue	21.4	C	17.7	C
7. El Camino Real / Spruce Avenue	17.5	C	>90 sec. ^c	F
8. El Camino Real / Buckthorn Way	32.0	D	>90 sec. ^c	F
9. El Camino Real / Stone Pine Lane	11.5	B	20.5	C

Notes: a. Delay = Average for signalized intersections, and worst approach for 2-way stop controlled intersections.
b. LOS = Level of service, represents worst approach for 2-way stop controlled intersections.
c. Delay values greater than 90 seconds are not considered precise due to the boundaries of the analysis equation and should only be used to compare whether delays have increased or decreased from another scenario.

Average Daily Traffic (ADT)

One study roadway segment was included as part of this analysis. The roadway segment was analyzed based on average daily traffic volumes (ADT). Daily traffic volumes on Buckthorn Way were collected in August 2007. Table 3 summarizes the ADT at the study roadway segment.

Table 3 Average Daily Traffic - Existing Conditions

Study Roadway Segment	Roadway Class	ADT
Buckthorn Way – El Camino Real to Stone Pine Lane	Local	242

Transit Service

Bus service in the project vicinity is primarily provided by the San Mateo County Transit District (SamTrans) and Caltrain. Few bus routes currently serve the study area, with SamTrans lines 83, 390, KX, and RX lines travel along El Camino Real. The closest bus

stop to the project site is at Watkins Avenue and Encinal Avenue on El Camino Real. Caltrain provides regional heavy rail service and operates weekday trains between San Francisco and San Jose, with commute-hour service to Gilroy. Weekend service is offered from San Francisco to San Jose. The nearest Caltrain Station is the Menlo Park Station, located at 1120 Merrill Street (and Oak Grove Avenue).

Bicycle and Pedestrian Facilities

Pedestrian crosswalks and signals are provided at all of the signalized study intersections. However, they are typically not provided crossing El Camino Real at the unsignalized intersections. In the vicinity of the project sites, there are sidewalks generally on the east-side of El Camino Real. Currently, there are no sidewalks along the project's frontage on El Camino Real or Buckthorn Way.

In the vicinity of the proposed project, there are Class II bicycle facilities on Encinal Avenue (Laurel to Middlefield), Valparaiso Avenue, Ravenswood Avenue (Laurel to Middlefield), and Middlefield Road Marsh to Willow). A Class II bikeway provides a striped lane for one-way bicycle travel on a street. The City's Comprehensive Bike Plan also recommends Class II Bike Lanes between Encinal Avenue and Watkins Avenue on El Camino Real. To implement bike lanes along El Camino Real would require a separate comprehensive project with multiple jurisdictions involved. Bike lanes are not needed on Buckthorn Way.

Regional Access Routes

Because the proposed project is anticipated to generate less than 100 peak hour trips, an analysis of regional routes of significance is not included in this analysis. However, the following discussion is provided for informational purposes only.

The project site is located at the intersection of El Camino Real and Buckthorn Way and is accessible to regional origins and destinations by various routes including US Route 101, Interstate 280, and State Route 82 (El Camino Real). Access to US Route 101 is primarily via Marsh Road to the east of the project site. Trips coming from or going toward Interstate 280 would likely travel on El Camino Real to Valparaiso Avenue, south of the project site.

3. NEAR TERM CONDITIONS

A list of near-term developments as of May 2008 was provided by City of Menlo Park staff and includes developments that are currently planned (i.e., applied for a development permit) or approved in Menlo Park and adjacent cities. A complete list of approved or planned projects is included in **Appendix B**. Traffic related to each of the approved or planned developments that would travel through each of the study intersections were estimated and added to the Existing Conditions traffic volumes. These trips were added to the study area to make up the Near-Term Scenario.

Intersection Traffic Volumes and Levels of Service

Peak Hour traffic volumes for the Near-Term Conditions were estimated by adding the estimated trips from planned or approved developments to the existing traffic volumes. AM and PM peak hour traffic volumes for the Near-Term Conditions are illustrated in **Figure 3**. No planned/programmed mitigation measures are anticipated for the study intersections. Intersection geometrics would remain the same as with existing conditions. Intersection levels of service for the Near-Term scenario are summarized in **Table 4**.

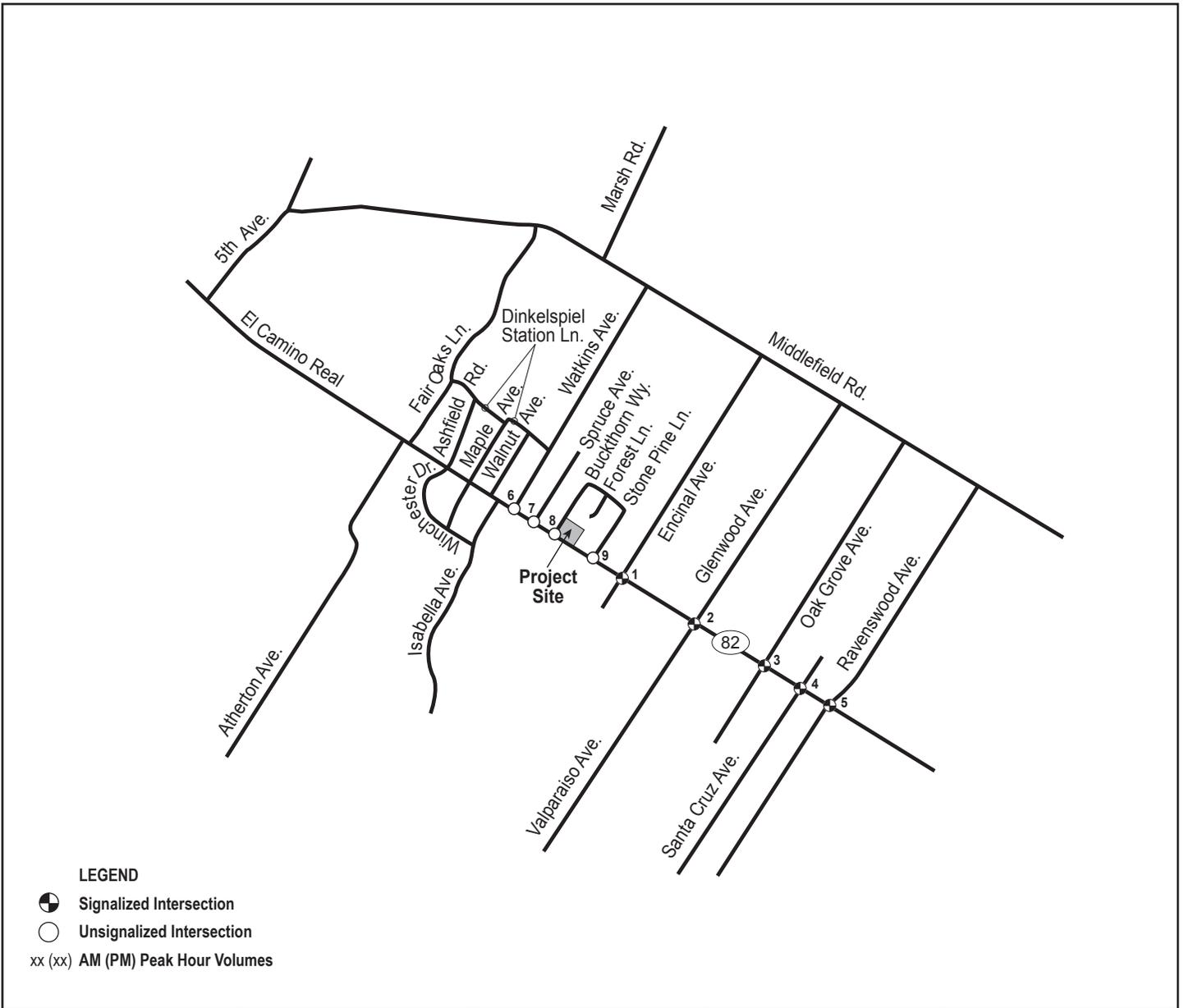
With the addition of trips related to planned or approved projects, the study intersections would continue to operate at the same LOS as under the Existing Conditions for both the AM and PM peak hours. During the AM peak hour, each of the study intersections would continue to operate at an acceptable LOS D or better. During the PM peak hour, three unsignalized intersections (El Camino Real at Watkins Avenue, El Camino Real at Spruce Avenue, and El Camino Real at Buckthorn Way) would continue to operate at a deficient LOS F with more than 90 seconds of delay to the critical (minor street) approaches.

