AMENDED AGENDA

NOTE CHANGE IN MEETING DATE AND TIME

[previously scheduled on Sept. 30, 2014 at 6:00pm]

CITY COUNCIL
SPECIAL MEETING AGENDA

Wednesday, October 01, 2014 at 5:30 PM
City Council Chambers
701 Laurel Street, Menlo Park, CA 94025

ROLL CALL – Carlton, Cline, Keith, Mueller, Ohtaki

A. PUBLIC COMMENT

Under "Public Comment" the public may only address the Council on the subject listed on the agenda. Each speaker may address the Council once under Public Comment for a limit of three minutes. Please clearly state your name and address or political jurisdiction in which you live.

B. SPECIAL BUSINESS

B1. Staff presentation regarding the 500 El Camino Real Traffic Analysis and Council discussion of appropriate next steps which City Council may desire to take (*Staff report #14-180*)

B2. Report from Stanford Parcel Negotiation Subcommittee and Council discussion of appropriate next steps which City Council may desire to take

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PUBLIC WORKS DEPARTMENT

Council Meeting Date: October 1, 2014
Staff Report #: 14-180

Agenda Item #: B-1

REGULAR BUSINESS: **Staff presentation regarding the 500 El Camino Real Traffic Analysis, Council discussion of appropriate next steps which City Council may desire to take**

BACKGROUND

The City contracted with W-Trans transportation consultants to complete a three part vehicular consistency review as it relates to Stanford's proposed project at 500 El Camino Real, with full funding from Stanford. The final component of this study was publically released on Monday, September 29th, 2014. With consideration for the short turn around period a full staff report has not been prepared, however a detailed presentation of the full cut-through analysis will be presented to the City Council on Tuesday, September 30th, 2014.

IMPACT ON CITY RESOURCES

This report was fully funded by Stanford.

ATTACHMENTS

A. Vehicular Traffic Consistency (Released: March 7th, 2014)
B. Draft Vehicular Traffic Consistency Response to Comments (Released: March 7th, 2014)
C. Traffic Operational Analysis (Released: May 6th, 2014)
D. Cut-through Traffic Analysis (Released: Sept 25th, 2014)

Report prepared by:
Jesse T. Quirion
Interim Public Works Director

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memorandum

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website www.w-trans.com
email mspencer@w-trans.com

Date: March 7, 2014

To: **Mr. Jesse Quirion**
City of Menlo Park

From: Mark Spencer
Tony Henderson

Project: MPA010

Subject: 500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency

W-Trans has completed a vehicular traffic consistency review of the proposed project at 500 El Camino Real compared with the El Camino Real/Downtown Specific Plan. The proposed project is 199,500 square feet of general office space, 10,000 square feet of retail space, and 170 apartment units and would be located within the Specific Plan's El Camino Real South sub-area. The proposed site plan is attached for reference.

This report analyzes the traffic associated with the proposed project and compares it to transportation facilities analyzed in the Specific Plan's Environmental Impact Report (EIR). This analysis represents the first of three building block documents that will be prepared for this analysis. The following two analyses will be completed next as part of the overall review of the proposed Stanford 500 El Camino Real project. Based on the findings and recommendations of the following analyses, it is possible that the findings of vehicular traffic consistency presented in this memorandum will be reevaluated. The remaining two documents will include:

- Part B, Traffic Operations, *Plan Review and Traffic Engineering Analysis for the Stanford 500 El Camino Real Project*. This will include an analysis of traffic operations for nearby roadways and intersections as well as an analysis of site access and circulation. Alternative access and circulation configurations will be evaluated and the pros and cons of each alternative will be discussed. The analysis will include consideration of pedestrian and bicycle activity near the site.
- *Neighborhood Cut-Through Traffic Analysis Related to the Stanford 500 El Camino Real Project*. The objective of this task will be to conduct traffic operations analysis of the proposed 500 El Camino Real project and its effect on El Camino Real and the Allied Arts Neighborhood, with specific attention paid to the potential for cut-through traffic in the adjoining neighborhood resulting from the proposed project.

This analysis incorporates comments received on a prior draft memorandum. The acceptance of this memorandum by the City will signify completion of Part A, El Camino Real/Downtown Specific Plan Consistency from the scope of services outlined in *Proposal to Provide Plan Review and Traffic Engineering Analysis for the Stanford 500 El Camino Real Project*, dated August 20, 2013.

Summary of Consistency Analysis Assumptions

Provided in Table 1 is a side-by-side comparison of the 500 El Camino Real Development Proposal and the Specific Plan Conceptual Development Program for the areas of consistency that were reviewed. The following sections provide detailed information on this consistency analysis.

Table 1
Vehicle Traffic Consistency – Assumptions Summary

	Current 500 El Camino Real Development Proposal	Specific Plan Conceptual Development Program
Proposed Land Uses	Office: 199,500 square feet Retail: 10,000 square feet Residential: 170 units	Office: 240,820 square feet [1] Retail: 91,800 square feet [1] Residential: 680 units[1] Hotel: 380 rooms[1]
Trip Generation (net new trips)	AM Peak Hour: 402 PM Peak Hour: 393 Daily: 3,115	AM Peak Hour: 899 PM Peak Hour: 1,319 Daily: 13,385
Trip Distribution methodology	Trip distribution profiles presented in the City of Menlo Park, *Circulation System Assessment*	Trip distribution profiles presented in the City of Menlo Park, *Circulation System Assessment*
Driveway Access (500 El Camino Real site)	Middle Avenue (full access) College Avenue (right-turn only) Partridge Avenue (right-turn only) Cambridge Avenue (full access)	Middle Avenue (full access) College Avenue (right-turn only) Partridge Avenue (no site access) Cambridge Avenue (full access)
Trip Assignment methodology	Site specific, with a focus on local transportation facilities	Generalized for the entire Specific Plan area with a focus on citywide and regional transportation facilities
Traffic Generated on Middle Avenue west of El Camino Real (net new trips)	AM Peak Hour: 63 PM Peak Hour: 67 Daily: 528	AM Peak Hour: 9 PM Peak Hour: 22 Daily: 222

Notes: [1] Net new development

Land Use Consistency

The proposed project was compared to land use assumptions presented in the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis* (Fehr & Peers Transportation Consultants, April 2010) to determine if the project is consistent with the trips and patterns approved under the Specific Plan's Program EIR. The *Traffic Impact Analysis* does not include land use assumptions for individual opportunity sites, but instead the analysis is presented for overall sub areas. To isolate land use assumptions for the 500 El Camino Real site, the Traffix (traffic impact model) analysis network used for the Specific Plan analysis was reviewed (provided by City of Menlo Park Transportation Division, February 2014). The Traffix network did not include information on assumed land use, but only traffic generation projections for the site. Therefore, the land uses were approximated using trip generation rates published in *Trip Generation Manual*, utilizing the same methodology as discussed in the upcoming Trip Generation section.

The proposed project would allow for development of 199,500 square feet of general office space, 10,000 square feet of retail space, and 170 apartment units. Whereas, in the Specific Plan Conceptual Development Program for the 500 El Camino Real site, it was assumed that approximately 200,000 square feet of office space and 22,700 square feet of retail space would be developed. The Conceptual Development Program did not include any residential uses on the site, but instead included a 275 room hotel to be developed on the site. The comparison of land uses for the site are summarized in Table 2.

Table 2
Specific Plan Land Use Comparison – 500 El Camino Real Site

	Office	Retail	Residential	Hotel
Proposed Project (new land uses)	199,500 sf	10,000 sf	170 du	--
Specific Plan Conceptual Development Program – 500 El Camino Real [1]	200,000 sf	22,700 sf	--	275 rooms
Difference (Net New Uses less Specific Plan Conceptual Development Program)	-500 sf	-12,700 sf	+170 du	-275 rooms

Note: sf = square feet, du = dwelling units
[1] Land use assumptions were approximated based upon trips shown in the Traffix network

Trip Generation

The anticipated trip generation potential for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012 and was compared to the trip generation estimations presented in the Specific Plan EIR. The trip generation potential of the project as currently proposed was developed using the rates for Apartment (Land Use 220), General Office Building (Land Use 710) and Shopping Center (Land Use 820).

Existing Uses

Since the site has recently been occupied by a Tesla sales and service center, the traffic generated by this use was deducted from the total trip generation calculations to represent the total number of net new trips that would be generated by the proposed project. Typically, this would be accomplished by using trip generation data published by ITE; however, it is acknowledged that how the Tesla center operated does not closely match any of the ITE land-use descriptions. Since the Tesla center was in operation when traffic volume data was collected in June 2013, the existing trip generation was calculated based on actual observed traffic volumes.

The Tesla center was accessible via two driveways on El Camino Real, at Cambridge Avenue and at Partridge Avenue; however, driveway turning movement counts were previously obtained in June 2013 for only the Cambridge Avenue driveway. This driveway at El Camino Real/Cambridge Avenue also serves as an inbound access point for the adjacent Stanford Park Hotel. Therefore, using data collected in June 2013 and supplemented with additional data collected in February 2014, comparisons were conducted and the following adjustments were made to the driveway counts to estimate the trip generation of the Tesla center.

- A traffic volume count was conducted in February 2014 at the El Camino Real/Cambridge Avenue driveway. Since the Tesla center was vacant at this time, all observed driveway movements were

associated with the Stanford Park Hotel. The traffic volumes counted in February 2014 were subtracted from the June 2013 volumes in an effort to isolate traffic generated by the Tesla center.

- Based on the Tesla center site configuration and access restrictions (only right-turn movements are permitted at the Partridge Avenue driveway), the majority of traffic accessing the site would have used the El Camino Real/Cambridge Avenue driveway and some traffic would have been destined for the El Camino Real/Partridge Avenue driveway. Therefore, it was assumed that two-thirds of the right-turn movements occurred at the El Camino Real/Cambridge Avenue driveway and one-third of right-turn movements occurred at the El Camino Real/Partridge Avenue driveway.

Since daily trip generation data was not collected for the Tesla center, it was approximated using observed traffic volumes and data published by ITE. While the number of trips generated by the Tesla center are expected to vary from the ITE data, the proportional distribution of trips throughout the day is expected to be similar. Therefore, the observed p.m. peak hour trip generation was increased by the ratio of p.m. peak hour trip generation to daily trip generation data for the New Car Sales land use published by ITE (Land Use 841). The trip generation rates for the Tesla center are summarized in Table 3.

Table 3
Tesla Center – Trip Generation Summary

	Daily	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
Driveway Counts (June 2013)	--	29	7	24	16
Adjustment for Stanford Park Hotel (February 2014)	--	-19	0	-10	0
Subtotal – Cambridge Avenue Driveway	--	*10*	*7*	*14*	*16*
Partridge Avenue Driveway	--	3	1	5	5
Total Tesla Center Trip Generation	**493**	**13**	**8**	**19**	**21**

Internal Capture Trips

The *Trip Generation Handbook* also includes data and methodologies that can be applied to determine the proportion of internal trips that may occur within a development area that includes a variety of land uses. Internal trips occur at mixed-use developments, and in the case of the proposed project this would consist of residents patronizing adjacent retail, as well as employees of nonresidential uses patronizing other nonresidential uses. Furthermore, there is a potential for some employees of either the office or retail components to live in the on-site apartments. These trips would be made by walking and would not affect traffic on the adjacent street network.

In the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis*, an uninform reduction rate of 10 percent was applied to all new development within the Specific Plan area. Such a uniform rate is appropriate when analyzing a large area plan. However, since a specific development application is being considered instead of the area-wide plan, a more detailed analysis of interaction between land uses in a specific development is appropriate. Therefore, methodologies presented in the *Trip Generation Handbook* were applied to this site-specific analysis. These methodologies incorporate a projected

demand between uses based on the size and trip generation potential of each use. Copies of the internal capture trip calculations are attached.

In general, the largest potential for internal trip capture is between retail/service use and either residential or office uses. While the proposed project has large residential and office components that would result in a demand for retail and services, the relatively small amount of retail space on the site would limit the potential for internal trip capture. It is acknowledged that there is potential for project-site residents or employees to choose to walk to adjacent retail uses or Downtown Menlo Park. However, to provide for a conservative analysis, the internal capture reduction was calculated for the proposed development only.

The ITE publication does not provide guidance for internal trip capture during the a.m. peak hour. Since retail uses are generally closed or generate minimal traffic during the a.m. peak hour, the potential for internal trip capture is minimal; however, there is still a potential for internal trip capture. To account for this potential, internal trip capture rates published by ITE for the p.m. peak hour were assigned to the a.m. peak hour trip generation rates.

Pass-by Trips

Some portion of traffic associated with retail uses may be drawn from existing traffic on nearby streets. These vehicle trips would not be considered "new," but are instead comprised of drivers who are already driving on the adjacent street system and choose to make an interim stop, and are referred to as "pass-by." However, since the retail component of the proposed project is only 10,000 square feet, no adjustment to trip generation projections were made for pass-by trips. This results in a conservative analysis and is consistent with methodologies presented in the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis.*

Transit Usage

Some project site employees or residents may choose to utilize transit instead of driving to complete their trips. To account for transit use, a trip reduction rate that was presented in the Specific Plan EIR was applied to this analysis. In the Specific Plan EIR, a two percent trip reduction was applied to apartment uses, a one percent reduction was applied to the office uses, and no reduction as applied to the retail components. Given the proximity of the site to the Menlo Park Caltrain Station (approximately one-half mile north, or about a 10 to 15 minute walk), there is a possibility for higher transit use. To provide a conservative analysis, however, the rates applied in the Specific Plan EIR traffic analysis were also applied to this site-specific analysis.

Trip Generation Summary

The proposed project is expected to generate approximately 3,115 net new trips on a typical weekday, of which 402 would occur during the a.m. peak hour and 393 would occur during the p.m. peak hour. Table 4 presents a summary of project trip generation and detailed information is attached.

Table 4
Proposed Project Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Apartment	170 du	6.79	1,154	0.51	87	17	70	0.65	111	72	39
Office Building	199.5 ksf	11.12	2,219	1.67	333	293	40	1.51	302	51	251
Retail	10 ksf	42.70	427	0.96	10	6	4	3.71	37	18	19
Subtotal			3,800		430	316	114		450	141	309
Internal Capture Reduction			*-148*		*-2*	*-1*	*-1*		*-12*	*-6*	*-6*
Transit Reductions			*–44*		*-5*	*-3*	*-2*		*–5*	*-1*	*-4*
Subtotal			3,608		423	312	111		433	134	299
Existing Use [1]			-493		-21	-13	-8		-40	-19	-21
Total Net New Trips			**3,115**		**402**	**299**	**103**		**393**	**115**	**278**

Note: du = dwelling unit; ksf = 1,000 square feet
[1] Source: Data collected in June 2013 and February 2014

Comparison to Specific Plan Conceptual Development Program

Compared to the Conceptual Development Program analyzed for the 500 El Camino Real site, the proposed project would generate 1,727 fewer trips on a daily basis, including 46 fewer trips during the a.m. peak hour and 113 fewer trips during the p.m. peak hour traffic, as summarized in Table 5. It is noted that while the proposed project is expected to generate overall less traffic during the a.m. peak hour than was analyzed in the Specific Plan EIR, there would be a slight increase in outbound traffic, but a decrease in inbound traffic. This increase in outbound traffic is attributed to the fact that the land uses currently proposed experience different trip generation profiles than land uses analyzed for the Conceptual Development Program. For example, hotels have a higher percentage of inbound trips than residential projects in the morning peak hour, and would be more likely to stay on regional roadways compared to local roadways. This is discussed in more detail in the Trip Distribution section below.

Table 5
Trip Generation Comparison – 500 El Camino Real Site

Land Use	Daily	AM Peak Hour			PM Peak Hour		
	Trips	Trips	In	Out	Trips	In	Out
Proposed Project	3,115	402	299	103	393	115	278
Specific Plan Conceptual Development Program – 500 El Camino Real site [1]	4,842	448	352	96	506	167	339
Difference (Proposed Project less Specific Plan Conceptual Development Program)	**-1,727**	**-46**	**-53**	**7**	**-113**	**-52**	**-61**

Note: All trip generation values represent net new trips
[1] Source: *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis* Traffix network, Fehr & Peers Transportation Consultants, April 2010, provided by City of Menlo Park Transportation Division

Trip Distribution

The traffic projected to be generated by the proposed project was distributed to local and regional destinations based on the City of Menlo Park *Circulation System Assessment* (CSA) document. The CSA includes three distribution profiles depending on the type of land use: residential, employment and commercial. These percentages are based on the differing travel characteristics that are generally found for these land uses and the locations of homes, businesses and other origins and destinations. The CSA distribution profiles are shown in Table 6 and the distributed traffic is shown on the attached Figure 1. These CSA distribution profiles were also used in development of the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis.* For comparison purposes, the distributed traffic from the Specific Plan analysis is shown on the attached Figure 2.