Average Daily Traffic (ADT)

Similar to the peak hour intersection traffic volumes, daily trips related to the planned and approved projects were added to the existing ADT at Buckthorn Way. Buckthorn Way would not experience an increase in ADT. Table 5 summarizes the ADT at the study roadway segments for the Near Term Conditions.

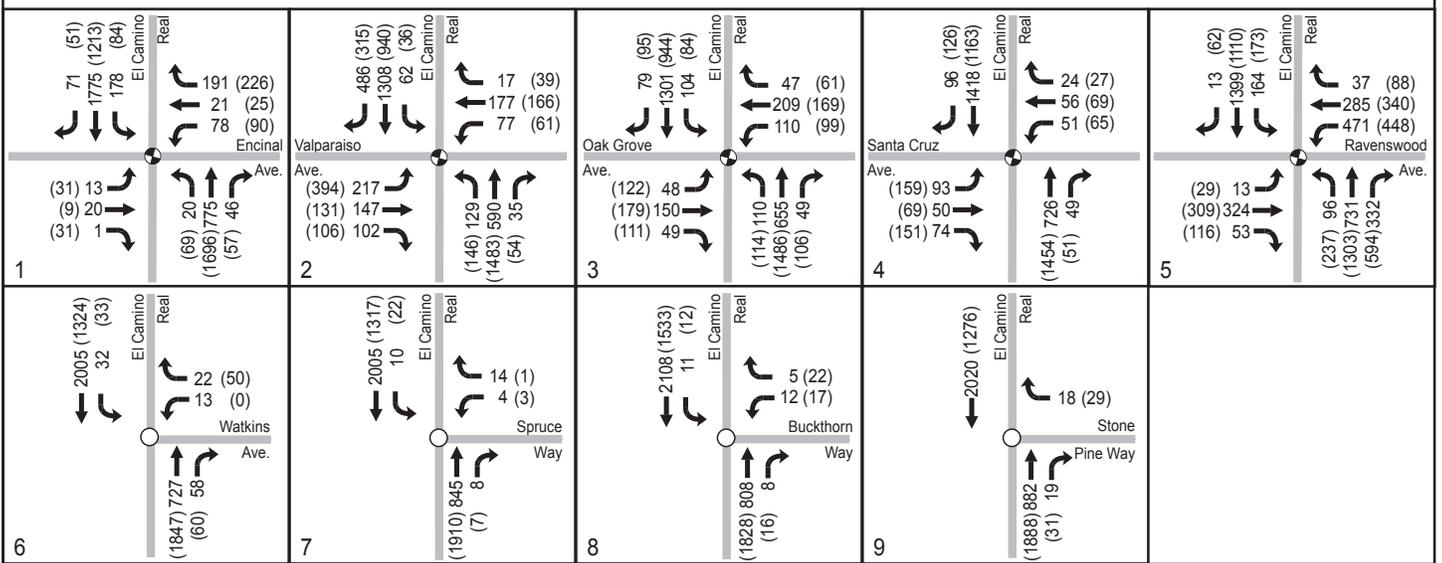
Infrastructure Improvements

A right-turn (channelization) lane for the northbound right turn movements on El Camino Real at its intersection with Spruce Avenue has recently been constructed. This improvement has been included in the analysis of the Near-Term and Cumulative horizon years.



LEGEND

- Signalized Intersection
- Unsignalized Intersection
- xx (xx) AM (PM) Peak Hour Volumes



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Figure 3
Near Term Peak Hour Traffic Volumes

Table 4 Near Term Conditions Levels of Service

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay ^a	LOS ^b	Delay	LOS ^b
1. El Camino Real / Encinal Avenue	19.5	B	20.3	C
2. El Camino Real / Valparaiso Avenue	39.5	D	47.6	D
3. El Camino Real / Oak Grove Avenue	30.0	C	31.1	C
4. El Camino Real / Santa Cruz Avenue	24.2	C	26.1	C
5. El Camino Real / Ravenswood Avenue	43.2	D	52.7	D
6. El Camino Real / Watkins Avenue	22.3	C	17.7	C
7. El Camino Real / Spruce Avenue	18.0	C	>90 sec. ^c	F
8. El Camino Real / Buckthorn Way	33.8	D	>90 sec. ^c	F
9. El Camino Real / Stone Pine Lane	11.6	B	20.5	C

Notes: a. Delay = Average for signalized intersections, and worst approach for 2-way stop controlled intersections.
b. LOS = Level of service, represents worst approach for 2-way stop controlled intersections.
c. Delay values greater than 90 seconds are not considered precise due to the boundaries of the analysis equation and should only be used to compare whether delays have increased or decreased from another scenario.

Table 5 Average Daily Traffic – Near Term Conditions

Study Roadway Segment	Existing ADT	Added Near Term Traffic	Near Term Conditions ADT
Buckthorn Way – El Camino Real to Stone Pine Lane	242	0	242

4. NEAR TERM PLUS PROJECT CONDITIONS

The proposed project involves replacing a vacant restaurant building and a specialty retail space at 1706 El Camino Real with a medical office building.

Project Trip Generation

Trip generation for the proposed medical office facility is based upon the *ITE Trip Generation Manual* (8th Edition, 2008). In general, the calculated area for trip generation purposes includes outdoor areas such as corridors, mezzanines and other ground-level areas that are not enclosed, but within the principal outside faces of the exterior walls.

The proposed development would generate approximately 27 net-new AM peak hour trips and 41 net-new PM peak hour trips. During the AM peak hour, there would be 21 inbound trips and 6 outbound trips. During the PM peak hour, there would be 11 inbound trips and 30 outbound trips. Based on observations during the peak traffic hours, no peak hour traffic is currently generated by the project site and peak hour trip credits are not assumed in this analysis. **Table 4** further illustrates the trip generation by land use at the project site.

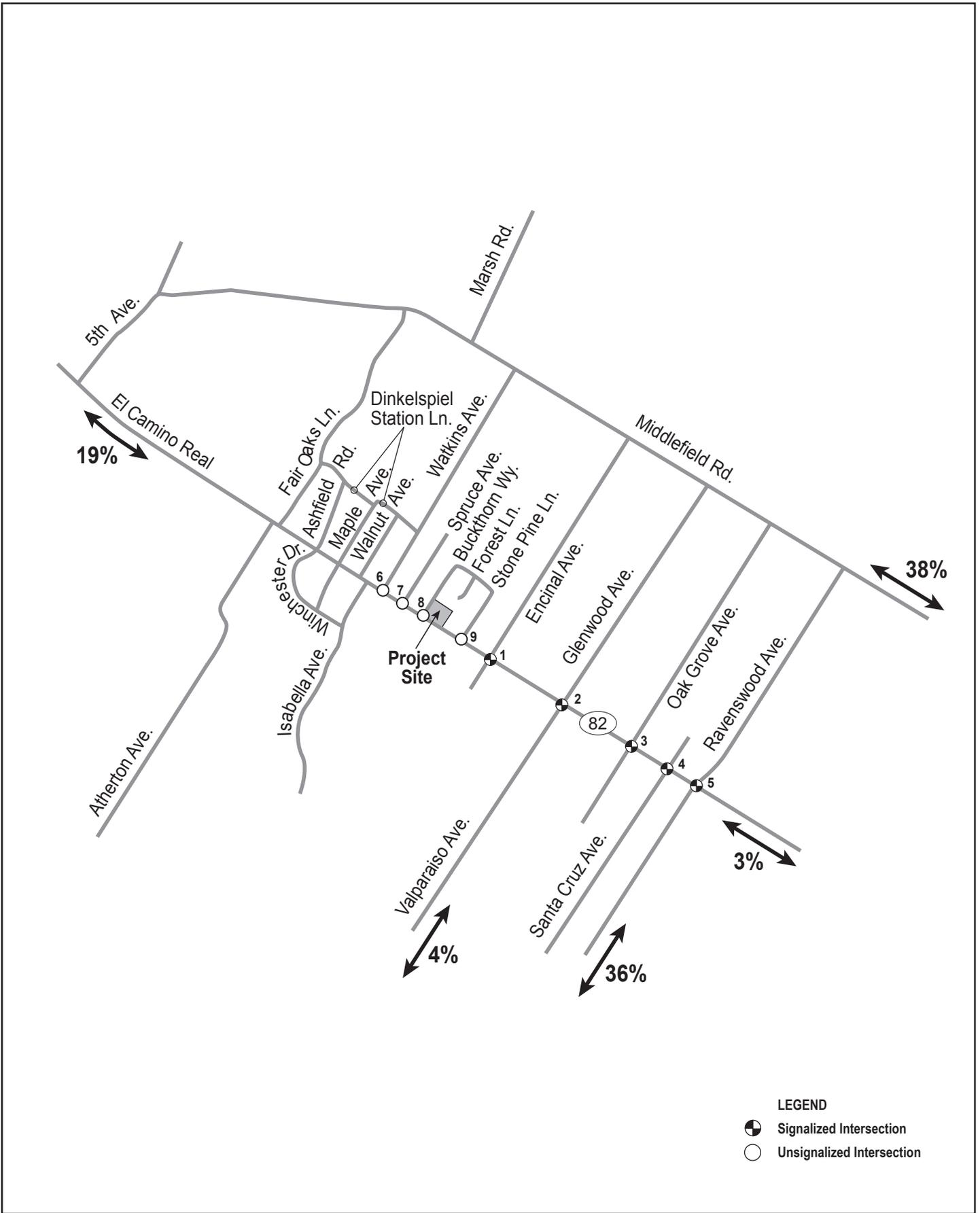
Table 6 Project Trip Generation								
ITE Trip Generation Rates:	Size	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	Total
Medical Offices – SF (ITE Code 720)	Ksf	79%	21%	2.30 ^a	27%	73%	3.46 ^a	36.13 ^a
Total Net New Trips	11.78	21	6	27	11	30	41	426

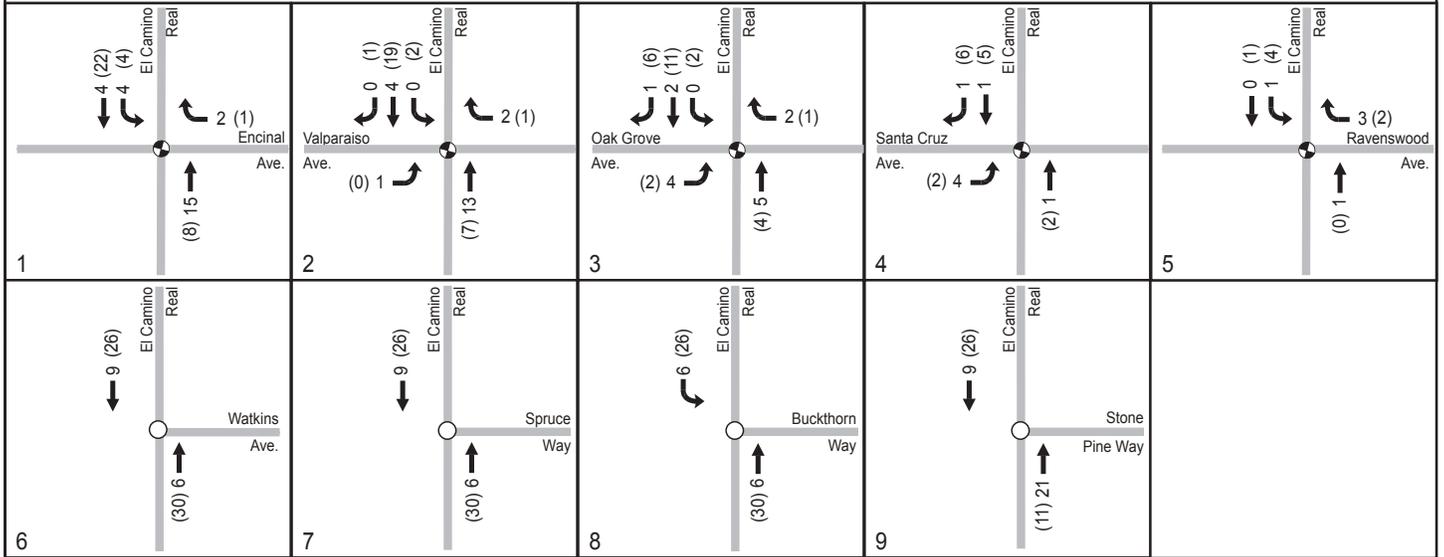
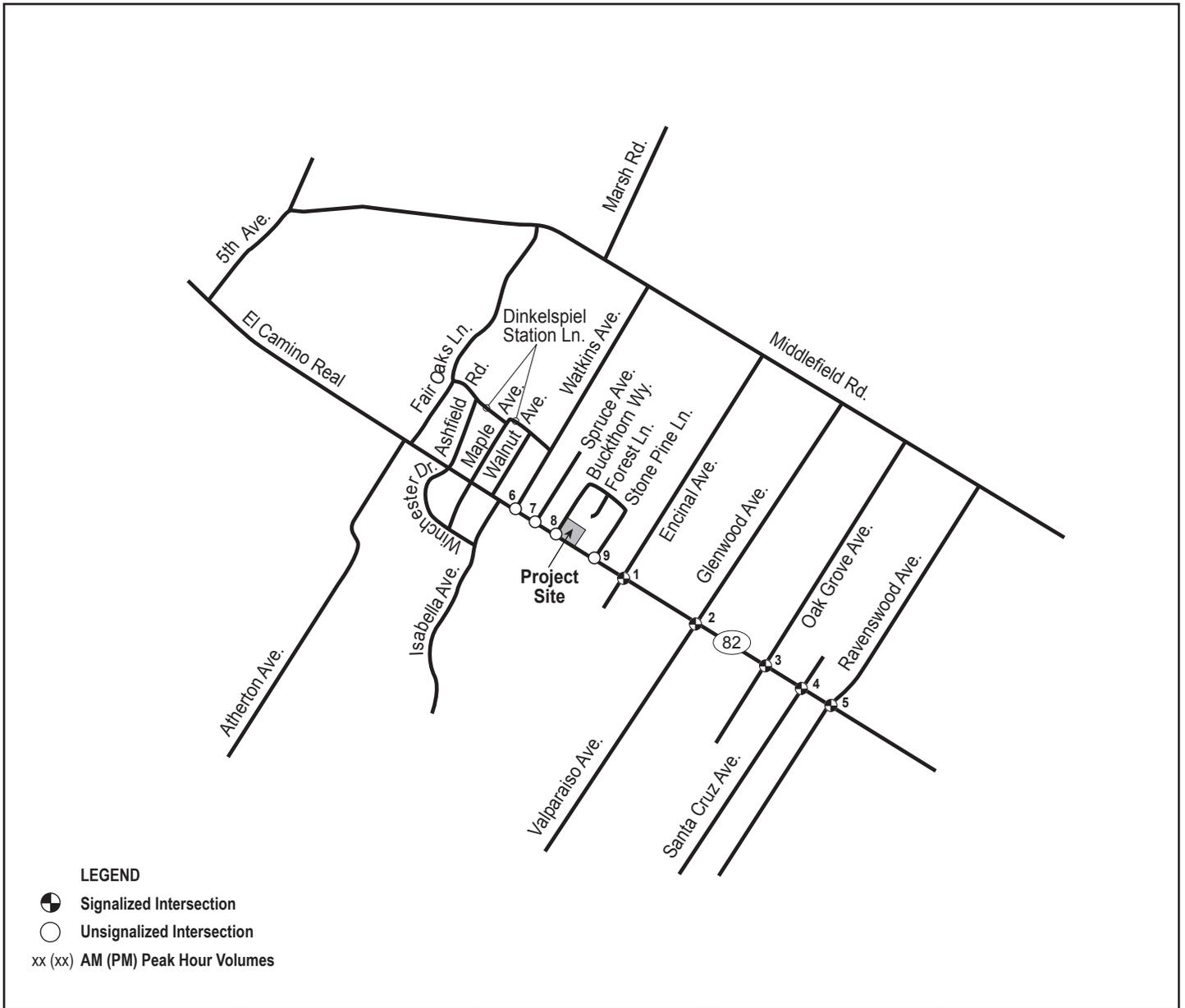
Notes: a - Trip generation rate is in trips per 1,000 square feet (ksf = thousand square feet). Approximately 11,780 square feet of gross floor area is estimated for the proposed project based on the ITE Trip Generation Manual Handbook 8th Edition.

Intersection Traffic Volumes and Levels of Service

New trips that would be generated by the proposed project were distributed to the local street network based on information provided by the City of Menlo Park in Table 6 of the Circulation System Assessment Document (See **Appendix B**). It is anticipated that the majority of trips related to and from the medical office uses would be made by patients. For patient trips, a distribution pattern similar to commercial uses was presumed, and therefore the proposed medical office land uses were assumed to use commercial distribution patterns. This methodology is consistent with the analysis of other medical office developments in Menlo Park. **Figure 4** illustrates the trip distribution patterns that were used in this analysis. The added project related trips are illustrated in **Figure 5**, and the Near-Term plus Project Conditions peak hour intersection turning movement volumes are illustrated in **Figure 6**.