Table 6
CSA Traffic Distribution– West Menlo/Downtown/El Camino Real Area

Destination	Residential	Employment	Commercial
I-280 North	5%	12%	7%
I-280 South	9%	16%	3%
Sand Hill West	1%	1%	1%
SR 84 East	2%	20%	1%
US 101 South	9%	17%	3%
US 101 North	2%	4%	2%
Alameda North	6%	4%	4%
El Camino Real North	10%	7%	6%
Alpine South	0%	0%	0%
Junipero South	5%	3%	4%
Sand Hill East	3%	1%	3%
Middlefield South	0%	0%	0%
El Camino Real South	14%	7%	15%
Middlefield North	0%	0%	0%
Local Sharon Heights	5%	1%	8%
Local Downtown	26%	6%	38%
Local Willows	3%	1%	5%
Local Belle Haven	0%	0%	0%

Source: 2004 Circulation System Assessment Document, City of Menlo Park

The proposed project would result in the development of less office and retail space than analyzed in the Conceptual Development Program for the 500 El Camino Real site. However, the proposed project would develop multi-family residential units at the site in place of the hotel that was analyzed in the Conceptual Development Program. This shift in land use would also be expected to result in a shift in trip distribution profiles. For example, applying the CSA profiles, 20 percent of employment-based trips would be expected to travel to/from State Route 84 East, whereas only two percent of residential-based trips and one percent of commercial-based trips would travel to/from this destination. Therefore, while the proposed project would have an overall peak hour trip generation projection that is less than to what was presented in the Conceptual Development Program analysis, the number of net new trips at any given intersection or roadway segment may vary due to the shift in trip generation profiles.

Trip Assignment

The trip distribution profile presented in the CSA only defines the origin/destination of the trip, not the route of travel. The Specific Plan EIR analysis was completed for an area-wide land use plan and did not consider site-specific details, as this level of detail was not yet proposed. Since a project-specific site

plan is now being analyzed, it is possible to distribute traffic based on proposed access points and project details. Access would be obtained through a series of the following four driveways, as proposed on the current site plan:

- Middle Avenue – the existing signalized intersection would be modified to incorporate the project driveway on the east side of El Camino Real. A southbound left-turn lane would be installed on El Camino Real and all turning movements would be permitted at the driveway.
- College Avenue – the intersection would remain stop-controlled on the College Avenue and project driveway approaches. The project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the driveway would connect to an underground parking garage. The intersection would remain stop controlled on the Partridge Avenue and project driveway approaches. The project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – a driveway is currently provided at this signalized intersection that provides access to the existing site and the adjacent Stanford Park Hotel. The driveway would be reconfigured with the proposed project, but the intersection would remain signalized and the remaining three approaches would be unchanged. All turning movements would continue to be permitted at this driveway.

For the purposes of this analysis it was assumed that internal drive aisles would allow for circulation between all parts of the project site. Therefore, drivers could enter at the Middle Avenue, College Avenue or Cambridge Avenue driveways and access any portion of the site. However, the Partridge Avenue driveway would provide access only to an underground parking structure. It is noted that this underground parking garage would also be accessible via internal drive aisles, so a driver could enter the site through any of the project driveways and then proceed to the underground parking garage.

Trip Assignment Comparison

The Specific Plan EIR does not provide details on how trips were assigned, other than to state that CSA trip distribution profiles were used to "assign the Specific Plan added traffic to the study intersections, roadway segments, and freeway segments". Based on a review of the Traffix (traffic impact model) analysis network used for the Specific Plan analysis, it appears that the site was assumed to be accessible by full access driveways at Middle Avenue and Cambridge Avenue, and a right-turn only driveway at College Avenue. It was also assumed that there would not be a driveway provided at Partridge Avenue. Furthermore, based on the Specific Plan's Traffix analysis network, it appears that trips were assigned with a focus on regional transportation facilities, such as El Camino Real and Santa Cruz Avenue.

The number of trips that were routed on the adjacent roadway network in the Specific Plan for the 500 El Camino Real site are summarized in Table 7 along with a side-by-side comparison to the number of trips that were assumed to be generated by the proposed project.

Table 7
Trip Assignment Summary

Path	Proposed Project		Specific Plan 500 El Camino Real Site	
	AM Trips	PM Trips	AM Trips	PM Trips
Inbound Trips (toward site)				
Southbound on El Camino Real from Santa Cruz Ave, Ravenswood Ave, Atherton	109 (36.5%)	44 (38.3%)	163 (46.3%)	84 (50.3%)
Eastbound on Middle Ave from University Ave, Yale Ave	45 (15.1%)	19 (16.5%)	3 (>1%)	3 (1.8%)
Eastbound through Allied Arts Neighborhood (not on Middle Ave)	18 (6.0%)	7 (6.1%)	2 (>1%)	4 (2.4%)
Northbound on El Camino Real from Sand Hill Rd, Palo Alto	127 (42.5%)	45 (39.1%)	184 (52.7%)	76 (45.5%)
Total (Inbound)	**299**	**115**	**352**	**167**
Outbound Trips (away from site)				
Northbound on El Camino Real toward Santa Cruz Ave, Ravenswood Ave, Atherton	39 (37.8%)	102 (36.7%)	48 (50%)	158 (46.6%)
Westbound on Middle Ave to University Ave, Yale Ave	18 (17.5%)	48 (17.3%)	1 (1%)	6 (1.8%)
Westbound through Allied Arts Neighborhood (not on Middle Ave)	9 (8.8%)	21 (7.6%)	2 (2.1%)	1 (>1%)
Southbound on El Camino Real toward Sand Hill Rd, Palo Alto	37 (35.9%)	107 (38.4%)	45 (46.9%)	174 (51.3%)
Total (Outbound)	**103**	**278**	**96**	**339**

Notes: Differences in percentages are attributed to differences in land uses between the proposed project and the Specific Plan Conceptual Development Program and differences in site access locations (see Table 1)

Middle Avenue

Taking into consideration the proposed site layout and access, the added traffic to Middle Avenue was reviewed for consistency with the Specific Plan EIR. On a daily basis, the proposed project is expected to generate approximately 528 trips on Middle Avenue, compared to the 87 trips that were projected to be added on this street in the Specific Plan EIR from development on this site. Similarly, during the a.m. peak hour, the proposed project is expected to add 63 new trips on Middle Avenue, compared to the four new trips shown in the Specific Plan EIR from development on this site. During the p.m. peak hour, the proposed project is expected to add 67 new trips on Middle Avenue, whereas the Specific Plan EIR projected nine new trips from development on this site. The projected added traffic on Middle Avenue is shown on Figure 3 for the current development proposal and Figure 4 for the entire Specific Plan Conceptual Development Program.

Summary of Conformance Analysis

It was determined that the proposed project at 500 El Camino Real is generally consistent with the traffic analysis associated with the Conceptual Development Program analyzed in the *El Camino Real/Downtown Specific Plan EIR*, as summarized below:

- The proposed project is located within the El Camino Real South sub area of the Specific Plan and represents one of the opportunity sites identified in the Specific Plan.

- The square footage of the proposed office and retail components would be smaller than the Conceptual Development Program analyzed for the 500 El Camino Real site in the Specific Plan. However, the proposed project would develop multi-family residential units on the site, whereas a hotel was analyzed for the Conceptual Development Program.

- The traffic that would be generated by the currently proposed project would be less than the peak hour and daily trips used in the Specific Plan Conceptual Development Program EIR for the 500 El Camino Real site.

- It is expected that the proposed project would add more traffic to Middle Avenue than was projected in the Specific Plan EIR Analysis, on a daily basis and during both the a.m. and p.m. peak hours.

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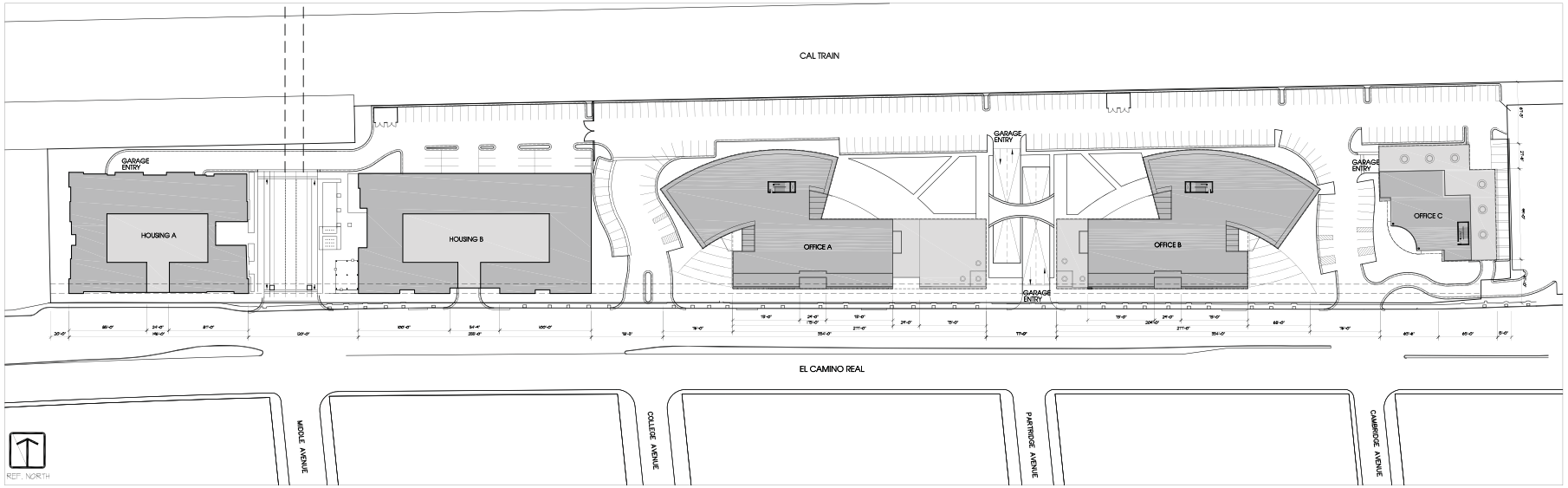
Attachments: Site Plan
Multi-Use Trip Generation Calculation
Trip Generation Summary
Figure 1: Net Change in Project Driveway Traffic Volumes
Figure 2: Specific Plan Driveway Traffic Volumes
Figure 3: Net Project Added Traffic Volumes
Figure 4: Specific Plan Added Traffic Volumes



1 A0.2 OVERALL SITE PLAN
SCALE: 1" = 50'-0"

OVERALL SITE:

OVERALL SITE:	8.43 ACRE (367,210 SF)	OFFICE:	253,731 SF (5.83 AC)
		HOUSING:	113,479 SF (2.60 AC)
ALLOWABLE AREA:		PROPOSED AREA:	
TOTAL:	455,262 SF (FAR 1.25)	OFFICE:	229,500 SF
		RETAIL:	10,000 SF
OFFICE:	229,506 SF (FAR 0.625)	HOUSING:	203,700 SF
		TOTAL:	443,200 SF
PARKING:	REQ'D	PROPOSED PKG:	
OFFICE: (3.8/1,000)	507	AT GRADE:	352
MEDICAL: (4.5/1,000)	432	GARAGE:	872
RETAIL: (4.0/1,000)	40	TOTAL:	1,224
HOUSING: (VARIOUS)	242		
	1,221		
OPEN SPACE: (30%)	REQ'D	PROPOSED OPENSPACE:	
OFFICE:	76,119 SF	OFFICE:	80,962 SF
HOUSING:	34,034 SF	HOUSING:	41,040 SF
	110,162 SF	TOTAL:	122,002 SF (33%)

HOUSING SITE:

			AT GRADE	GARAGE	TOTAL
HOUSING A/B	203,700 SF	PARKING			
HOUSING A	95,210 SF		53	188	241
HOUSING B	108,490 SF				
TOTAL	203,700 SF				
RETAIL	10,000 SF	PARKING			
			AT GRADE	GARAGE	TOTAL
			40	-	40 (4.0/1,000)
TOTAL	213,700 SF		93	188	281

OFFICE SITE:

OFFICES		PARKING (PROPOSED)			
		AT GRADE	GARAGE	TOTAL	BIKE
OFFICE A	108,350 SF	110	302	412 (3.8/1,000)	17
OFFICE B (MEDICAL)	96,150 SF	118	318	436 (4.5/1,000)	15
OFFICE C	25,000 SF	31	64	95 (3.8/1,000)	4
TOTAL	229,500 SF	259	684	943	36

Source: ArchiRender Architects 1/13

010mpa.ai 9/13

Traffic Engineering Analysis for the Stanford 500 El Camino Real Project

Site Plan

w-trans

Multi-Use Trip Generation Calculation

Project 500 El Camino Real

Analyst TDH

Date 3/7/2014

AM PEAK HOUR

SOURCE
Trip Generation Manual
An ITE Recommended Practice
9th Edition, 2012

RETAIL	Shopping Center		
ITE LU	820		
Size	10	KSF	
	Total	**Internal**	**External**
Enter	6	1	5
Exit	4	0	4
Total	10	1	9
%	100%	11%	89%

OFFICE	General Office Building		
ITE LU Code	710		
Size	199.5	KSF	
	Total	**Internal**	**External**
Enter	293	0	293
Exit	40	0	40
Total	333	0	333
%	100%	0%	100%

RESIDENTIAL	Apartment		
ITE LU Code	220		
Size	170	DU	
	Total	**Internal**	**External**
Enter	17	0	17
Exit	70	1	69
Total	87	1	86
%	100%	1%	99%

	Demand		Balanced
Retail → Office	3%	0	0
Retail → Residential	2%	0	0
Office → Retail	31%	91	
Office → Residential	23%	9	0
Residential → Retail	12%	0	0
Residential → Office	31%	5	
Retail → Retail	9%	1	1
Residential → Residential	53%	37	
Office → Office	0%	0	0
Residential → Office	2%	1	0
Office → Residential	0%	0	0
Residential → Residential	2%	0	0

Net External Trips for Multi-Use Development

		RETAIL	OFFICE	RESIDENTIAL	TOTAL
Mixed Use	**Enter**	5	293	17	315
	Exit	4	40	69	113
	Total	9	333	86	428
Combined Single Uses	**Enter**	6	293	17	316
	Exit	4	40	70	114
	Total	10	333	87	430
APPLIED TRIP DEDUCTIONS				**Entering**	-1
				Exiting	-1
				Total Trip Deduction	-2

-0.5%

Note: The *Trip Generation Manual* does not include data for the a.m. peak hour. Therefore, the a.m. peak hour analysis was completed using attraction rates for the p.m. peak hour, applied to a.m. peak hour trip generation data.