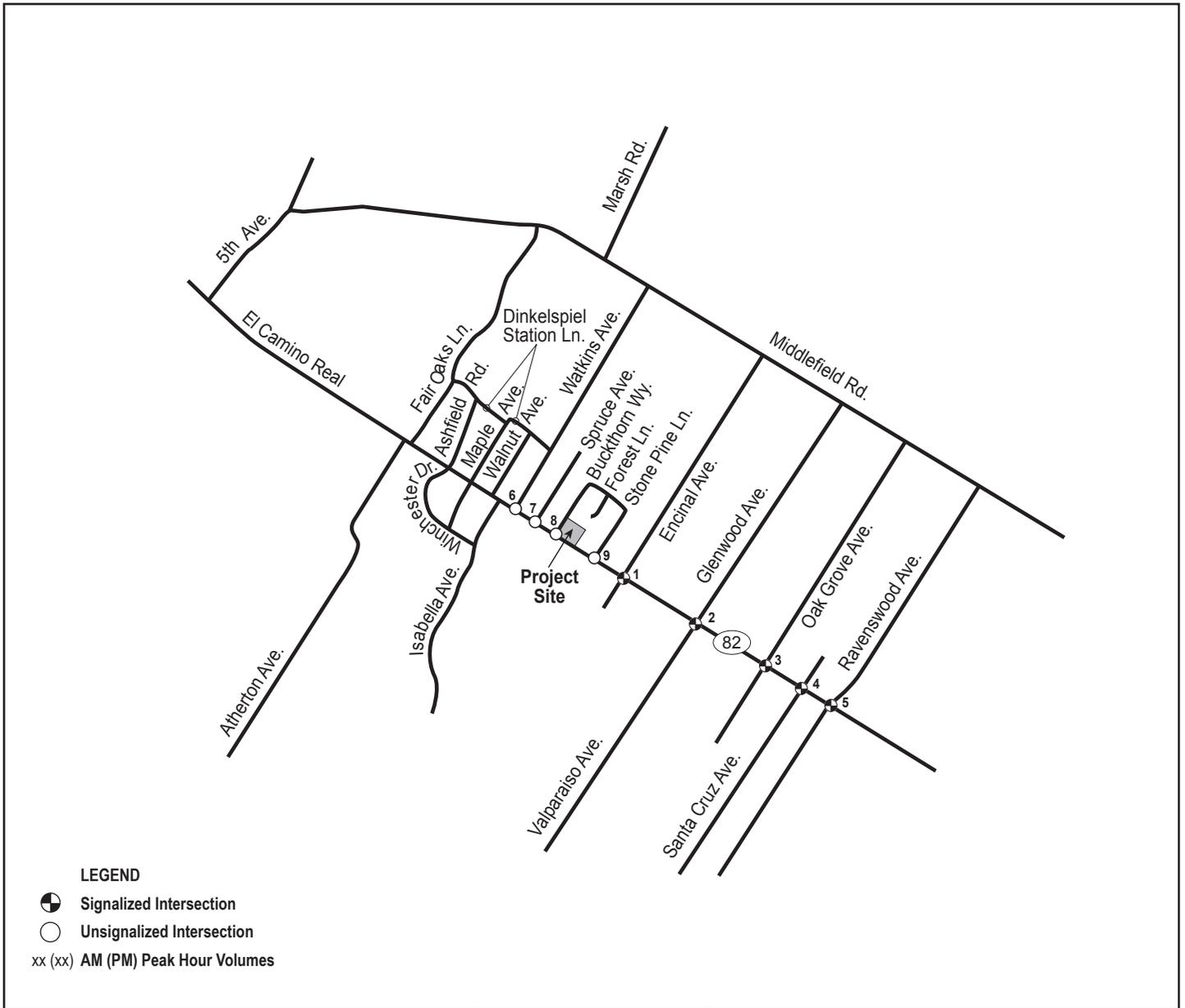
Intersection levels of service for Existing Conditions, Near-Term Conditions, and Project Conditions are provided in **Table 5** for comparison.





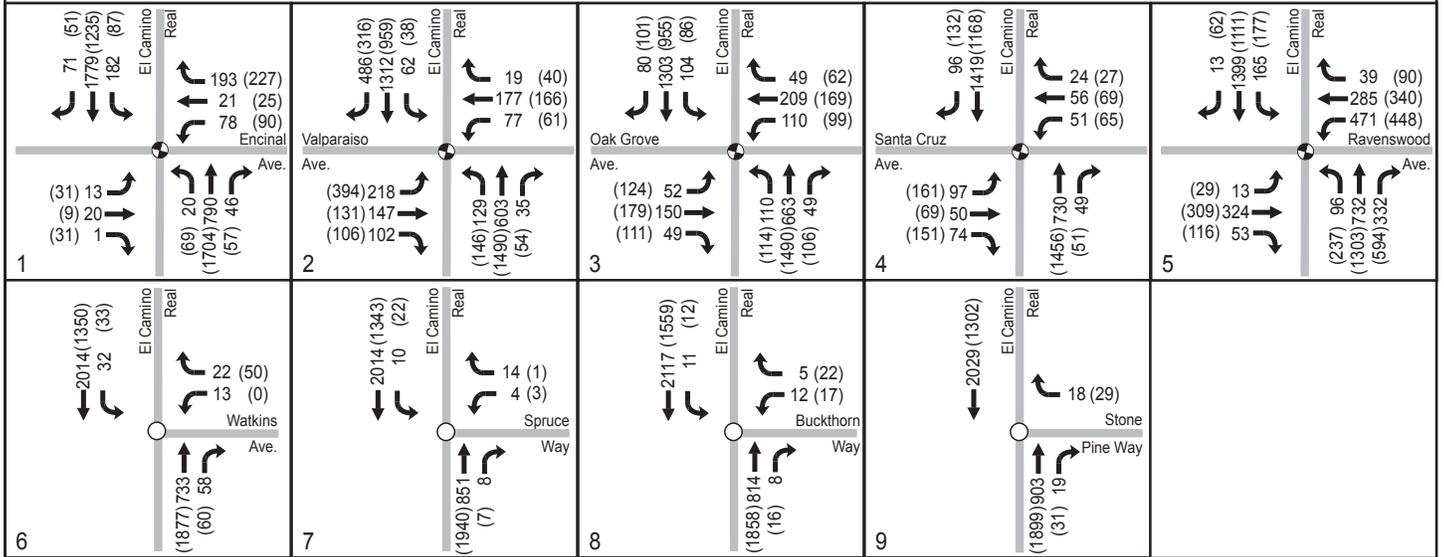
07186-000-Merito Park 1706 ECR Proj_Trips.ai1/13/09

Figure 5
Peak Hour Project Trips



LEGEND

- Signalized Intersection
- Unsignalized Intersection
- xx (xx) AM (PM) Peak Hour Volumes



07185-000-Merito Park 1706 ECR Near Term-Proj Vols.aiv1/13.09

Figure 6
Near Term plus Project Peak Hour Traffic Volumes

Table 7 Near Term plus Project Conditions Levels of Service Comparison

Study Intersection	Near-Term Conditions		Project Conditions		Change in Delay	Potential Impact?
	Delay ^a	LOS ^b	Delay	LOS ^b		
AM Peak Hour						
1. El Camino Real / Encinal Avenue	19.5	B	19.7	B	0.2	no
2. El Camino Real / Valparaiso Avenue	39.5	D	39.5	D	0.0	no
3. El Camino Real / Oak Grove Avenue	30.0	C	30.1	C	0.1	no
4. El Camino Real / Santa Cruz Avenue	24.2	C	24.2	C	0.0	no
5. El Camino Real / Ravenswood Avenue	43.2	D	43.3	D	0.1	no
6. El Camino Real / Watkins Avenue ^d	22.3	C	22.6	C	0.3	no
7. El Camino Real / Spruce Avenue ^d	18.0	C	18.1	C	0.1	no
8. El Camino Real / Buckthorn Way ^d	33.8	D	34.2	D	0.4	no
9. El Camino Real / Stone Pine Lane	11.6	B	11.7	B	0.1	no
PM Peak Hour						
1. El Camino Real / Encinal Avenue	20.3	C	20.4	C	0.1	no
2. El Camino Real / Valparaiso Avenue	47.6	D	47.9	D	0.3	no
3. El Camino Real / Oak Grove Avenue	31.1	C	31.3	C	0.2	no
4. El Camino Real / Santa Cruz Avenue	26.1	C	26.1	C	0.0	no
5. El Camino Real / Ravenswood Avenue	52.7	D	53.0	D	0.3	no
6. El Camino Real / Watkins Avenue ^d	17.7	C	18.1	C	0.4	no
7. El Camino Real / Spruce Avenue ^d	>90 sec. ^c	F	>90 sec. ^c	F	8.1	YES
8. El Camino Real / Buckthorn Way ^d	>90 sec. ^c	F	>90 sec. ^c	F	15.5	YES
9. El Camino Real / Stone Pine Lane	20.5	C	20.7	C	0.2	no