Multi-Use Trip Generation Calculation

Project 500 El Camino Real

Analyst TDH

Date 3/7/2014

PM PEAK HOUR

SOURCE
Trip Generation Manual
An ITE Recommended Practice
9th Edition, 2012

RETAIL	Shopping Center		
ITE LU	820		
Size	10	KSF	
	Total	**Internal**	**External**
Enter	18	2	16
Exit	19	3	16
Total	37	5	32
%	100%	14%	86%

Demand 3% 1 — Balanced 1 — Demand 31% 16

Demand 2% 0 — Balanced 0 — Demand 23% 58

Demand 12% 2 — Balanced 2 — Demand 31% 22

Demand 9% 2 — Balanced 2 — Demand 53% 21

OFFICE	General Office Building		
ITE LU Code	710		
Size	199.5	KSF	
	Total	**Internal**	**External**
Enter	51	1	50
Exit	251	1	250
Total	302	2	300
%	100%	1%	99%

Demand 0% 0 — Balanced 0

Demand 2% 5 — Balanced 1

Demand 0% 0

Demand 2% 1

RESIDENTIAL	Apartment		
ITE LU Code	220		
Size	170	DU	
	Total	**Internal**	**External**
Enter	72	3	69
Exit	39	2	37
Total	111	5	106
%	100%	4%	96%

Net External Trips for Multi-Use Development

		RETAIL	OFFICE	RESIDENTIAL	TOTAL
Mixed Use	**Enter**	16	50	69	136
	Exit	16	250	37	303
	Total	32	300	106	438
Combined Single Uses	**Enter**	18	51	72	142
	Exit	19	251	39	309
	Total	37	302	111	450
APPLIED TRIP DEDUCTIONS				**Entering**	-6
				Exiting	-6
				Total Trip Deduction	-12

Multi-Use Trip Generation Calculation

Project 500 El Camino Real

Analyst TDH

Date 3/7/2014

DAILY

SOURCE
Trip Generation Manual
An ITE Recommended Practice
9th Edition, 2012

RETAIL	Shopping Center		
ITE LU	820		
Size	10	KSF	
	Total	**Internal**	**External**
Enter	214	28	186
Exit	213	29	184
Total	427	57	370
%	100%	13%	87%

Demand 3% 6 — Balanced 6 — Demand 15% 167

Demand 4% 9 — Balanced 9 — Demand 22% 244

Demand 11% 23 — Balanced 23 — Demand 33% 190

Demand 9% 19 — Balanced 19 — Demand 38% 219

OFFICE	General Office Building		
ITE LU Code	710		
Size	199.5	KSF	
	Total	**Internal**	**External**
Enter	1110	6	1104
Exit	1109	26	1083
Total	2,219	32	2187
%	100%	1%	99%

Demand 0% 0 — Balanced 0 — Demand 0% 0

Demand 2% 22 — Balanced 17 — Demand 3% 17

RESIDENTIAL	Apartment		
ITE LU Code	220		
Size	170	DU	
	Total	**Internal**	**External**
Enter	577	40	537
Exit	577	19	558
Total	1154	59	1095
%	100%	5%	95%

Net External Trips for Multi-Use Development

		RETAIL	OFFICE	RESIDENTIAL	TOTAL
Mixed Use	**Enter**	186	1,104	537	1,827
	Exit	184	1,083	558	1,825
	Total	370	2,187	1,095	3,652
Combined Single Uses	**Enter**	214	1110	577	1,901
	Exit	213	1109	577	1,899
	Total	427	2,219	1,154	3,800
APPLIED TRIP DEDUCTIONS				**Total Trip Deduction**	-148

500 El Camino Real Project - Trip Generation

Size	Units	ITE Land Use Num.	Land Use	Weekday Trip Rate	Weekday Total	AM PEAK Trip Rate	AM PEAK Number	AM PEAK In	AM PEAK In	AM PEAK In	AM PEAK Out	AM PEAK Out	AM PEAK Out	PM PEAK Trip Rate	PM PEAK Number	PM PEAK In	PM PEAK In	PM PEAK In	PM PEAK Out	PM PEAK Out	PM PEAK Out
Base Trip Generation																					
170	units	220 (F)	Apartment	6.79	1154	0.51	87	20	0.10	17	80	0.41	70	0.65	111	65	0.42	72	35	0.23	39
199.5	ksf	710(F)	General Office Building	11.12	2219	1.67	333	88	1.47	293	12	0.20	40	1.51	302	17	0.26	51	83	1.26	251
10	ksf	820	Shopping Center	42.70	427	0.96	10	62	0.60	6	38	0.36	4	3.71	37	48	1.78	18	52	1.93	19
Subtotal			Total Site		3800		430			316			114		450			141			309
Internal Capture Reduction																					
			Between Office and Retail		-30		0			0			0		-2			-1			-1
			Between Apartment and Retail		-84		-2			-1			-1		-8			-4			-4
			Between Apartment and Office		-34		0			0			0		-2			-1			-1
Total Internal Capture Reduction					-148		-2			-1			-1		-12			-6			-6
Subtotal (less internal capture)																					
			Apartment		1095		86			17			69		106			70			36
			General Office Building		2187		333			293			40		300			49			251
			Shopping Center		370		9			5			4		32			16			16
			Total Site		3652		428			315			113		438			135			303
Transit Reduction																					
-2%			Apartment		-22		-2			0			-2		-2			-1			-1
-1%			General Office Building		-22		-3			-3			0		-3			0			-3
0%			Shopping Center		0		0			0			0		0			0			0
			Total		-44		-5			-3			-2		-5			-1			-4
Total Trip Generation																					
			Apartment		1073		84			17			67		104			69			35
			General Office Building		2165		330			290			40		297			49			248
			Shopping Center		370		9			5			4		32			16			16
			Total Site		3608		423			312			111		433			134			299
			Effective Reduction		5.1%		1.6%			1.3%			2.6%		3.8%			5.0%			3.2%
Existing Use																					
			Driveway counts (see assumptions)		-493		-21			-13			-8		-40			-19			-21
Net New Trip Generation																					
			Total Site		3115		402			299			103		393			115			278
Specific Plan - 500 El Camino Real Site Only																					
			Hotel (Traffix Zone 5122)		2082		151			92			59		159			84			75
			Retail (Traffix zone 5102)		956		22			13			9		83			41			42
			Office (Traffix zone 5101)		2200		317			279			38		291			49			242
			Residential																		
			Total New Trips				490			384			106		533			174			359
Existing to be removed (Retail Traffix zone 5121)					-396		-42			-32			-10		-27			-7			-20
Net Added					4842		448			352			96		506			167			339
Trip Generation Comparison																					
Proposed Project less Specific Plan (500 ECR Site Only)					-1727		-46			-53			7		-113			-52			-61

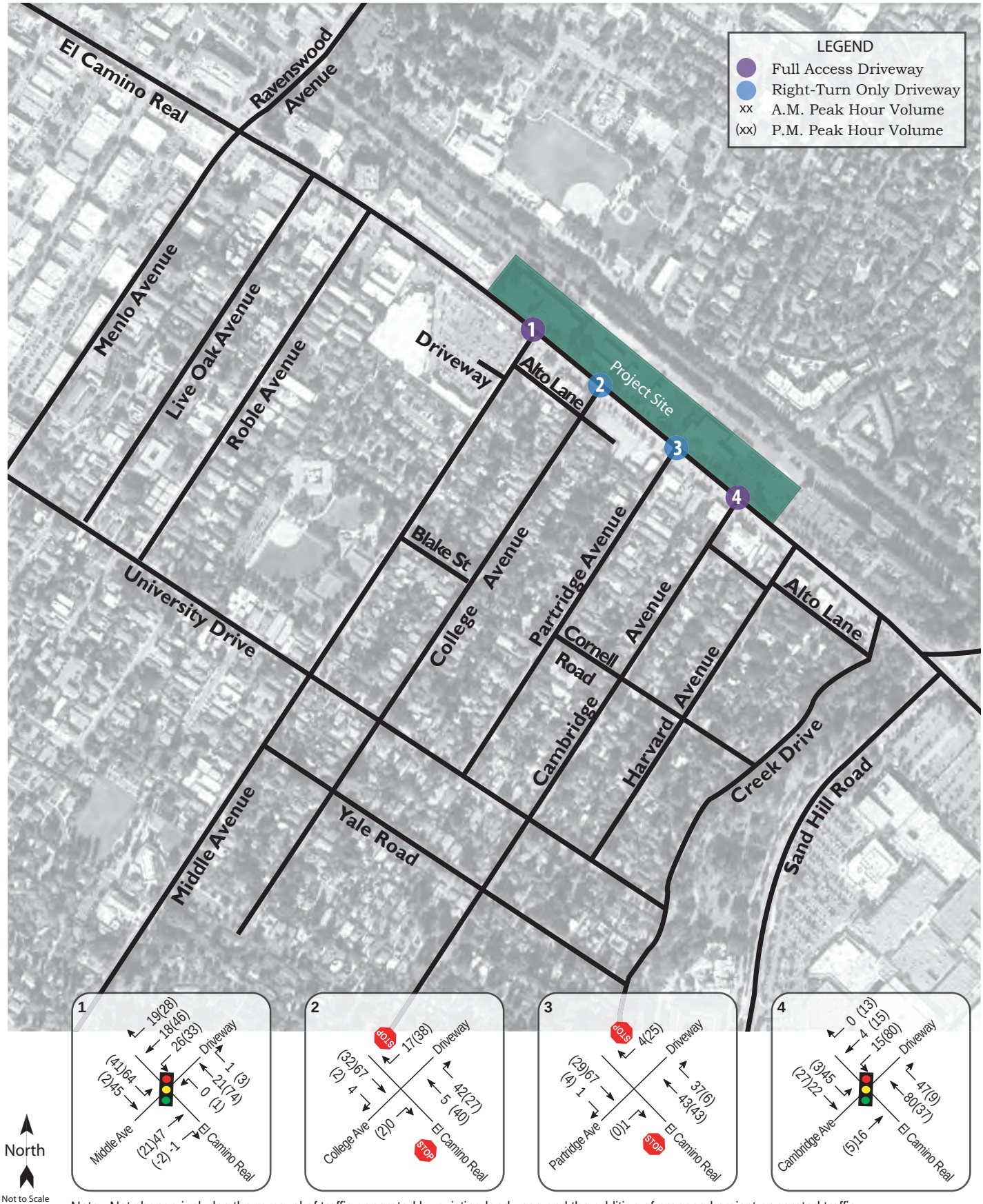
Data Sources:

Trip generation rates and internal capture reduction: *Trip Generation Manual,* 9th Edition, ITE, 2012

Transit reductions: *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis* , Fehr & Peers Transportation Consultants, April 2010

Existing Use Trip Generation: *City of Menlo Park Transportation Division*

Specific Plan Trip Generation Values: *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis Traffix network, Fehr & Peers Transportation Consultants, April 2010, provided by City of Menlo Park Transportation Division*



Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic 010mpa.ai 3/14

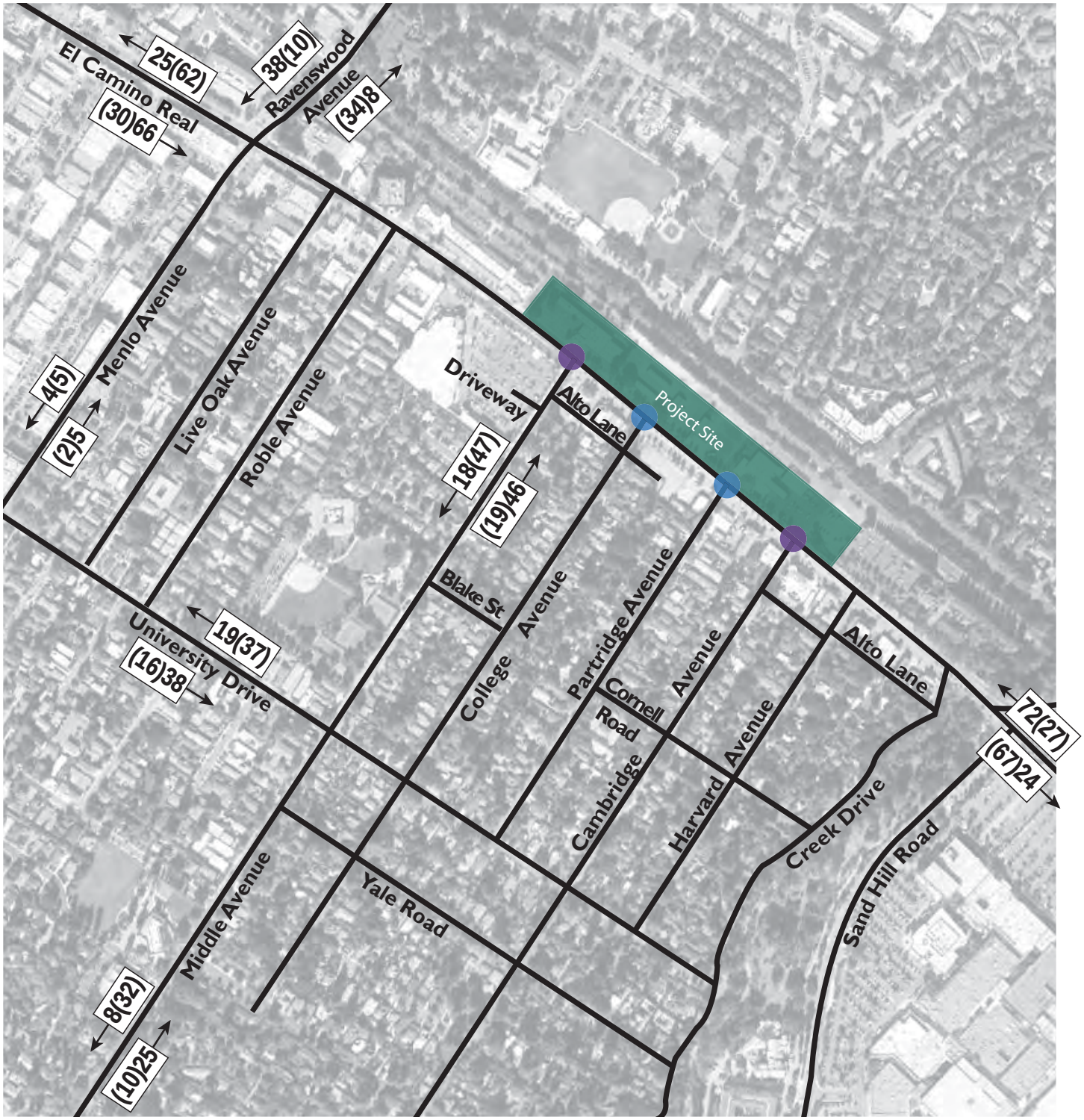
Traffic Engineering Analysis for the 500 El Camino Real Project

Figure 1 – Net Change in Project Driveway Traffic Volumes

Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic 010mpa.ai 3/14

Traffic Engineering Analysis for the 500 El Camino Real Project

Figure 2 – Specific Plan Added Traffic Volumes



LEGEND

- Full Access Driveway
- Right-Turn Only Driveway
- xx A.M. Peak Hour Volume
- (xx) P.M. Peak Hour Volume

North

Not to Scale

Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic 010mpa.ai 2/14

Traffic Engineering Analysis for the 500 El Camino Real Project

Figure 3 – Net Project Added Traffic Volumes

LEGEND

- Full Access Driveway
- Right-Turn Only Driveway
- xx A.M. Peak Hour Volume
- (xx) P.M. Peak Hour Volume

North

Not to Scale

Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic 010mpa.ai 3/14

Traffic Engineering Analysis for the 500 El Camino Real Project

Figure 4 – Specific Plan Added Traffic Volumes

memorandum

Whitlock & Weinberger Transportation, Inc.

475 14th Street
Suite 290
Oakland, CA 94612

voice (510) 444-2600

website www.w-trans.com
email mspencer@w-trans.com

Date: March 10, 2014

To: **Mr. Jesse Quirion**
City of Menlo Park

From: Mark Spencer
Tony Henderson

Project: MPA010

Subject: Response to Comments on 500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency

W-Trans has completed a *Draft 500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency*, January 3, 2014. We are in receipt of comments regarding this memorandum from the following individuals and organization:

- Mr. Stefan Petry, via email to Jesse Quirion dated January 16, 2014
- Mr. Kevin Vincent-Sheehan, via email to Jesse Quirion dated January 16, 2014
- Mr. George C. Fisher, via letter to Jesse Quirion dated January 17, 2014
- Mr. John Donahoe, Stanford University, via letter to Jesse Quirion dated January 17, 2014

For reference, comments within these letters have been individually identified and copies of the comment letters are attached.

Master Response to Comments

Some of the commenters have made similar comments. Therefore the following master responses have been prepared to address these comments. These master responses have been cross-referenced with the respective comment.

Master Response 1

Figures and text have been updated in the memorandum to provide additional information about the assumptions and methodologies utilized for the assignment of project-generated traffic. A summary table has been provided at the beginning of the memorandum to provide a side-by-side comparison of the proposed project and the Specific Plan Conceptual Development Program assumptions for the 500 El Camino Real site. Also, additional graphics have been created to show the distributed traffic generated by the Conceptual Development Program for the 500 El Camino Real site in the Specific Plan analysis.

Master Response 2

As part of Task A2 of our scope of services, the distributed trips that would be generated by the 500 El Camino Real proposed project were compared to trips analyzed in the *El Camino Real/Downtown Specific Plan EIR*. Since the Specific Plan EIR was a program-level analysis, data for individual opportunity sites (such as 500 El Camino Real) was not published in the EIR transportation analysis, and only information about development in an overall sub-area was published. As such, the actual data developed for the

Specific Plan was requested and has been reviewed to determine site-specific assumptions applied in the Specific Plan analysis. The consistency analysis and associated memorandum has been updated to compare the proposed project to just the 500 El Camino Real site rather than the entire El Camino Real South Sub-area.

Master Response 3

It was determined that there is a typographical error on the Net Project Added Traffic Volumes figure, and traffic volumes were not printed in the correct location in a few places. The traffic volumes shown on University Drive and Middle Avenue west of Yale Road have been updated to correct this error. It is noted that correcting this error does not change any of the findings presented in the memorandum.

Master Response 4

It is acknowledged that the Tesla sales and service center may have experienced a different trip generation profile than what is presented in the ITE *Trip Generation Manual* for a New Cars Sales center (Land Use 841). W-Trans, in coordination with City staff, has reviewed data previously collected in the vicinity of the site and determined that it is appropriate to adjust the site-specific trip generation data for the prior use on the site. This has been incorporated into the revised memorandum.

Master Response 5

As stated in the memorandum, it was determined that the proposed development would generally be consistent with the Specific Plan Conceptual Development Program. However, it is acknowledged that this memorandum only addressed the areas of trip generation and traffic distribution. Other aspects of the proposed project were not reviewed.

Individual Response to Comments

Commenter: Stefan Petry

Comment SP-1

See Master Response 1.

Comment SP-2

See Master Response 1 and Master Response 3.

Comment SP-3

See Master Response 1 plus the additional response below.

Comment Part A – the driveway utilization was based on the location of parking and the availability of internal circulation. It was assumed that internal drive aisles would provide access to all parts of the site, and therefore the vast majority of northbound traveling drivers would enter the site before reaching the northernmost driveway located at El Camino Real/Middle Avenue. The driveway at El Camino Real/Partridge Avenue was projected to experience the highest volume of northbound right-turn movements because this driveway provides access to the underground parking area.

Comment Part B – Drivers traveling to/from the proposed development site were assumed to be able to circulate within the site. The new driveway at El Camino Real/Middle Avenue would allow drivers to access Middle Avenue by making a westbound-through movement at this intersection. This would reduce the likelihood that drivers would access Middle Avenue by using a different project driveway then completing a northbound left-turn movement at El Camino Real/Middle Avenue, compared to the existing site configuration.

Comment Part C – The difference in a.m. verses p.m. peak hour traffic volumes is attributed to varying trip generation and distribution profiles for the three different uses on the site, which includes different travel profiles during the respective peak hours.

Comment SP-4

See Master Response 4 as well as the following.

It is common for traffic generated by a previous land use to be considered when completing a transportation impact analysis. This approach is used so that the analysis is based on the net increase in traffic that would be generated by the site, acknowledging the pre-existing impact of traffic generated by the previous use. Per City of Menlo Park procedures, a previous use would be considered if the site was occupied within two years of a development application being submitted. Since the Tesla sales and service center was in operation at the time the current 500 El Camino Real project application was submitted, the traffic generated by Tesla has been considered as part of this analysis to conform with City procedures.

<u>Commenter Kevin Vincent-Sheehan</u>

Comment KVS-1

See Master Response 1.

Comment KVS-2

See Master Response 3.

Comment KVS-3

The cut-through analysis will include consideration of both total traffic volumes and the net increase in traffic related to the proposed project.

Comment KVS-4

See Master Response 4.

Comment KVS-5

The 10,000 vehicles per day capacity cited by the commenter appears to be based on standards adopted by the City of Menlo Park in the *Circulation System Assessment* (CSA), 2004. Although this threshold is identified as being the streets "capacity" in the CSA, it is truly a threshold established by the City to represent a quality of life target. These target capacity thresholds established in the CSA will be considered when completing the cut through traffic analysis and will be used to determine if additional environmental review of the proposed project is recommended.

Comment KVS-6

See Master Response 3.

Comment KVS-7

See Master Response 5.

Comment KVS-8

It is not clear what this comment is referring to, as the figures in the memorandum do not indicate Yale Road connecting to Partridge Avenue.

Comment KVS-9

See Master Response 1 as well as the following:

The trip distribution profiles presented in the City's CSA and used for this analysis are based upon empirical data collected and published by the City of Menlo Park.

Commenter George Fisher

Comment GF-1

See Master Response 1, Master Response 2 and Master Response 5, as well as the following:

It is acknowledged that differing trip distribution and trip assignment assumptions were utilized for the analysis of the 389 El Camino Real project. This is because there would be neither inbound nor outbound left-turn access on El Camino Real for the 389 El Camino Real site, thereby restricting route choice options available to drivers traveling to/from the site.

Furthermore, the 389 El Camino Real project included only residential uses, and not a mix of uses such as those proposed for the 500 El Camino Real site. Since the trip distribution profiles presented in the CSA are partially based on the type of land use, it is expected that there would be an overall difference in how trips would be distributed for the 389 El Camino Real project verses the 500 El Camino Real project.

Comment GF-2

See Master Response 1 and Master Response 5, as well as the following:

Traffic operations and neighborhood analysis will be completed as part B of the scope of services.

Comment GF-3

See Master Response 5.

Comment GF-4

See Master Response 4.

Comment GF-5

The comment is a summary of previously identified comments.

Commenter John Donahoe, Stanford University

Comment SU-1

At the time of the analysis, the data available to the City indicated that the Tesla sales and service center occupied approximately 20,690 square feet of building space the site. It is acknowledged that there is more building space on the site; however, not all of the space was occupied by Tesla. W-Trans and the City has reevaluated the prior use trip generation based on data collected at the site, as described in Master Response 4.

Comment SU-2

See Master Response 2.

Comment SU-3

It is acknowledged that there is potential for project-site residents or employees to choose to walk to adjacent retail uses or Downtown Menlo Park. However, to conduct a conservative analysis it was decided that the internal capture reduction would be calculated for the proposed development only.

Comment SU-4

See Master Response 1.

MS/tdh/MPA010.R2C1.doc

Attachments:
Comment letter from: Mr. Stefan Petry, via email to Jesse Quirion dated January 16, 2014
Comment letter from: Mr. Kevin Vincent-Sheehan, via email to Jesse Quirion dated January 16, 2014
Comment letter from: Mr. George C. Fisher, letter dated January 17, 2014
Comment letter from: Mr. John Donahoe, Stanford University, letter dated January 17, 2014

Tony Henderson

From: Stefan Petry <stefan.petry@gmail.com>
Sent: Thursday, January 16, 2014 9:11 AM
To: Quirion, Jesse T
Cc: George Fisher; Kevin Vincent-Sheehan {Consulting Poster Child}; McIntyre, Alex D; Taylor, Charles W
Subject: Re: Draft (NOT for Public Release) - 500 El Camino Real Project, El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency

Jesse et al:

below please find me questions and comments. Thank you and best regards,
Stefan Petry

Comments and questions regarding W-Trans memorandum dated 1/3/14

1. Page 5/6: How are trips assigned to gateways. For example, how many trips are assigned to Sand Hill West vs. Middle West vs. other westerly routes such as Santa Cruz or Valparaiso to get to I-280? SP-1
2. Second to Last Page (Net Project Added Traffic Volumes): What is the source of the traffic numbers and what assumptions were used? How do the 3 southerly trips on University and the 12 easterly trips on Middle before University relate to the 44 southerly trips on Middle before ECR? Similarly, in the reverse direction: 17 - 1 - 6. Is any traffic assumed on University south of Middle? SP-2
3. Last Page (Net Change in Project Driveway Traffic Volumes): What is the source of the traffic numbers and what assumptions were used? Several sets of numbers appear implausible such as SP-3
    a. Sequence of right turns into the project: 41 - 35 - 42 - 1 (*drop - rise - drop to 1*). I assume the '41' is already net of current Tesla traffic.
    b. Left turn onto Middle of -1 (0)
    c. Right turns into College and Partridge (2)4 vs. (4)1 - Why does College have a (PM)AM rise and Partridge a (PM)AM drop?

4. Page 2: Why are trips from existing uses (Tesla dealership) deducted? Is this not just comparing two planned uses and their respective trip volumes? What was the baseline used in the Specific Plan?

SP-4

There are no comments beyond this point

On Sat, Jan 4, 2014 at 6:16 AM, Quirion, Jesse T <jtquirion@menlopark.org> wrote:

George, Stefan & Kevin,

Attached please find the DRAFT - 500 El Camino Real Project, El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency analysis. This document represents part "A" titled "El Camino Real/Downtown Specific Plan Consistency" of the first of two scopes of work. This component of the analysis will set the ground work for part "B" of the scope titled "Proposal to Provide Plan Review and Traffic Engineering Analysis for the Stanford 500 El Camino Real Project" and the second scope of work titled "Proposal for Neighborhood Cut-Through Traffic Analysis Related to the Stanford 500 El Camino Real Project".

We respectfully request that you review the attached document and provide us with comments by the close of business on Friday January, 17th so that we can expedite the two remaining components of the analysis which will move along much quicker as they are based on the information provided in the attached document.

This document is a working Draft and we ask that it not be released or made available to the general public. This is an opportunity for you as the Neighborhood Representatives to review and comment prior to the document being finalized and released publicly. Stanford will also be receiving this document and they will also be asked to review and provide comments by the same date listed above.

I will be out of the office on Monday and Tuesday but will be available to answer any of your questions on Wednesday the 8th.

Jesse T. Quirion
Transportation Manager
City of Menlo Park
E: jtquirion@menlopark.org<mailto:jtquirion@menlopark.org>
P: 650-330-6744

Tony Henderson

From: Kevin Vincent-Sheehan {Consulting Poster Child} <kevin@joltin.com>
Sent: Thursday, January 16, 2014 2:31 PM
To: Quirion, Jesse T
Cc: 'Stefan Petry'; George Fisher; McIntyre, Alex D; Taylor, Charles W
Subject: RE: Draft (NOT for Public Release) - 500 El Camino Real Project, El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency

My comments pretty much echo Stefan's. Basically, we need more visibility into how the numbers were derived and agreed to do the further studies for impacts before we certify compliance with the SP EIR.

KVS-1

1) we need more visibility into the trip assignments from the gateways to the project, particularly if we want to vary the model. (I.e. what were the weights on the network edges and vertices?)

KVS-2

2) deducting ~700 trips a day for Tesla's departure seems a bit high.
In the absence of raw data, I think we agree it was not a normal volume car dealership.

KVS-3

2a) We're also concerned about absolute traffic volumes, i.e. what we're going to see every day. That informs congestion and cut-thru more than net change and the deduction.

KVS-4

3) Middle Avenue - we think ~500 trips is low. Partly because of #2 above, partly because we believe more people will take Middle rather than El Camino. (Ditto Cambridge.) I.e. the the choice of avoiding El Camino when congested AM/PM seems more likely.

KVS-5

3a) The raw data from last June suggests there are already ~9,000 trips with a capacity of 10,000. Adding ~500 trips will take us to 95% capacity, which is where things get non-linear. Combined with the variability in traffic, we believe this will be a large driver of congestion and neighborhood cut-thru.

KVS-6

3c) The numbers on Middle from University to Olive don't make sense. The ~45 vehicles AM/PM peak seem to appear and disappear from an unknown source.
(and per #3, we think those numbers are low).

That's the school safety route and likely access to cut-thru, so it is of paramount imporantance to understand it.

KVS-7

4) per discussion, the finding of conformance with the SP EIR will be delayed until we have completed the further traffic studies in order to assess impacts discovered in that process.

KVS-8

5) Yale Road doesn't connect to Partridge :-)

KVS-9

6) Use of the raw data gathered to verify assumptions about distribution etc. would be useful.

There are no comments beyond this point

On Thu, 16 Jan 2014, Quirion, Jesse T wrote:

> Date: Thu, 16 Jan 2014 11:50:55 -0800

> From: "Quirion, Jesse T" <jtquirion@menlopark.org>
> To: 'Stefan Petry' <stefan.petry@gmail.com>
> Cc: George Fisher <georgecfisher@gmail.com>,
> Kevin Vincent-Sheehan {Consulting Poster Child} <Kevin@joltin.com>,
> "McIntyre, Alex D" <admcintyre@menlopark.org>,
> "Taylor, Charles W" <CWTaylor@menlopark.org>
> Subject: RE: Draft (NOT for Public Release) - 500 El Camino Real Project,
> El Camino Real/Downtown Specific Plan Vehicular Traffic
> Consistency
>
> Stefan,
>
> Thank you for the comments. We will discuss them with W-Trans once we have received comments from everyone and then we will circle back with you.
>
> Jesse T. Quirion
> Transportation Manager
> City of Menlo Park
> E: jtquirion@menlopark.org<mailto:jtquirion@menlopark.org>
> P: 650-330-6744
>
> From: Stefan Petry [mailto:stefan.petry@gmail.com]
> Sent: Thursday, January 16, 2014 9:11 AM
> To: Quirion, Jesse T
> Cc: George Fisher; Kevin Vincent-Sheehan {Consulting Poster Child};
> McIntyre, Alex D; Taylor, Charles W
> Subject: Re: Draft (NOT for Public Release) - 500 El Camino Real
> Project, El Camino Real/Downtown Specific Plan Vehicular Traffic
> Consistency
>
> Jesse et al:
>
> below please find me questions and comments. Thank you and best
> regards, Stefan Petry
>
>
>
> Comments and questions regarding W-Trans memorandum dated 1/3/14
>
> 1. Page 5/6: How are trips assigned to gateways. For example, how
> many trips are assigned to Sand Hill West vs. Middle West vs. other
> westerly routes such as Santa Cruz or Valparaiso to get to I-280?
>
> 2. Second to Last Page (Net Project Added Traffic Volumes): What is
> the source of the traffic numbers and what assumptions were used? How
> do the 3 southerly trips on University and the 12 easterly trips on
> Middle before University relate to the 44 southerly trips on Middle
> before ECR? Similarly, in the reverse direction: 17 - 1 - 6. Is any
> traffic assumed on University south of Middle?
>
> 3. Last Page (Net Change in Project Driveway Traffic Volumes): What
> is the source of the traffic numbers and what assumptions were used?

> Several sets of numbers appear implausible such as
>
> a. Sequence of right turns into the project: 41 - 35 - 42 - 1 (drop -
> rise
> - drop to 1). I assume the '41' is already net of current Tesla traffic.
>
> b. Left turn onto Middle of -1 (0)
>
> c. Right turns into College and Partridge (2)4 vs. (4)1 - Why does
> College have a (PM)AM rise and Partridge a (PM)AM drop?
>
> 1. Page 2: Why are trips from existing uses (Tesla dealership)
> deducted? Is this not just comparing two planned uses and their respective trip volumes?
> What was the baseline used in the Specific Plan?
>
> On Sat, Jan 4, 2014 at 6:16 AM, Quirion, Jesse T <jtquirion@menlopark.org<mailto:jtquirion@menlopark.org>> wrote:
> George, Stefan & Kevin,
>
> Attached please find the DRAFT - 500 El Camino Real Project, El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency analysis. This document represents part "A" titled "El Camino Real/Downtown Specific Plan Consistency" of the first of two scopes of work. This component of the analysis will set the ground work for part "B" of the scope titled "Proposal to Provide Plan Review and Traffic Engineering Analysis for the Stanford 500 El Camino Real Project" and the second scope of work titled "Proposal for Neighborhood Cut-Through Traffic Analysis Related to the Stanford 500 El Camino Real Project".
>
> We respectfully request that you review the attached document and provide us with comments by the close of business on Friday January, 17th so that we can expedite the two remaining components of the analysis which will move along much quicker as they are based on the information provided in the attached document.
>
> This document is a working Draft and we ask that it not be released or made available to the general public. This is an opportunity for you as the Neighborhood Representatives to review and comment prior to the document being finalized and released publicly. Stanford will also be receiving this document and they will also be asked to review and provide comments by the same date listed above.
>
> I will be out of the office on Monday and Tuesday but will be available to answer any of your questions on Wednesday the 8th.
>
> Jesse T. Quirion
> Transportation Manager
> City of Menlo Park
> E:
> jtquirion@menlopark.org<mailto:jtquirion@menlopark.org><mailto:jtquiri
> on@menlopark.org<mailto:jtquirion@menlopark.org>>
> P: 650-330-6744<tel:650-330-6744>
>
>

GEORGE C. FISHER COMMENTS AS NEIGHBORHOOD REPRESENTATIVE ON JANUARY 3, 2014 DRAFT PART A STUDY. JANUARY 17, 2014

Jesse, I have the following comments on the W-Trans draft of Subpart A ("Draft") onf the first work order consisting of Parts A and B. We discussed some of these the Councilmember Carlton this week, and I am including her on a copy of these comments. I understand we will have an opportunity to discuss and review any additional work and further drafts prior to acceptance.