Notes: a. Delay = worst approach for 2-way stop controlled intersections.
b. LOS = Level of service, represents worst approach for 2-way stop controlled intersections.
c. Delay values greater than 90 seconds are not considered precise due to the boundaries of the analysis equation and should only be used to compare whether delays have increased or decreased from another scenario.
d. intersection in Atherton, so change in delay is for overall worst approach; all other intersections are in Menlo Park and change in delay is based on critical local approach.

As shown in Table 7, the addition of the proposed project's net-new trips would result in potentially significant impacts at two study intersections during the PM peak hour.

During the AM peak hour, all nine intersections would continue to operate at LOS D or better with minimal increases in average delay.

During the PM peak hour, the intersections of El Camino Real at Spruce Avenue and El Camino Real at Buckthorn Way would continue to operate at LOS F, however, the addition of project related traffic would result in an increase in delay to the critical (minor street) approach of more than four seconds, triggering a potentially significant impact. At Spruce Avenue the addition of traffic to both the northbound and southbound approaches on El Camino Real would result in an increase of average delay to the Spruce Avenue approach of more than four seconds, also triggering a potentially significant impact.

Average Daily Traffic (ADT)

Average Daily Traffic from the proposed project site was added to the roadway network using the distribution patterns previously shown in Figure 4. **Table 8** summarizes the average daily traffic conditions for the Near Term plus Project scenario. Based on the Near Term Conditions ADT and the amount of added project trips, no potentially significant roadway impacts are anticipated.

Table 8 Average Daily Traffic – Near Term plus Project Conditions

Study Roadway Segment	Near Term Conditions ADT	Added Project Traffic	Near Term plus Project ADT	Percent Increase
Buckthorn Way: El Camino Real to Stone Pine Lane	242	0	242	0 %

Site Access and Circulation

The project site is currently proposed to share an existing driveway with two-way (ingress/egress) access allowing right turn in/out only movements on El Camino Real, adjacent and south of the project site. **Figure 7** illustrates the proposed site plan. The proposed driveway for the project site is anticipated to provide adequate width for office type developments. Per the City, the project would stripe a northbound right turn pocket on El Camino Real to Buckthorn Way. The basic layout is based on the proposed right turn pocket at Spruce Avenue (plan provided by the City). With an approximately 80 foot storage lane and a 60 foot taper, no on-street parking on El Camino Real can be accommodated south of Buckthorn Way for 140 feet. Currently, parking is not allowed south of Buckthorn Way till the northernmost driveway but parking is allowed between the two driveways. The existing northernmost driveway, south of Buckthorn Way, will be removed which would mean that only approximately 40 feet of the existing parking area will be removed to accommodate the right turn pocket.

The Red Cottages Inn and Suites motel is located on the east side of the property, and is accessed via a driveway connecting to El Camino Real through the project site with an easement. The current access to the motel also includes shared access to the existing parking lot at 1706 El Camino Real, and Buckthorn Way. The access between the motel and Buckthorn Way via the parking lot would be removed as part of the proposed project. Vehicles accessing the motel would be able to use the shared driveway connecting to El Camino Real. The motel also has its own access on Buckthorn Way which would not be impacted by the proposed project.

Transit

With a transit mode share of less than ten percent, the number of net-new transit riders would be minimal (less than four peak hour trips in any direction). The relatively low number of potential transit trips is not expected to have an adverse impact on transit service or load factors. Due to the relatively low number of transit trips, a reduction to the vehicle trip generation estimates was not included in this analysis.

Pedestrians and Bicyclists

The proposed project is not anticipated to impact the existing bicycle and pedestrian facilities in the vicinity of the project site. The proposed site would enhance the existing pedestrian walkway along the building's frontage to El Camino Real. Assuming a bicycle and pedestrian mode share of less than ten percent, the number of these trips would be minimal. The relatively low number of these trips is not expected to have an adverse impact on pedestrian or bicycle facilities. Due to the relatively low number of bicycle and pedestrian trips, a reduction to the vehicle trip generation estimates was not included in this analysis.

Parking

The proposed project parking requirements were evaluated based on the City of Menlo Park Municipal Code requirements and the expected parking demand. In accordance with the City of Menlo Park zoning district requirements, the proposed project is to provide a total of six parking space per 1000 square feet of floor area. The proposed project includes approximately 10,166 square feet of area and an additional 1,614 square feet of open passage ways. Per the City of Menlo Park's Municipal code requirements, a total of 61 spaces would be required ($10,166 / 1000 * (6) = 61$ parking spaces).

The current design of the proposed project includes 61 parking spaces, which is based on a building area of 10,166 square feet. Therefore, the proposed project would provide adequate onsite parking.

Based on the site access and circulation conditions discussed previously, on-street parking along the project's frontage on either El Camino Real or Buckthorn Way is not recommended.

5. LONG RANGE CUMULATIVE CONDITIONS

The long range no project scenario is based on future peak hour traffic at the study intersections. The projected traffic volumes presented in this section are based on a 10-year horizon with an assumed ambient growth of one percent per year. Analysis of potentially significant transportation related impacts was conducted for a long range plus project scenario. Similar to the near term plus project scenario, the long range plus project scenario adds the net-new traffic projected for the proposed project.

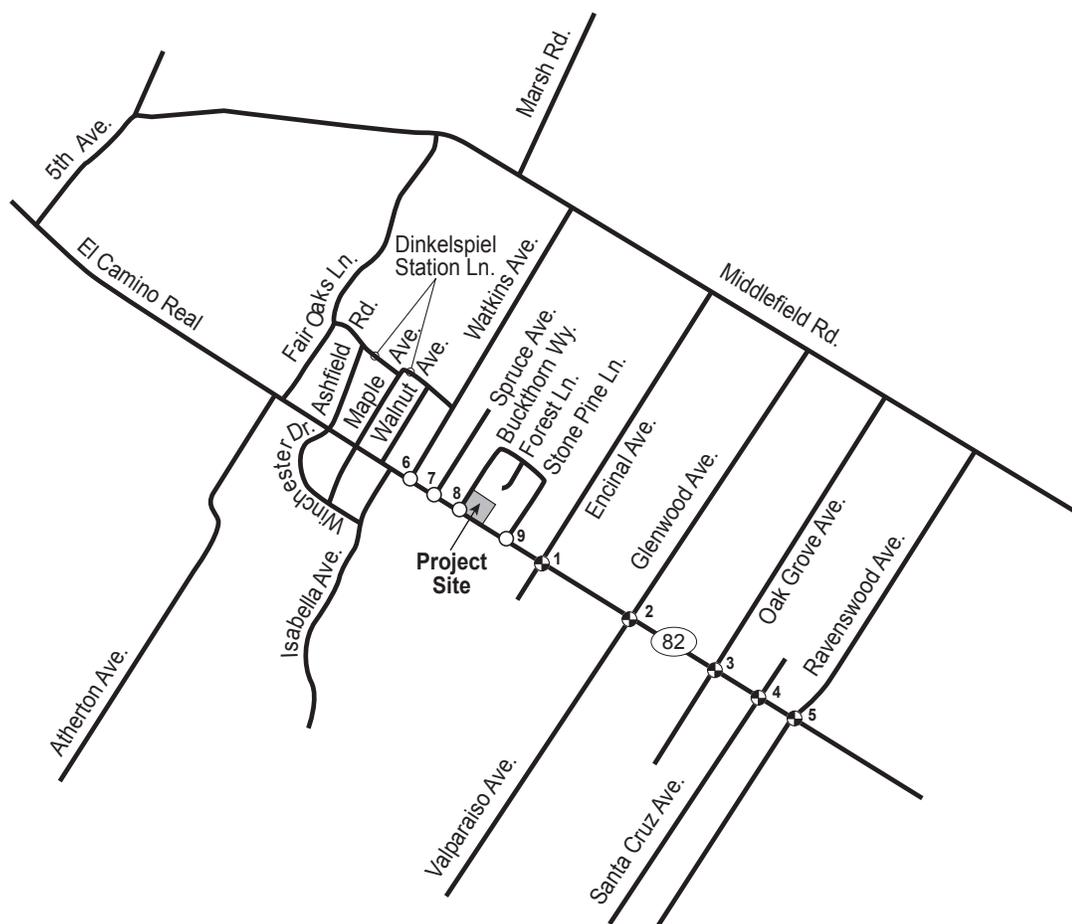
Intersection Traffic Volumes and Levels of Service

To obtain long range traffic volumes, the near-term traffic volumes were assumed to increase with an ambient growth of one percent per year over ten years (approximately 10.5% total growth). The planned and approved projects that were discussed previously in Section 3 were also included in the Long Range background traffic volumes. **Figure 8** illustrates the Long Range No Project conditions. New trips related to the proposed medical office facility were added to the Long Range background traffic volumes and **Figure 9** illustrates the Long Range plus Project peak hour traffic volumes.