I. IT IS PREMATURE TO CONCLUDE A SPECIFIC PLAN CONSISTENCY REPORT WITHOUT A COMPARISON OF THE TRAFFIC ASSIGNMENT ASSUMPTIONS OF THE SPECIFIC PLAN EIR AND THE STANFORD PROJECT TRAFFIC STUDIES.

GF-1

When we discussed the traffic study scope with Mark Spencer, he agreed to include a comparison of traffic assignment assumptions. Mark drafted the language requiring them in the contract, which was subsequently approved and accepted by the City Council ("Contract"). As he said in the Contract, traffic assignment is "traffic routing based on local knowledge, traffic conditions and professional judgment". He agreed to provide a comparison of the traffic assignment assumptions used in the Specific Plan and the Stanford Project. The Draft does not include that comparison.

The comparison is necessary because trip assignment is an essential step in the traffic analysis model used in the EIR and Draft consistency analysis. The first step is trip generation, a calculation of trips based upon a national table applied to specific land uses, according to size and use. The second step is traffic distribution, which, in both cases, is a table in the Menlo Park Traffic guidelines, which lists the origin/destination gateways in Menlo Park for west Menlo Park traffic and a percentage of traffic using those gateways. The third step, trip assignment, then routes the traffic to and from those gateways over the network of city streets.

The trip assignment comparison is necessary to analyze consistency and comparison of apples and apples. For example, the Specific Plan purported to state daily and peak hour volume for roadways and intersections. It assigned 222 additional daily trips to Middle Avenue out of a total additional 13,385 additional daily trips in the Specific Plan area. In addition the EIR assigned other routes west. It assigned 3,108 trips to the west on Menlo Ave, (787 trips) Santa Cruz Avenue (1,134 trips), Oak Grove (699 trips), and Valparaiso (488 trips) (Exhibit A, EIR p 4.13.52). There is no way to review or test the assumptions for the 222 trips on Middle against or compared to the assignment of the 3,108 trips on adjacent streets.

Nor is there any way to analyze the current draft's conclusion of 509 additional daily trips On Middle, out of a total of 2908 total trips from the Stanford Project, next to the Specific Plan EIR 222 additional daily trips on Middle, out of 13,385.

Mr. Spencer in his EIR report on the 389 El Camino Real residential project across the street from the Stanford Project assigned 57% of generated traffic to flow west in Same direction as Middle Ave, 17% ECRS, 12% ECRN and 14% Ravenswood (See Exhibit B, Figure IV.B-8 attached). The current number (509) seems to show approximately 17% in direction of Middle. Again the trip assignment assumptions are needed to explain the difference.

In any event, the numbers for Middle stated in Specific Plan and current draft seem significantly understated considering the routes normally used to access both 280 and 101 and other gateways. Attached as Exhibit C is my schematic of routes used based upon my 38 years of accessing both 280, 101 SR 84 and other gateways in the CSA from 1121 Cotton Street, my home in West Menlo Park. Bear in mind the CYSA state the percentage of office (employment) traffic to and from West Menlo to and from Gateways 280 at 28%, 101 at 21%%, SR 84 E (Dumbarton) at 20%, ECR N at 7%, ECR S 4% and Sand Hill Road E at 1% and W at 1% (see Draft, Table 4, p. 5) The trip assignment assumptions are needed to explain any differences.

The comments of neighborhood representatives, Stefan Petry and Kevin Vincent Sheehan further demonstrate the need for clarity and traffic assignment assumptions.

GF-2

II. IT IS PREMATURE TO CONCLUDE THE CONSISTENCY REPORT BEFORE COMPLETIONS OF THE STUDY OF THE STANFORD PROJECT TRAFFIC ON EL CAMINO REAL (PART B OF CONTRACT) OR THE ANALYSIS OF POTENTIAL IMPACTS ON RESIDENTIAL NEIGHBORHOODS IN THE CUT THROUGH ANALYSIS CONTRACT.

The scopes of work will study traffic impacts from the Stanford Project including Intersection Level of Service, queuing, analysis of recent actual data, or if none, collection of new data. Also the cut through analysis will assess impacts on neighborhoods related to project generated congestion and cut-through traffic. These relate specifically to Specific Plan consistency, because the Specific Plan EIR includes analysis of volumes and intersection Levels of Service which are being analyzed in the currently pending studies and any conformance or consistency analysis will depend upon those studies.

The Contract for cut through analysis requires adequate disclosure of all underlying assumptions and data, with the "intent to make analysis, assumptions, methodology, trip distribution gateways, trip assignment routes, and potential peak hour and daily effects of the proposed project as well as overall congestion clear to residents, city staff and decision makers." This work and disclosure needs to be done for inclusion in the sufficiency report and there is no excuse for not making the same adequate meaningful disclosure in the Sufficiency Report.

GF-3

III. IT IS PREMATURE TO MAKE ANY CONSISTENCY CONCLUSIONS OTHER THAN THE SPECIFIC FINDINGS STATED AS BULLET POINTS ON PAGE 7 OF THE DRAFT.

Although the purported summary of conformance analysis begins with the words "It was determined that the proposed project is generally consistent with the Conceptual development program analyzed in the . ..[Specific Plan] as summarized below:", the summary and body of the draft show the only items analyzed for possible consistency are those stated in the bullet points. At most the Report should state that only those bullet points were found consistent or inconsistent with the Specific Plan, not the entire project. The effects of the entire project are being further studied in Part B and the cut-through

GF-4

IV. REDUCTION OF STANFORD'S 3608 TRAFFIC GENERATED ADDITIONAL TRIPS BY 690 TRIPS OR APPROXIMATELY 20% , BECAUSE OF CLAIMED PRIOR USE BY TESLA IS LUDICROUS, AND, IN ANY EVENT, INCORRECT.

The Draft acknowledges that the Stanford Project will generate 3608 additional trips. However it claims it should be reduced by 690 trips a day because that was what Tesla's ITE trip generation table stated for new car sales and service uses. Tesla is unique, providing Electric cars with a minimum price of approximately $60,000 approaching $100,000. Any traffic for Tesla was much more limited than the general auto sales and service category.

In any event such numbers from Tesla operations cannot be considered valid because the recent traffic counts, which the Draft said included the time Tesla was in operation demonstrate minimal if any traffic. Tesla did not use access from middle and used Cambridge primarily, with some access opposite partridge (see Aerial Photo, Exhibit D.

Peak hour traffic counts (Exhibit E) from the driveway opposite Cambridge, show only one peak hour trip leaving the Cambridge extension crossing to Cambridge, 5 peak hour trips each per Am and PM peak hour exiting and turning south on ECR, and 2 Am and 10 Pm peak hour trips exiting ECR turning right. These numbers include all traffic from the Stanford Park Hotel. Partridge and the Partridge extension drive way show almost no usage. There is no way tesla traffic approached anything like 690 daily trips with the claimed totals of 42 AM peak hour trips and 54 peak hour PM trips claimed in the Draft report.

The Stanford Generated Trips are therefore a total of 3608 additional Daily Trips, and 430 AM peak hour trips and 450 PM peak Hour Trips. All volumes stated in the draft report should be adjusted accordingly increasing them by 25%. The results are Middle avenue additional daily trips of 636 trips per day, almost three times the 222 stated in the Specific Plan. All Peak hour trips need similar adjustment.

GF-5

CONCLUSION

The Draft is Premature, requires a comparison of trip assignment assumptions supporting the determination of street volume per day, Peak Hour trips, Intersection congestion and level of service. The Draft also requires completion of Part B and the Cut through analysis before being finalized, and needs revision and correction. Thank You, George

TABLE 4.13-9
EXISTING PLUS PROJECT ROADWAY LEVELS OF SERVICE

Roadway Segment	Classification	Existing ADT	Added Daily Volume	Existing Plus Project ADT	Impact?
1. Encinal Avenue - Laurel to Middlefield (At/MP)	Collector	3,359	80	3,439	No
2. Encinal Avenue - El Camino to Laurel (MP)	Collector	4,540	86	4,626	No
3. Valparaiso Avenue - Delfino Way to El Camino (At/MP)	Minor Arterial	10,208	488	10,696	No
4. Glenwood Avenue - El Camino to Laurel (MP)	Collector	5,766	130	5,896	No
5. Oak Grove Avenue - Middlefield to Laurel (At/MP)	Collector	8,650	***847***	***9,497***	***Yes***
6. Oak Grove Avenue - Laurel to El Camino (MP)	Collector	9,590	***861***	***10,451***	***Yes***
7. Oak Grove Avenue - El Camino to Crane (MP)	Collector	8,367	***699***	***9,066***	***Yes***
8. Oak Grove Avenue - Crane to University (MP)	Collector	5,842	699	6,541	No
9. Santa Cruz Avenue - El Camino to Crane (MP)	Minor Arterial	7,351	1,134	8,485	No
10. Santa Cruz Avenue - Crane to University (MP)	Minor Arterial	8,603	1,134	9,737	No
11. Santa Cruz Avenue - University to Olive (MP)	Minor Arterial	15,445	1,694	17,139	No
12. Santa Cruz Avenue - Olive to Avy/Orange (MP)	Minor Arterial	15,135	1,694	16,829	No
13. Santa Cruz Avenue - Avy/Orange to Alameda de las Pulgas (MP)	Minor Arterial	10,522	***1,451***	***11,973***	***Yes***
14. Menlo Avenue - El Camino to Crane (MP)	Collector	8,675	***787***	***9,462***	***Yes***
15. Menlo Avenue - Crane to University (MP)	Collector	6,881	202	7,083	No
16. Ravenswood Avenue - Middlefield to Laurel (At/MP)	Minor Arterial	16,833	***1,348***	***18,181***	***Yes***
17. Ravenswood Avenue - Laurel to Alma (MP)	Minor Arterial	18,250	***1,822***	***20,072***	***Yes***
18. Ravenswood Avenue - Alma to El Camino (MP)	Minor Arterial	22,345	***1,822***	***24,167***	***Yes***
19. Middle Avenue - El Camino to University (MP)	Collector	8,608	222	8,830	No
20. Middle Avenue - University to Olive (MP)	Collector	6,622	52	6,674	No
21. Oak Avenue - Sand Hill Road to Olive Street (MP)	Local	2,549	17	2,566	No
22. Willow Road - Laurel to Middlefield (MP)	Collector	4,963	32	4,995	No
23. Olive Street - Oak to Middle (MP)	Local	2,641	16	2,657	No
24. University Drive - Oak Grove to Santa Cruz (MP)	Collector	6,658	774	7,432	No
25. University Drive - Santa Cruz to Menlo (MP)	Collector	8,117	613	8,730	No
26. University Drive - Menlo to Middle (MP)	Collector	5,038	438	5,476	No
27. Laurel Street - Ravenswood to Willow (MP)	Collector	5,313	32	5,345	No
28. Middlefield Road - Ringwood to Willow (MP)	Minor Arterial	20,027	***1,822***	***21,849***	***Yes***
29. Waverley Street - Laurel to Linfield (MP)	Local	1,478	4	1,482	No
30. Linfield Drive - Waverley to Middlefield (MP)	Local	1,583	4	1,587	No

NOTES:
Potentially significant impacts are indicated in ***bold and italic*** type
Jurisdictions: Ct - Caltrans, At - Atherton, MP - Menlo Park, PA - Palo Alto

SOURCE: Fehr & Peers, 2010.

EXHIBIT A

LSA

FIGURE IV.B-8

N

NOT TO SCALE

● Study Intersection

←26%→ Directional Distribution of Trips

Project Site

SOURCE: DKS ASSOCIATES, 2011.

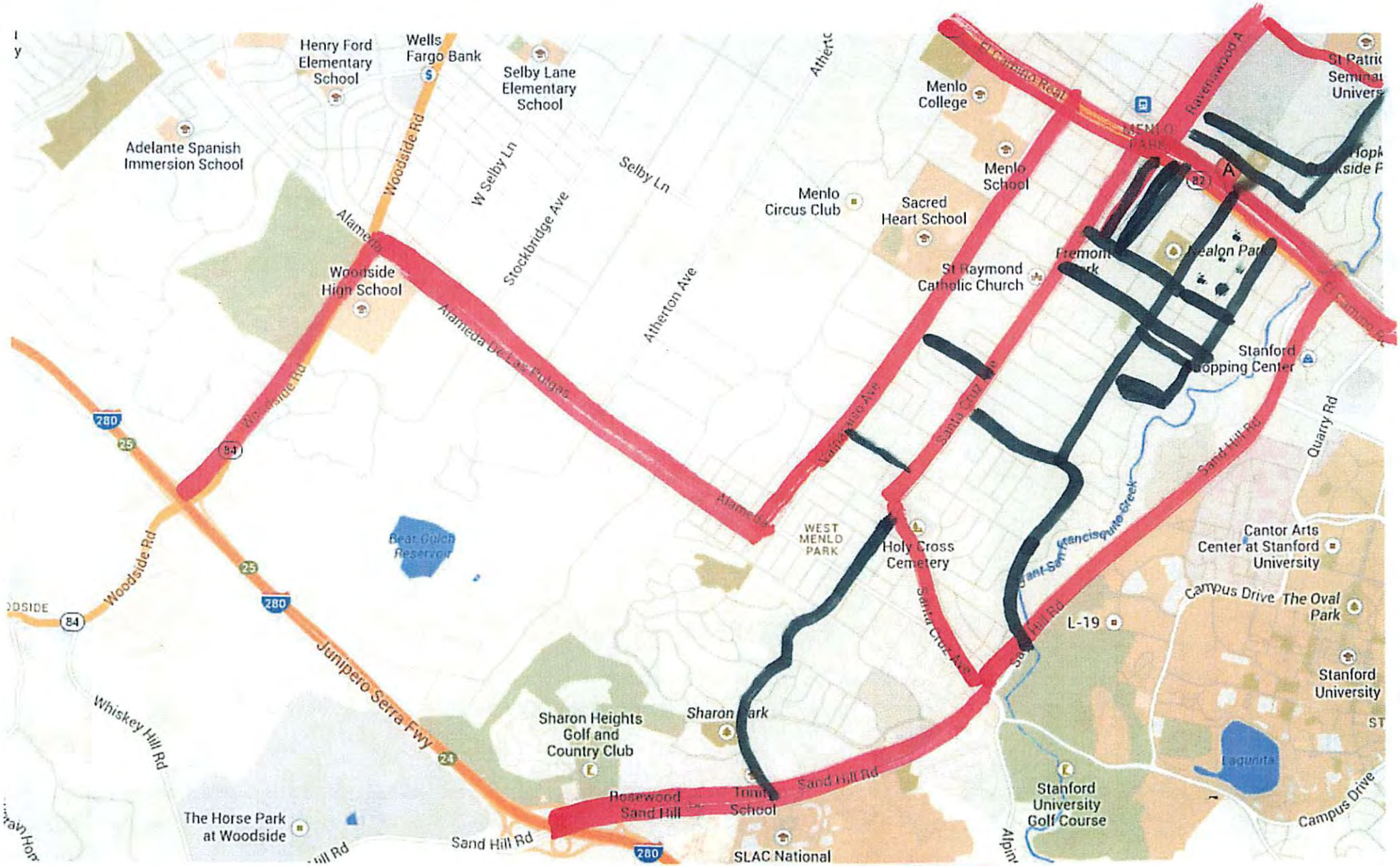
I:\CMK1001 389 El Camino Real\figures\Fig_IVB8.ai (12/28/11)

389 El Camino Real Project EIR

Trip Distribution

EXHIBIT B

STANFORD PROJECT 3500 CAR TRIPS PER DAY



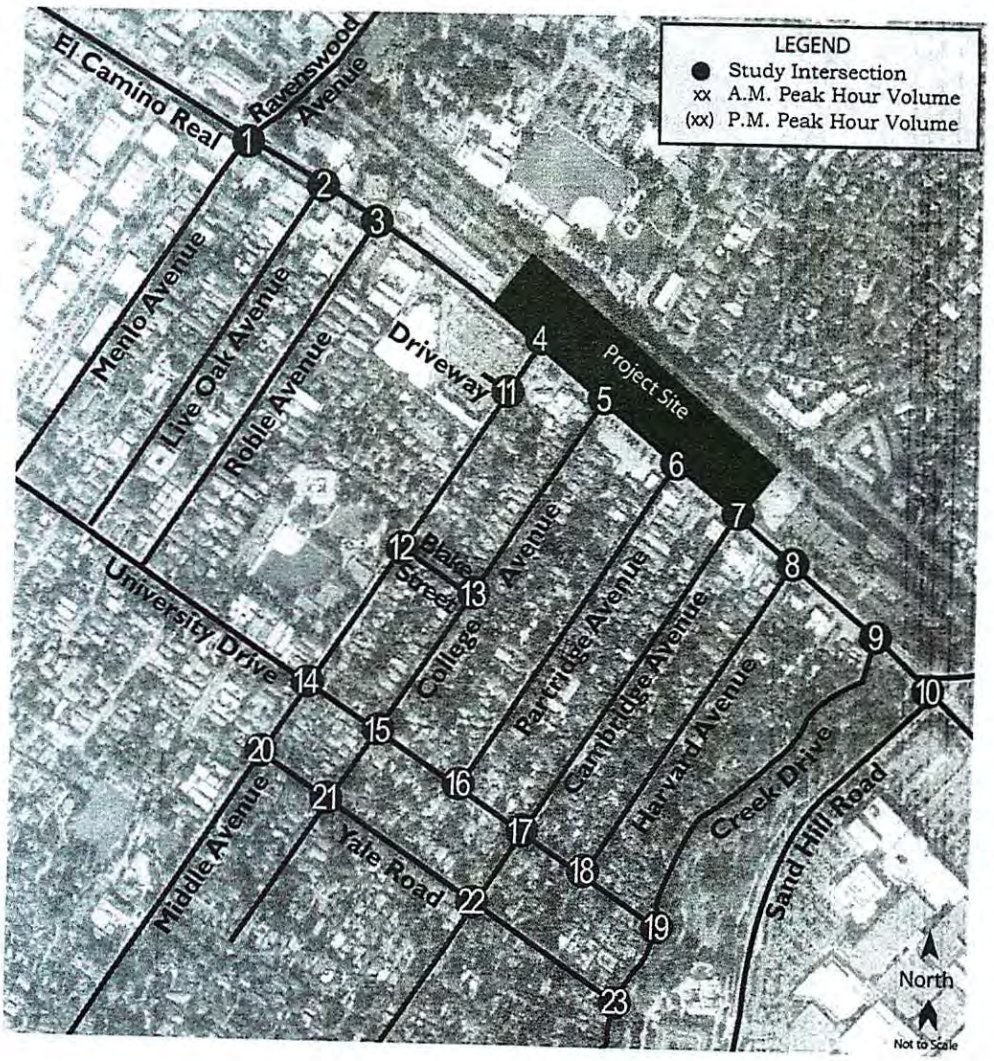
PRIMARY ACCESS

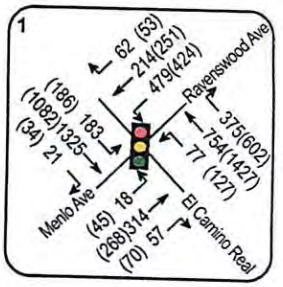
OUT THROUGH ACCESS

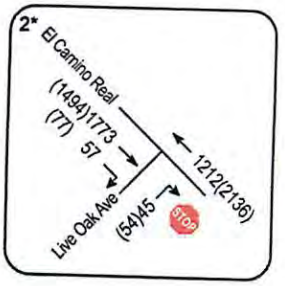
EXHIBIT E

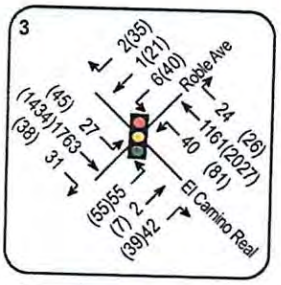

Alma St
El Camino Real
El Camino Real
El Camino Real
El Camino Real
El Camino Real
Partridge Ave
82

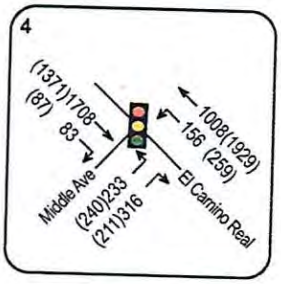
EXHIBIT D

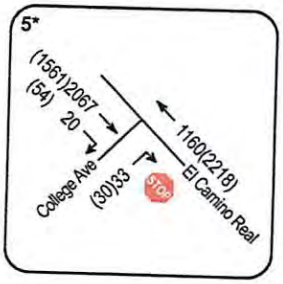


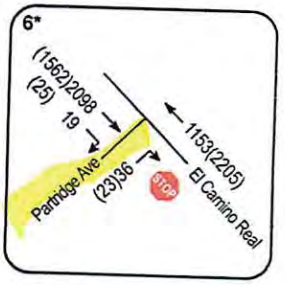


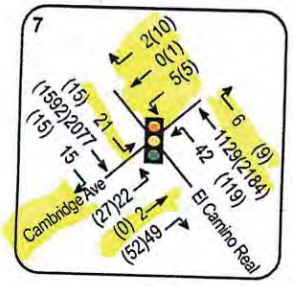


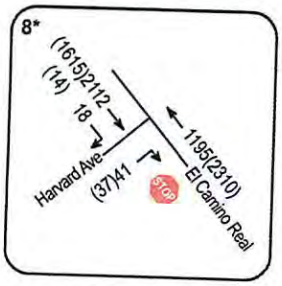


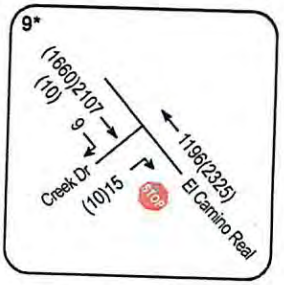


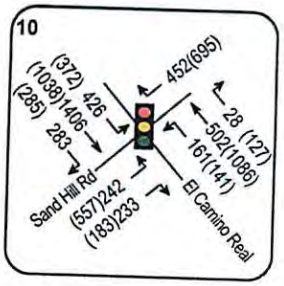












*Northbound through traffic volumes were balanced based on upstream and downstream intersection volumes.

010mpa.ai 7/13

Traffic Engineering Analysis for the 500 El Camino Real Project

Existing Traffic Volumes - El Camino Real

w-trans

EXHIBIT 6e

STANFORD UNIVERSITY

January 17, 2014

Jesse T. Quirion
Transportation Manager
City of Menlo Park Public Works
701 Laurel Street
Menlo Park, CA 94025

Re: Draft W-Trans Report re 500 El Camino Real - El Camino Real Downtown Specific Plan Vehicular Traffic Consistency

Dear Jesse:

Thank you for providing the January 3, 2014 draft W-Trans report, prepared as Task A under the August 20, 2013 scopes of work for the 500 El Camino Real project. Stanford and its consultants have reviewed the draft and have the following comments.

SU-1

a. At page 1, the draft states that the Specific Plan EIR assumed development on the project site would replace approximately 20,690 square feet of auto dealerships. This number should be corrected because at the time the EIR was prepared, 29,625 square feet of the auto dealerships were occupied and the EIR used this number to calculate net vehicle trips. Accordingly, we suggest changing the second-to-last sentence on page 1 along the following lines: "In the Specific Plan EIR, it was assumed that development on the project site would replace approximately 29,625 square feet of car dealerships, which were occupied at that time."

SU-2

b. The draft at pages 2-4 provides a comparison of trip generation from the proposed project to trip generation described for the entire El Camino South subarea in the Specific Plan EIR. This information shows the proposed project would not exceed the Specific Plan EIR's estimate of vehicle trips for the entire El Camino South subarea, which is not surprising. Our understanding, however, was that Task A was to provide a *site-specific* comparison of trips assumed in the Specific Plan EIR for development of 500 El Camino Real and trips assumed for the same site under the proposed project. We request that this comparison be conducted.

SU-3

c. At pages 3-4, the "Internal Capture Trips" discussion is inconsistent with the methodology used in the Specific Plan EIR and TIA and results in a significant overstatement of likely trips. The draft's discussion on internal capture acknowledges that the Specific Plan mixed-use reduction of 10% is appropriate for analyzing the Specific Plan area as a whole, but then states that the detailed project analysis should be performed considering only the land uses in a specific development. The draft then uses an ITE internalization analysis technique considering only the project land uses to determine a 1% internal trip reduction for the project.

STANFORD REAL ESTATE
3160 Porter Drive, Suite 200, Palo Alto, CA 94304 • T: 650.723.8902 • F: 650.724.5059

This approach ignores the mixed-uses in the downtown area, and more specifically, the relationship of the project to the complementary retail uses immediately across the street from and immediately adjacent to the project site. The location of the project within easy walking distance of retail uses needs to be considered when developing the internal /mixed-use rate since it fully supports the concept of mixed use development proposed in downtown Menlo Park. In sum, particularly at this site, there is no basis for departing from the methodology the City adopted in the Specific Plan TIA and EIR.

d. It is difficult for us to track the discussion of Trip Assignment (pages 5- 6) since the report does not include any discussion of how trip assignment was performed. In this respect the draft does not satisfy item A.2 of the August 20 scope of work, which states: "A comparison of trip assignment (traffic routing based on local knowledge, traffic conditions and professional judgment) assumptions used in the El Camino Real/Downtown Specific Plan EIR and the proposed 500 El Camino Real project will be provided." Because this information is missing, it is not possible to fully understand how the analysis was performed and the discussion of the results. The difficulty is compounded by the last two figures included in the draft, the first suggests that W-Trans assigned no traffic to Allied Arts streets and the second indicates that W-Trans did so at the intersection of El Camino Real and Cambridge Avenue. The draft should be revised to provide the trip assignment explanation required by the scope of work.

SU-4

Thank you again for the opportunity to review this Task A draft. Please let me know if you have questions or would like to discuss the draft further.

Sincerely yours,

John Donahoe
Associate Director, Development

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memorandum

Whitlock & Weinberger Transportation, Inc.

475 14th Street
Suite 290
Oakland, CA 94612

voice (510) 444-2600

website www.w-trans.com
email mspencer@w-trans.com

Date: May 6, 2014

To: **Mr. Jesse Quirion**
City of Menlo Park

From: Mark Spencer
Tony Henderson

Project: MPA010

Subject: 500 El Camino Real – Traffic Operational Analysis

W-Trans has completed an access alternatives analysis for the the proposed project at 500 El Camino Real compared with the El Camino Real/Downtown Specific Plan. This memorandum summarizes the analysis the traffic associated with the proposed project and compares the project's impact on adjacent transportation facilities for six alterative access configurations. This analysis represents the second of three building block documents that will be prepared for this analysis. The first element was the *500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency* (March 7, 2014), in which the proposed project was compared to the El Camino Real/Downtown Specific Plan. The upcoming third element will be an analysis of potential cut-through traffic in the Allied Arts Neighborhood.

Attached to this memorandum are the following figures and tables:

- Table 1 – Alternative Access Comparison
- Table 2 – Alternative Access Comparison – Added Traffic Volumes
- Table 3 – Site Access Alternatives – Pros and Cons
- Figures 1A and 1B – Driveway Alternatives
- Intersection Level of Service Summary
- Intersection Queuing Summary

Development of the proposed project under the various access alternatives would result in differences in intersection level of service and queuing operations along El Camino Real between the access alternatives. The primary distinction between the access alternatives; however, would be the relative contribution of traffic on nearby arterial and collector streets, as summarized on Table 1. Additionally, there would be distinct effects in the form of redistribution of traffic and weaving on El Camino Real, as discussed in this memorandum.

Vehicular Access Alternatives

The proposed project site would be accessed via four driveways on El Camino Real. In addition to the access configuration proposed by the applicant, five access alternatives were developed for the site. These alternatives were developed in coordination with City staff based on the characteristics of the site as well as access to nearby land uses and streets along El Camino Real. All access alternatives incorporated these four driveways, but there were variations in which movements would be allowed at which driveways. The alternatives are described below and are shown on the attached Figures 1A and 1B, along with the corresponding lane configurations. The driveways located at El Camino Real/Middle Avenue and El Camino Real/Cambridge Avenue would remain signalized, while the other two driveways would be unsignalized (uncontrolled on the El Camino Real approaches)

Current Proposal

The proposed site plan submitted by the applicant includes the following access configuration:

- Middle Avenue – all movements would be permitted entering and exiting the project site.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – all movements would be permitted entering and exiting the project site.

Alternative A

- Middle Avenue – all movements would be permitted entering and exiting the project site.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – in addition to right-turn in and out movements at the driveway, a southbound (inbound) left-turn movement would be permitted. The intersection would remain uncontrolled on the El Camino Real approaches. The implications of this left-turn lane are discussed "Implementation of Alternatives" section.
- Cambridge Avenue – the project driveway access would be restricted to right-turn in and out movements only. All other movements not related to the project site at the intersection would be maintained with their current configuration (See Figure 1A).

Alternative B

- Middle Avenue – the project driveway access would be restricted to right-turn in and out movements only. All other movements at the intersection would be maintained with their current configuration.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – all movements would be permitted entering and exiting the project site.

Alternative C

- Middle Avenue – the project driveway access would be restricted to right-turn in and out movements only. All other movements at the intersection would be maintained with their current configuration.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – in addition to right-turn in and out movements at the driveway, a southbound (inbound) left-turn movement would be permitted. The intersection would remain uncontrolled on the El Camino Real approaches. The implications of this left-turn lane are discussed "Implementation of Alternatives" section.
- Cambridge Avenue – the project driveway access would be restricted to right-turn in and out movements only. All other movements not related to the project site at the intersection would be maintained with their current configuration (See Figure 1A).

Alternative D

- Middle Avenue – eastbound and westbound through movements would be prohibited; however, all other movements at the intersection would be permitted.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – eastbound and westbound through movements would be prohibited; however, all other movements at the intersection would be permitted.

Alternative E

- Middle Avenue – the westbound (outbound) left-turn movement would be prohibited with all other movements permitted entering and exiting the project site.
- College Avenue – the project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – the southbound (inbound) left-turn movement would be prohibited with all other movements permitted entering and exiting the project site.

Access to Stanford Park Hotel

Implementation of either Alternative A or Alternative C would result in the removal of the existing southbound left-turn movement at the El Camino Real/Cambridge Avenue driveway. Currently the Stanford Park Hotel shares inbound access with the project site at this driveway. This driveway serves as the hotel's only access for drivers traveling in the southbound direction. Therefore, removal of the existing southbound left-turn movement at El Camino Real/Cambridge Avenue would result in the removal of southbound left-turn access into the hotel and result in southbound drivers destined for the hotel to continue to the intersection of El Camino Real/Sand Hill Road, where they would complete a U-turn movement, then enter the hotel via a northbound right-turn movement. It is acknowledged that would result in change to the access for the Stanford Park Hotel; however, this turn restriction was included in the alternative analysis as it represents one of the possible physical options for site access.

Redistribution of Traffic

Any access alternative that would restrict access to the site also has the potential to redistribute traffic in the area. Some possible examples include:

- If access between the project site and Middle Avenue and/or Cambridge Avenue is restricted, drivers may choose to use other local and collector streets as an alternative route.
- Drivers may still choose to travel on Middle Avenue or Cambridge Avenue, but doing so would require an increase in both turning and weaving maneuvers on El Camino Real to travel between the project site and Middle Avenue/Cambridge Avenue.