Table 9 summarizes the intersection operating conditions for the Long Range No Project and Long Range plus Project intersection operating conditions at the study intersection. As shown in Table 9, there would be one cumulatively significant impact during the AM peak hour, and two during the PM peak hour.

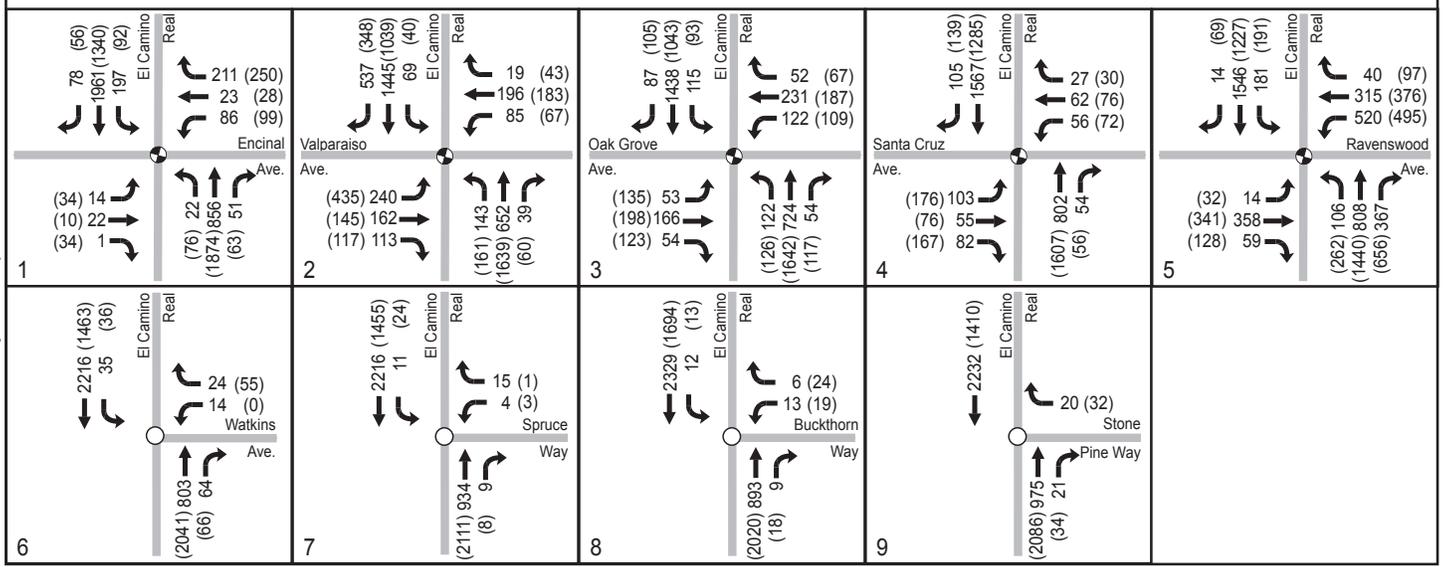
During the AM peak hour, the intersection of El Camino Real and Buckthorn Way would operate at LOS E under the Long Term No Project scenario. The addition of project related traffic to the northbound and southbound movements of El Camino Real during the AM peak period would contribute to the potentially significant cumulative impact, and result in an increase in delay to the critical worst (westbound) approach of approximately 5.1 seconds. The other eight study intersections would continue to operate at acceptable levels during the AM peak hour.

During the PM peak period, the intersections of El Camino Real and Buckthorn Way and El Camino Real and Spruce Avenue would operate at LOS F under the Long Term No Project scenario. The addition of project related traffic would result in increases in critical movement delay of more than four seconds, therefore contributing to potentially significant cumulative impacts.



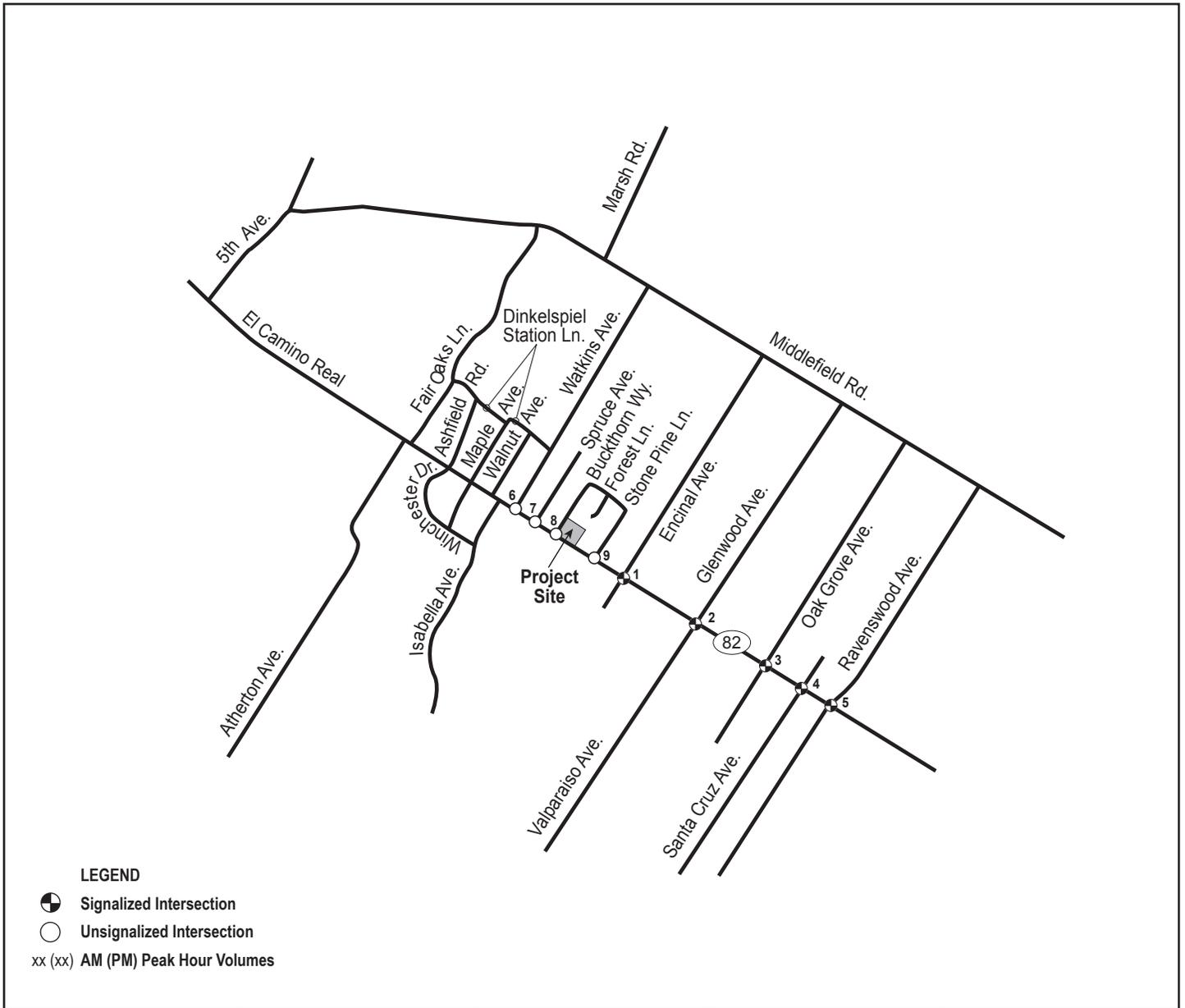
LEGEND

- Signalized Intersection
- Unsignalized Intersection
- xx (xx) AM (PM) Peak Hour Volumes