Additionally, restricting access to the project site would likely result in a larger portion of project-generated traffic traveling on regional routes, such as El Camino Real, Sand Hill Road and Santa Cruz Avenue, thereby resulting in increased congestion on these routes. Or traveling on local routes such as Middle Avenue, Cambridge Avenue and Roble Avenue. Because of this increase in congestion on

regional routes, drivers unrelated to the project site may choose to use alternative routes such as Middle Avenue, Cambridge Avenue and other local and collector streets. It is noted that the added traffic volumes discussed in this memorandum are project-related traffic, and do not account for this redistribution of non-project traffic.

Implementation of Alternatives

Partridge Avenue Southbound Left-Turn Lane (Alternatives A and C)

Installation of a southbound left-turn lane at El Camino Real/Partridge Avenue under Alternatives A and C would require reconfiguration of this intersection. To install the left-turn lane without widening El Camino Real, it would be necessary to remove on-street parking along El Camino Real near the intersection. Furthermore, there is currently a wide shoulder that operates as a southbound right-turn lane at this intersection. It is expected that modifications to the intersection would result in the loss of the southbound shoulder, thereby resulting in the southbound right-turn movement being shared with the outside through lane. For reference, this intersection currently serves approximately 21 southbound right turning vehicles during the a.m. peak hour and 34 such vehicles during the p.m. peak hour.

Based on the existing roadway width, it would be possible to install this southbound left-turn lane while maintaining the center median. Currently, independent studies are underway to determine if bicycle lanes should be installed on El Camino Real in this area. Installation of this southbound left-turn lane would preclude the installation of bicycle lanes on El Camino Real, unless the travel lanes are narrowed and the median is removed.

This intersection would remain unsignalized with the El Camino Real approaches being uncontrolled. Because of this, drivers wanting to complete the southbound left-turn movement would need to wait for an adequate gap in three lanes of oncoming traffic before completing the turn. The adjacent signalized intersection at El Camino Real/Cambridge Avenue would provide a metering affect for traffic which would help provide these gaps in northbound traffic.

It is noted that El Camino Real is operated by Caltrans. Therefore, installation of the southbound left-turn lane at Partridge Avenue would require approval by Caltrans and therefore cannot be guaranteed by the City.

U-Turns at Middle Avenue (Alternative C)

If all westbound (outbound) left-turn movements from the project site were to be prohibited through implementation of Alternative C, drivers exiting the site and traveling to destinations to the south, would need to first travel to the north then complete a U-turn movement to travel to the south. The intersection of El Camino Real/Middle Avenue would be the closest, and therefore most likely, location that drivers would complete this U-turn movement.

Through Movement Restrictions (Alternative D)

If eastbound and westbound through movements were to be prohibited at Middle Avenue and Cambridge Avenue, it is assumed that all other movements (including existing turning movements not related to the project site) would continue to be permitted at these intersections. Therefore, the possible through-movement restrictions would be accomplished solely with the posting of regulatory signs. Generally, it is preferred to establish movement restrictions with physical barriers such as center

medians and channelizing islands. However, it is not feasible to install these barriers and retain all other turning movements at the intersection. Therefore, any reduction in traffic on Middle Avenue and Cambridge Avenue would be dependent on drivers' compliance with regulatory signs, and enforcement of these regulations as necessary.

El Camino Real/Middle Avenue Modification

The *El Camino Real/Downtown Specific Plan Draft Transportation Impact Analysis* (Fehr & Peers, April 2010) included a recommendation that a second northbound left-turn lane be added to El Camino Real at this intersection, along with a second receiving lane on Middle Avenue as a mitigation measure. However, it was stated in that report that this modification may not be feasible due to the need for additional right-of-way. Furthermore, the intersection is controlled by Caltrans and any modifications would require their approval. Due to these limitations, a second northbound left-turn lane was not included in this Operational Analysis.

However, for access alternatives that include southbound left-turn access into the site at El Camino Real/Middle Avenue, it was assumed that a single southbound left-turn lane would be provided. It appears that a short left-turn lane (approximately 75 feet of storage) could be installed at this location within the existing right of way. This length of the southbound left-turn lane, also the project's effect on queuing at this location, is discussed in more detail under the "Intersection Queuing" section below.

Traffic Assignment

Project generated-traffic was distributed to local and regional destinations based on trip distribution profiles presented in the City of Menlo Park's *Circulation System Assessment* (CSA) document. These trip distribution profiles only specify the origin/destination of the trips, not the route used to travel to these origin/destinations. Route specific assignment of traffic on the local transportation network was based the various alternative access configurations as well as knowledge of the local transportation network and travel patterns.

Intersection Operations

Level of Service

An operational analysis for intersections along El Camino Real was completed for the different access alternatives. The level of service results are summarized in the attached tables. In general, it was found that the impact to intersections along El Camino Real would be similar for the various access alternatives, with the largest change in operations occurring at the El Camino Real/Middle Avenue and El Camino Real/Cambridge Avenue intersections. The highest average delay at El Camino Real/Middle Avenue would occur under Alternative A (with Cambridge Avenue restricted to allow right-turn movements only at the driveway). Similarly, the lowest delay at this intersection would occur under Alternative B (with Middle Avenue restricted to allow right-turn movements only at the driveway).

Intersection Queuing

Under each scenario, the projected 95th percentile queues at the study intersections were determined based on the Highway Capacity Manual methodologies. Summarized below are intersection movements for which the project is expected to cause the approach queues to exceed the existing available storage capacity. The queuing conditions are summarized in the attached tables.

- El Camino Real/Cambridge Avenue – Alternative B would result in queuing that exceeds the available storage in this southbound left-turn lane under p.m. peak hour conditions with the addition of project-generated traffic.

- El Camino Real/Middle Avenue – Implementation of the Current Proposed Configuration, Alternative A, Alternative D or Alternative E would result in the need for installation of a southbound left-turn lane at El Camino Real/Middle Avenue. Based on the existing geometry, it is estimated that a southbound left-turn lane with approximately 75 feet of storage and a 25-foot taper could be installed within the existing right of way and without affecting the northbound left-turn lane into the Safeway driveway immediately to the north. It is projected that the maximum projected queue would be in the range of 76 to 140 feet, which would occasionally exceed the 75 feet of potential storage space.

Additionally, the following intersections are expected to experience queuing that exceeds the available storage capacity, with or without the implementation of the proposed project, under Cumulative conditions.

- El Camino Real/Menlo Avenue-Ravenswood Avenue: all eastbound, westbound left-turn, westbound through, northbound through, and southbound left-turn and through movements

- El Camino Real/Middle Avenue: eastbound left-turn and through, northbound left-turn, and southbound through movements

- El Camino Real/Sand Hill Road: eastbound left-turn, westbound right-turn, northbound left-turn, and southbound left-turn movements

Traffic on Middle Avenue

Restricting the Middle Avenue driveway to allow only right-turn movements would result in a decrease in project-generated traffic that travels on Middle Avenue, between El Camino Real and University Drive, but would likely result in an increase in project-generated traffic traveling on other local streets.

Pedestrian and Bicycle Access

All alternatives would offer a comparable level of access for pedestrians and bicyclists to the site. Based on the applicant's proposal, there would be a pedestrian undercrossing of the Caltrain tracks, providing access to Alma Street (the nearest crossings of the Caltrain tracks otherwise are located approximately 1,600 feet to the south and 2,400 feet to the north of the center of the site). In addition to providing pedestrians and bicyclists with direct access to destinations to the east of the Caltrain tracks, this undercrossing would also provide pedestrians and bicyclists two routes to access the Menlo Park Caltrain Station: via El Camino Real and via Alma Street. This undercrossing was assumed to be included in all access alternatives analyzed.

Comparison of Vehicular Access Alternatives

A side-by-side summary comparison of the alternatives is provided on the attached Table 1 and the project-added traffic volumes are shown on Table 2. Additionally, a summary of access alternatives pros and cons is provided on the attached Table 3.

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Attachments: Table 1 – Alternative Access Comparison
Table 2 – Alternative Access Comparison – Added Traffic Volumes
Table 3 – Site Access Alternatives – Pros and Cons
Figures 1A and 1B – Driveway Alternatives
Intersection Level of Service Summary
Intersection Queuing Summary

Table 1
Alternative Access Comparison

	Current Proposal	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Site Access Configuration						
Middle Avenue	Full access (all movements allowed)	Full access (all movements allowed)	Right-turn in and out only	Right-turn in and out only	No eastbound-westbound through movements	No outbound (westbound) left-turn movement
College Avenue	Right-turn in and out only	Right-turn in and out only	Right-turn in and out only	Right-turn in and out only	Right-turn in and out only	Right-turn in and out only
Partridge Avenue	Right-turn in and out only	Right-turn in and out, plus inbound (southbound) left-turn	Right-turn in and out only	Right-turn in and out, plus inbound (southbound) left-turn	Right-turn in and out only	Right-turn in and out only
Cambridge Avenue	Full access (all movements allowed)	Right-turn in and out only	Full access (all movements allowed)	Right-turn in and out only	No eastbound-westbound through movements	No inbound (southbound) left-turn movement
Partridge Ave Intersection	No modification from the existing configuration	Add southbound left-turn lane, would likely require removal of some on-street parking to accommodate turn lane within the street width	No modification from the existing configuration	Add southbound left-turn lane, would likely require removal of some on-street parking to accommodate turn lane within the street width	No modification from the existing configuration	No modification from the existing configuration
Access to Stanford Park Hotel	No modification from the existing configuration	Remove existing southbound left-turn access. Southbound traveling drivers would need to complete a U-Turn at El Camino Real/Sand Creek Road and then enter the site with a northbound right-turn movement.	No modification from the existing configuration	Remove existing southbound left-turn access. Southbound traveling drivers would need to complete a U-Turn at El Camino Real/Sand Creek Road and then enter the site with a northbound right-turn movement.	No modification from the existing configuration	Remove existing southbound left-turn access. Southbound traveling drivers would need to complete a U-Turn at El Camino Real/Sand Creek Road and then enter the site with a northbound right-turn movement.
U-Turn at Middle Avenue	No change from existing conditions is expected	No change from existing conditions is expected	May result in some outbound drivers destined to the south choosing to exit at College Ave or Partridge Ave and complete a U-Turn movement at ECR/Middle Avenue	All outbound drivers destined to the south would need to exit the site and complete a U-Turn movement at ECR/Middle Avenue	No change from existing conditions is expected	May result in some outbound drivers destined to the south choosing to exit at College Ave or Partridge Ave and complete a U-Turn movement at ECR/Middle Avenue

Table 2
Alternative Access Comparison – Added Traffic Volumes

	Current Proposal	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Added Traffic on El Camino Real (north of Middle Ave)						
AM Peak Hour	149	150	155	175	193	150
PM Peak Hour	146	147	146	165	179	154
Daily	1151	1161	1168	1339	1349	1188
Added Traffic on El Camino Real (south of Cambridge Ave)						
AM Peak Hour	164	176	172	173	161	167
PM Peak Hour	152	151	158	153	159	150
Daily	1219	1227	1227	1234	1233	1230
Added Traffic on Middle Ave (west of El Camino Real)						
AM Peak Hour	63	71	35	54	43	64
PM Peak Hour	67	83	37	71	51	69
Daily	528	640	300	514	494	543
Added Traffic on Ravenswood Ave (east of El Camino Real)						
AM Peak Hour	46	46	46	46	46	46
PM Peak Hour	44	44	44	44	44	44
Daily	327	327	327	327	327	327
Added Traffic on Menlo Ave (west of El Camino Real)						
AM Peak Hour	9	8	20	21	47	7
PM Peak Hour	7	7	12	29	39	8
Daily	37	41	107	208	262	38
Added Traffic on Sand Hill Rd (west of El Camino Real)						
AM Peak Hour	68	79	76	76	65	71
PM Peak Hour	58	58	64	59	65	56
Daily	475	483	482	489	489	486

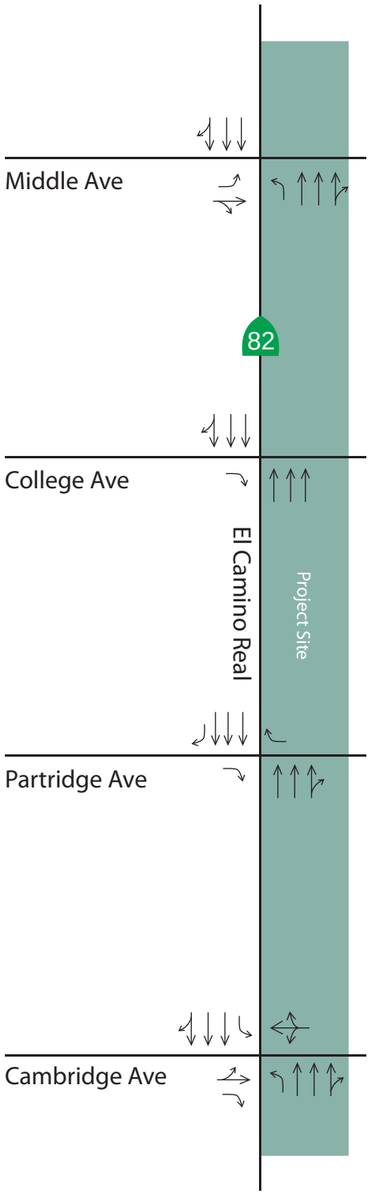
Table 3
Site Access Alternative Comparison – Pros and Cons

Site Alternative	Pros	Cons
Current Proposed Configuration – Full access at both Middle Ave and Cambridge Ave		
Disperses project-related traffic among four entry points to the site and provides direct access to neighborhood via Middle Ave and Cambridge Ave	• Allows project generated traffic to enter and exit the site at multiple points • Reduces on-site circulation for drivers to reach entry/exit points	• Middle Ave experiences an increase in left-turning traffic which increases overall intersection delay • Results in a higher added traffic volumes on Middle Ave
Alternative A – Full access at Middle Ave, Cambridge Ave restricted to right-turn in and out only; southbound (inbound) left-turn at Partridge Ave		
Reduces direct access to Cambridge Ave and provides direct access to Middle Ave from the project site		• Concentrates outbound traffic by providing only one location where drivers can make an outbound (westbound) left-turn movement from the site at El Camino Real/Middle Ave • Would result in drivers making extra turning and weaving (traveling across multiple lanes between blocks) maneuvers on El Camino Real to travel between Cambridge Ave and the project site • Project related drivers would use alternative local and collector streets • Would restrict access to the Stanford Park Hotel • Results in the highest added traffic on Middle Ave • Would result in increased on-site circulation for drivers to reach entry/exit points
Provides multiple inbound access routes to the project site	• Disperses inbound traffic by providing two locations (Middle Ave and Partridge Ave) where a driver could make an inbound (southbound) left-turn movement into the site from El Camino Real	• Partridge Ave southbound left-turn would be uncontrolled, requiring turning drivers to wait for a gap in oncoming traffic • Would result in loss of southbound shoulder at El Camino Real/Partridge Avenue
Alternative B – Middle Ave restricted to right-turn in and out only, Full access at Cambridge Ave		
Reduces direct access to Middle Ave and provides direct access to Cambridge Ave from the project site	• Results in the lowest added traffic on Middle Ave • Lowest overall intersection delay at El Camino Real/Middle Ave	• Concentrates project-related traffic by allowing inbound and outbound left-turn access at only El Camino Real/Cambridge Ave • Project related drivers would use alternative local and collector streets • Would result in increased on-site circulation for drivers to reach entry/exit points • Would result in drivers making extra turning and weaving maneuvers on El Camino Real to travel between Middle Ave and the project site • Results in higher traffic on El Camino Real o Non-project related drivers would use alternative local and collector streets to avoid congestion on El Camino Real • Results in a potentially significant increase in traffic on neighborhood streets
Alternative C – Right turn in and out only at Middle Ave and Cambridge Ave; southbound (inbound) left-turn at Partridge Ave		
Reduces direct access to Middle Ave and Cambridge Ave from the project site	• Results in a lower volume of added traffic on Middle Ave and Cambridge Ave	• Would result in increased on-site circulation for drivers to reach entry/exit points • Project related drivers may use alternative local and collector streets
Eliminates left-turn access exiting the project site	• Reduces intersection delay that would be associated with left-turning vehicles at El Camino Real/Cambridge Ave	• Does not allow for outbound (westbound) left-turn access from the site onto El Camino Real • Would result in increased U-turn movements and increases overall intersection delay at El Camino Real/Middle Ave • Would result in drivers making extra turning and weaving maneuvers on El Camino Real to travel between Middle Ave or Cambridge Ave and the project site • Results in higher traffic on El Camino Real o Non-project related drivers would use alternative local and collector streets to avoid congestion on El Camino Real • Results in a potentially significant increase in traffic on neighborhood streets
Provides inbound left-turn site access at Partridge Avenue	• Provides direct inbound left-turn access from El Camino Real at Partridge Avenue to the project site	• Concentrates inbound traffic by providing only one location where drivers can make a southbound left-turn movement into site at El Camino Real/Partridge Ave • Partridge Ave southbound left-turn would be uncontrolled, requiring turning drivers to wait for a gap in oncoming traffic • Would restrict access to the Sanford Park Hotel