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Figure 8
Long Term No Project Peak Hour Traffic Volumes



LEGEND
 ● Signalized Intersection
 ○ Unsignalized Intersection
 xx (xx) AM (PM) Peak Hour Volumes

07186-000-Merito Park 1706 ECR Long Term - Proj Vols air/1/13/09

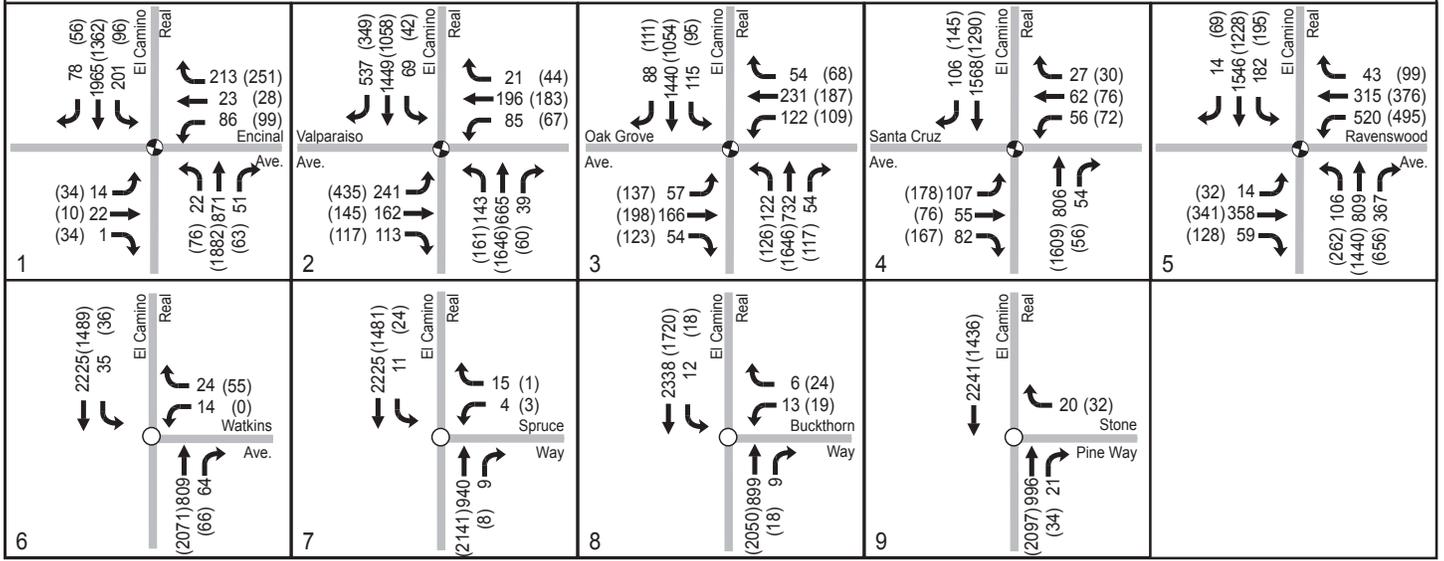


Figure 9
 Long Term plus Project Peak Hour Traffic Volumes

Table 9 Long Term plus Project Conditions Levels of Service Comparison

Study Intersection	Long-Term Conditions		Long Term plus Project Conditions		Change in Delay	Potential Impact?
	Delay ^a	LOS ^b	Delay	LOS ^b		
AM Peak Hour						
1. El Camino Real / Encinal Avenue	21.1	C	21.3	C	0.2	no
2. El Camino Real / Valparaiso Avenue	44.5	D	44.6	D	0.1	no
3. El Camino Real / Oak Grove Avenue	32.1	C	32.2	C	0.1	no
4. El Camino Real / Santa Cruz Avenue	25.9	C	25.9	C	0.0	no
5. El Camino Real / Ravenswood Avenue	49.2	D	49.3	D	0.1	no
6. El Camino Real / Watkins Avenue ^d	27.6	D	28.0	D	0.4	no
7. El Camino Real / Spruce Avenue ^d	20.8	C	21.0	C	0.2	no
8. El Camino Real / Buckthorn Way ^d	43.5	E	44.1	E	5.1	YES
9. El Camino Real / Stone Pine Lane	12.2	B	12.3	B	0.1	no
PM Peak Hour						
1. El Camino Real / Encinal Avenue	22.4	C	22.6	C	0.2	no
2. El Camino Real / Valparaiso Avenue	61.4	E	61.9	E	0.5	no
3. El Camino Real / Oak Grove Avenue	33.7	C	33.9	C	0.2	no
4. El Camino Real / Santa Cruz Avenue	28.2	C	28.2	C	0.0	no
5. El Camino Real / Ravenswood Avenue	67.7	E	68.2	E	0.5	no
6. El Camino Real / Watkins Avenue ^d	20.8	C	21.3	C	0.5	no
7. El Camino Real / Spruce Avenue ^d	>90 sec. ^c	F	>90 sec. ^c	F	14.4	YES
8. El Camino Real / Buckthorn Way ^d	>90 sec. ^c	F	>90 sec. ^c	F	> 30 seconds	YES
9. El Camino Real / Stone Pine Lane	23.8	C	24.0	C	0.2	no

Notes: a. Delay = worst approach for 2-way stop controlled intersections.
b. LOS = Level of service, represents worst approach for 2-way stop controlled intersections.
c. Delay values greater than 90 seconds are not considered precise due to the boundaries of the analysis equation and should only be used to compare whether delays have increased or decreased from another scenario.
d. intersection in Atherton, so change in delay is for overall worst approach; all other intersections are in Menlo Park and change in delay is based on critical local approach.

Average Daily Traffic (ADT)

Average daily traffic for the Long Term No Project scenario was estimated by applying the growth factor to the existing ADT values and then adding the trips related to the planned and approved background project's. Similar to the Near Term scenario, project trips were then added to estimate the Long Term plus Project scenario ADT values. **Table 10** summarizes the average daily traffic conditions for the Long Term plus Project scenario. The project would not add volumes to Buckthorn Way. Therefore, no potentially significant impact would occur.

Table 10 Average Daily Traffic – Near Term plus Project Conditions

Study Roadway Segment	Long Term Conditions ADT	Added Project Traffic	Long Term plus Project ADT	Percent Increase
Buckthorn Way: El Camino Real to Stone Pine Lane	267	0	267	0 %

6. IMPROVEMENT MEASURES

As part of this analysis, the City of Menlo Park staff and DKS Associates have developed improvement alternatives that may reduce the potential impacts to less than significant levels. This section describes the significance of each of the potential impacts identified. The mitigation and improvement measures discussed below are based on the Near Term and Near Term plus Project Conditions. The recommended improvement alternatives may require encroachment permits, review, and approval from Caltrans and Town of Atherton staff when implementing. For additional partial mitigation, the projects payment of the \$1.60/sf TIF fee, the \$0.105 shuttle fee, and the Transportation Demand Management (TDM) plan shall be referenced.

Intersection Impact 1: El Camino Real and Buckthorn Way (Near Term plus Project Conditions, Long Range plus Project Conditions)

The westbound approach from Buckthorn Way to El Camino Real would operate at LOS F during the PM peak hour under each of the analysis scenarios. The proposed project would not add traffic on Buckthorn Way but would add traffic to northbound and southbound El Camino Real. With the proposed project, there would be an increase of average delay to the westbound approach greater than four seconds during the PM peak hour. This is considered a potentially significant impact under the City's and County's Transportation Impact Analysis Guidelines.

During the AM peak hour, the intersection operates at acceptable levels of service under the Near Term plus Project Scenario; however it would deteriorate from LOS D to LOS E with the addition of cumulative background growth. Under the Long Term Scenario, the proposed project would result in an increase of average delay to the critical approach by of approximately 5.1 seconds. Therefore, during the AM peak hour, the proposed project would contribute to the cumulatively deficient intersection.

Improvement Alternative #1

The improvement alternative includes restricting westbound left-turns from Buckthorn Way to El Camino Real during the PM Peak period. This restriction may be limited to the PM Peak hour only for the short term basis. It is also recommended that the turn restriction also be implemented for the AM peak period for the long term period. This improvement would require new signage to be installed. In addition, in order to be effective, such a restriction would require enforcement from local or state law enforcement. Such a requirement would only affect the westbound left turn movement. As a conservative assumption all baseline left-turning traffic was assumed to shift to make a right turn at Stone Pine Lane, and then a U-turn on El Camino Real at Alejandra Avenue. Based on the amount of southbound traffic on El Camino Real, U-turns could be made at the unsignalized intersections (where U-turns are allowed) with acceptable operating conditions of LOS D or better for the U-turn movements. DKS conducted an analysis using the Synchro LOS software to determine the LOS conditions for the U-turn movements.

Significance after Mitigation

The impact would be reduced to a less than significant level at the intersection of Buckthorn Way and El Camino Real with installing appropriate signage (and enforcement) to restrict the

left-turn movements during the PM peak period. With the left turn restriction at the westbound approach on Buckthorn Way, and the shift in left turning traffic to Stone Pine Lane, both intersections (El Camino Real/Buckthorn Way and El Camino Real/Stone Pine Lane) would operate at LOS C in the PM peak period. For the long term period, the cumulative deficiency during the AM peak hour would also improve to acceptable levels with the westbound left-turn restriction. Both intersections (El Camino Real/Buckthorn Way and El Camino Real/Stone Pine Lane) would operate with LOS B in the AM peak period. El Camino Real/Buckthorn Way and El Camino Real/Stone Pine Lane would also operate at LOS C and D, respectively in the PM peak period. The total average daily traffic (ADT) on Buckthorn Way between El Camino Real and Stone Pine Lane would not change due to the peak hour westbound turn restriction at El Camino Real, and no ADT impacts would result. Also, the addition of re-routed traffic from Buckthorn Way to Stone Pine Lane would not result in a significant ADT impact on Stone Pine Lane.

Improvement Alternative #2

The improvement alternative includes modifying the median island on El Camino Real to provide a refuge area for the westbound left-turns from Buckthorn Way to El Camino Real. With the refuge area in place, the left turning vehicles can complete the turn in two phases where each phase would only be crossing/merging with one direction of traffic. This improvement would require altering the existing median and installing new signage.

Significance after Mitigation

With the construction and operation of a median refuge area on El Camino Real, the impact would be reduced but would still be at a significant level based on the increase in delay for the Near Term and Cumulative PM peak periods at the intersection of El Camino Real/Buckthorn Way.

Improvement Alternative #3

The improvement alternative is to install a traffic signal. A traffic signal would provide direct traffic control of all movements at the intersection and would reduce vehicle delays. However, the intersection does not meet the *Manual of Uniform Traffic Control Devices* (MUTCD) peak hour signal warrant since the volume on the stop-controlled approach volume is less than 150 vehicles per hour (i.e., the minimum approach volume to meet the peak hour warrant).

Significance after Mitigation

The impact would be reduced to a less than significant level at the intersection of Buckthorn Way and El Camino Real with installing a traffic signal.

Intersection Impact 2: El Camino Real and Spruce Avenue (Near Term plus Project Conditions, Long Range plus Project Conditions)

The westbound approach from Spruce Avenue to El Camino Real would operate at LOS F during the PM peak hour under each of the analysis scenarios. With the addition of project related trips to the northbound and southbound through movements, there would be an increase of average delay to the critical westbound approach of greater than four seconds

during the PM peak hour. This is considered a potentially significant impact under the City's and County's Transportation Impact Analysis Guidelines.

Similarly, under the Long Term Scenario, the proposed project would continue to increase the average delay to the critical approach by more than four seconds. Therefore, the proposed project would contribute to the cumulatively deficient intersection during the PM peak hour.

Improvement Alternative #1

The improvement alternative includes restricting westbound left-turns from Spruce Avenue to El Camino Real during the PM Peak period. This improvement would require new signage to be installed. In addition, in order to be effective, such a restriction would require enforcement from local or state law enforcement. Such a requirement would only affect the westbound left turn movement, and would shift baseline left-turning traffic to make a right turn at the intersection, then a U-turn at Isabella Avenue, or even at Maple Avenue, the next unsignalized downstream intersection. Based on the amount of southbound traffic on El Camino Real, U-turns could be made at the unsignalized intersections (where U-turns are allowed) with acceptable operating conditions of LOS D or better for the U-turn movements. DKS conducted an analysis using the Synchro LOS software to determine the LOS conditions for the U-turn movements.

Significance after Mitigation

The impact would be reduced to a less than significant level at the intersection of Spruce Avenue and El Camino Real with the installation of appropriate signage (and enforcement) to restrict the left-turn movements during the PM peak period. With the left turn restriction at the westbound approach, El Camino Real/Spruce Avenue would operate at LOS C in the PM peak period. For the long term period, the cumulative deficiency during the AM peak hour would also improve to an acceptable LOS C. Based on the amount of southbound traffic on El Camino Real, U-turns could be made at Isabella Avenue and Maple Avenue (where U-turns are allowed) with acceptable operating conditions of LOS D or better for the U-turn movements. DKS conducted an analysis using the Synchro LOS software to determine the LOS conditions for the U-turn movements.

Improvement Alternative #2

The improvement alternative includes modifying the median island on El Camino Real to provide a refuge area for the westbound left-turns from Spruce Avenue to El Camino Real. With the refuge area in place, the left turning vehicles can complete the turn in two phases where each phase would only be crossing/merging with one direction of traffic. This improvement would require altering the existing median and installing new signage.

Significance after Mitigation

With the construction and operation of a median refuge area on El Camino Real, the impact would be reduced but would still be at a significant level based on the increase in delay for the Near Term and Cumulative PM peak periods at the intersection of El Camino Real/Spruce Avenue.

Improvement Alternative #3

The improvement alternative is to install a traffic signal. A traffic signal would provide direct traffic control of all movements at the intersection and would reduce vehicle delays. However, the intersection does not meet the *Manual of Uniform Traffic Control Devices* (MUTCD) peak hour signal warrant since the volume on the stop-controlled approach volume is less than 150 vehicles per hour (i.e., the minimum approach volume to meet the peak hour warrant).

Significance after Mitigation

The impact would be reduced to a less than significant level at the intersection of Spruce Avenue and El Camino Real with installing a traffic signal.

7. CONCLUSION

The proposed project involves replacing a vacant restaurant and a partially occupied specialty retail space. For the purposes of this analysis, and based on observations of activity during the peak analysis periods, the project site is assumed to be vacant and the analysis would not assume any credit for the current occupancy. The project site is bounded by El Camino Real to the west and Buckthorn Way. Vehicular access to the site would be provided via an existing driveway, shared with other uses, along El Camino Real adjacent and to the south of the proposed project. This driveway would continue to provide right-turn ingress and egress from El Camino Real.

The proposed project is estimated to generate 27 AM peak hour trips and 41 PM peak hour trips. Under the Near Term plus Project Scenario, the proposed project would result in a potentially significant impact at the intersections of Buckthorn Way at El Camino Real and Spruce Avenue at El Camino Real during the PM peak hour.

Recommended improvement measures include:

Buckthorn Way

- Alternative 1 – restricting the left-turn movements from Buckthorn Way to El Camino Real. Reduces potentially significant impacts to less than significant levels.
- Alternative 2 – providing a refuge area in the median on El Camino for the left-turn movements from Buckthorn Way. Reduces impacts but significant impact still remains.
- Alternative 3 – installing a traffic signal. Reduces impacts to less than significant levels but signal warrant is not met.

Spruce Avenue

- Restricting the left-turn movements from Spruce Avenue to El Camino Real. Reduces potentially significant impacts to less than significant levels.

Under the long range cumulative conditions, the project continues to result in a potentially significant impact at the study intersection during the PM peak hour. In addition, AM peak hour LOS at the intersection of Buckthorn Way at El Camino Real falls from LOS D to LOS E, and the addition of project related trips would contribute to the cumulatively deficient intersection. The same mitigation alternatives are recommended as for the near term scenario.

Average daily traffic along Buckthorn Way is not significantly impacted with the addition of project related trips.

On-street parking should not be allowed along the project's frontage on El Camino Real south of the project access point to accommodate the right turn pocket into the project site. Also, vehicles turning onto El Camino Real from Buckthorn Way may have restricted sight distances, and on-street parking on El Camino Real along the project frontage should also be prohibited. Based on the available site plan, the project site provides adequate parking supply to accommodate the peak parking demand.