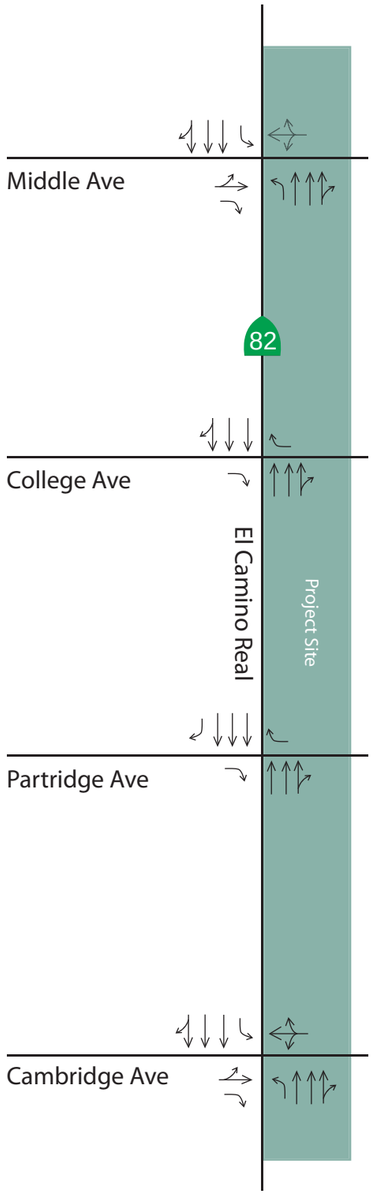
Table 3
Site Access Alternative Comparison – Pros and Cons

Site Alternative	Pros	Cons
Alternative D – No eastbound or westbound through movements at Middle Ave and Cambridge Ave		
Reduces direct access to Middle Ave and Cambridge Ave from the project site	• Reduces through access, but maintains left-turn access at Middle Ave and Cambridge Ave • Results in lower added traffic on Middle Ave • Disperses traffic by allowing inbound and outbound left-turn access at Middle Ave and Cambridge Ave	• No physical barriers preventing through movements at Middle Ave and Cambridge Ave • Project related drivers would use alternative local and collector streets • Dependent on drivers' compliance with regulatory signs, and enforcement of restrictions o Some drivers would choose to ignore the restriction and complete through movements across El Camino Real, posing a safety hazard • Would result in increased on-site circulation for drivers to reach entry/exit points • Would result in drivers making extra turning and weaving maneuvers on El Camino Real to travel between Middle Ave or Cambridge Ave and the project site, • Results in higher traffic on El Camino Real o Non-project related drivers would use alternative local and collector streets to avoid congestion on El Camino Real
Alternative E – No outbound (westbound) left-turn movement at Middle Ave; No southbound (inbound) left-turn movement at Cambridge Ave		
Does not restrict access to Middle Ave or Cambridge Ave from the project site	• Provides multiple routes drivers could use to access the project site	• Results in a higher volume of added traffic on Middle Ave • Does not restrict direct access to Middle Ave and Cambridge Ave from the project site
Restricts locations for left-turn access to/from the site	• By allowing inbound (southbound) left-turns only at Middle Ave, it would reduce the number of drivers traveling further south on El Camino Real to enter the site • By allowing outbound (westbound) left-turns only at Cambridge Ave, it would eliminate drivers exiting the site and traveling southbound on El Camino Real between Middle Ave and Cambridge Ave	• Would restrict access to the Stanford Park Hotel • Would result in increased on-site circulation for drivers to reach entry/exit points • Concentrates project-related traffic: o Provides only one location where drivers can make an inbound (southbound) left-turn movement into site at El Camino Real/Middle Ave o Provides only one location where a driver could make an outbound (westbound) left-turn movement from the site at El Camino Real/Cambridge Ave

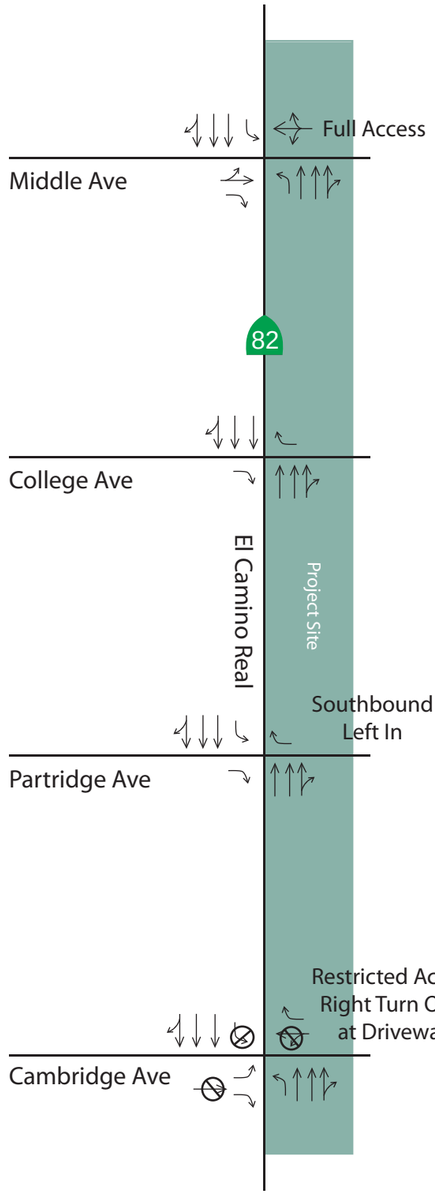
Existing Conditions



Current Proposal



Alternative A



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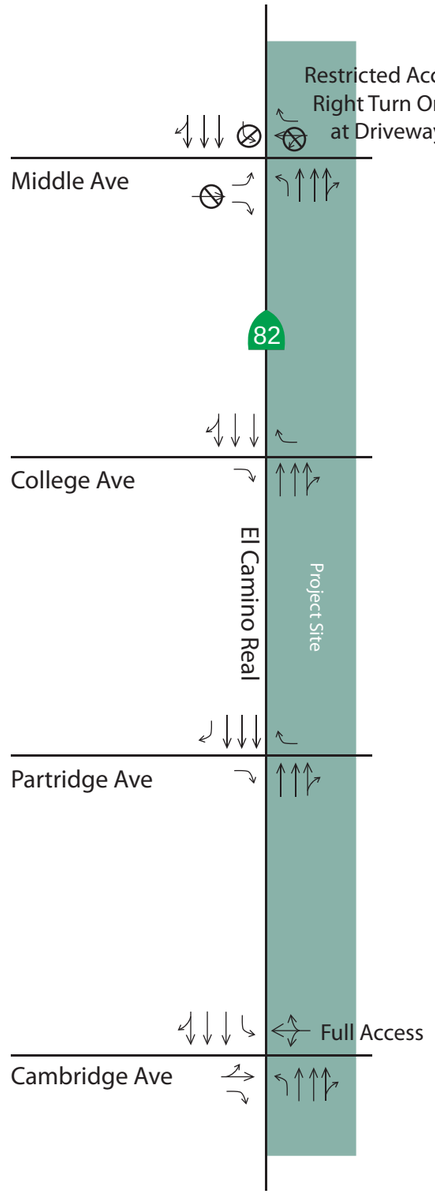

North

Not to Scale

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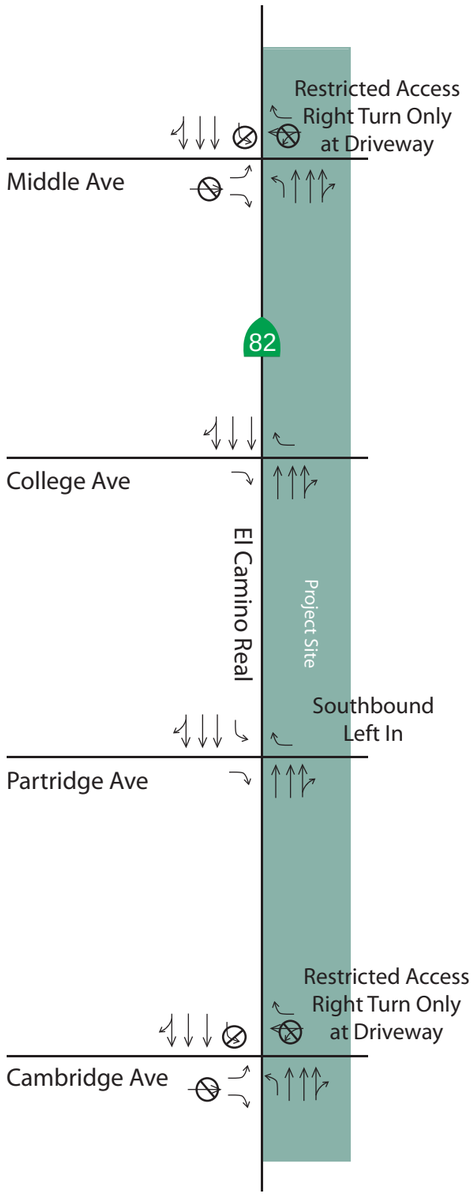
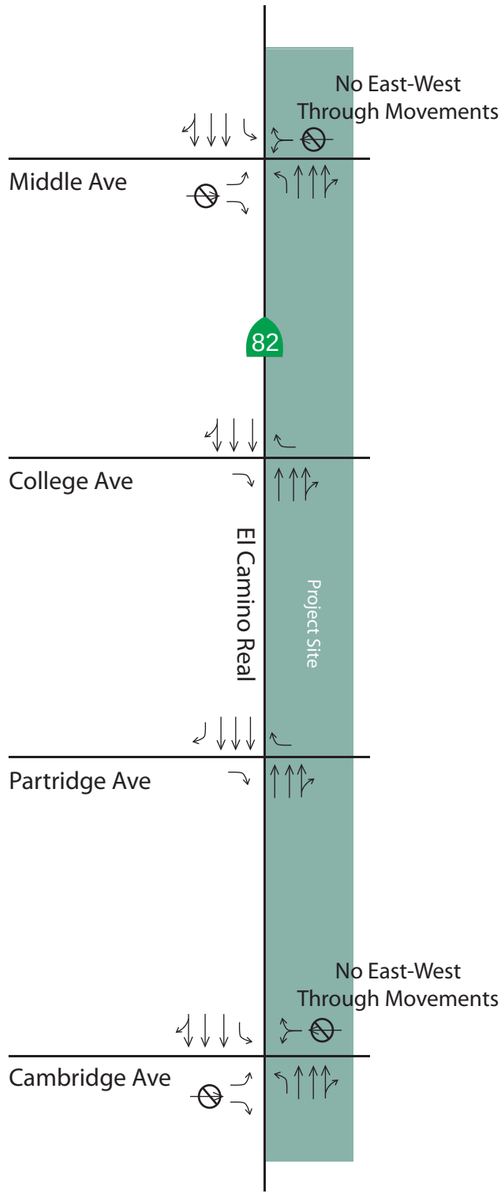
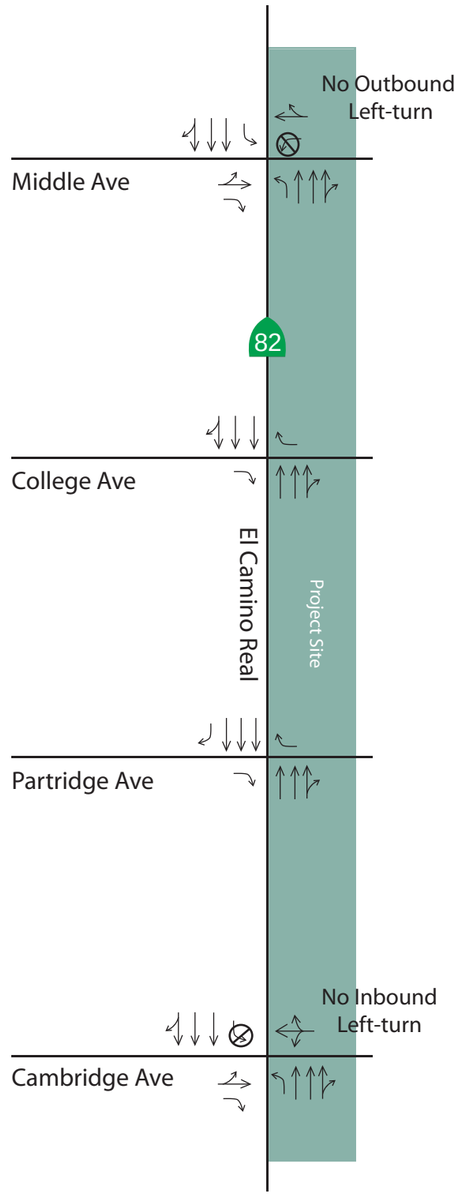
Alternative C



Alternative D



Alternative E



North

Not to Scale

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Traffic Engineering Analysis for the 500 El Camino Real Project

Figure 1B – Driveway Alternatives

Level of Service Summary
Cumulative and Cumulative plus Project - AM Peak Hour

Intersection	Cumulative - No Project		Cumulative plus Project											
			Current Proposed Configuration		Access Alternative A		Access Alternative B		Access Alternative C		Access Alternative D		Access Alternative E	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
El Camino Real & Menlo Avenue/Ravenswood Avenue	73.0	E	78.6	E	78.2	E	77.5	E	80.1	F	79.4	E	75.6	E
El Camino Real & Live Oak Avenue	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
Eastbound Live Oak	*12.0*	*B*	*12.0*	*B*	*12.0*	*B*	*11.9*	*B*	*11.9*	*B*	*12.0*	*B*	*11.9*	*B*
El Camino Real & Roble Avenue	6.8	A	6.0	A	6.0	A	6.7	A	4.7	A	5.7	A	4.9	A
El Camino Real & Middle Avenue	15.6	B	25.1	C	35.3	D	17.5	B	20.9	C	28.5	C	22.6	C
El Camino Real & College Avenue	0.1	A	0.1	A	0.2	A	0.1	A	0.3	A	0.1	A	0.2	A
Eastbound College Avenue	*10.8*	*B*	*11.3*	*B*	*11.5*	*B*	*11.3*	*B*	*11.6*	*B*	*11.1*	*B*	*11.2*	*B*
Westbound Driveway	--	--	*9.3*	*A*	*10.7*	*B*	*9.1*	*A*	*11.5*	*B*	*8.9*	*A*	*10.9*	*B*
El Camino Real & Partridge Avenue	0.1	A	0.1	A	0.2	A	0.1	A	0.8	A	0.1	A	0.1	A
Eastbound Partridge Avenue	*10.9*	*B*	*11.4*	*B*	*11.5*	*B*	*11.3*	*B*	*11.6*	*B*	*11.2*	*B*	*11.2*	*B*
Westbound Driveway	--	--	*8.9*	*A*	*10.1*	*B*	*9.1*	*A*	*10.0*	*A*	*8.9*	*A*	*10.1*	*B*
El Camino Real & Cambridge Avenue	3.9	A	4.8	A	3.8	A	6.0	A	3.3	A	5.0	A	4.0	A
El Camino Real & Harvard Avenue	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
Eastbound Harvard Avenue	*10.2*	*B*	*10.2*	*B*	*10.4*	*B*	*10.5*	*B*	*11.1*	*B*	*10.2*	*B*	*10.4*	*B*
El Camino Real & Creek Drive	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
Eastbound Creek Drive	*9.5*	*A*	*9.4*	*A*	*9.6*	*A*	*9.6*	*A*	*9.7*	*A*	*9.5*	*A*	*9.5*	*A*
El Camino Real & Sand Hill Road	29.3	C	31.8	C	32.7	C	30.0	C	30.2	C	32.6	C	33.8	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Level of Service Summary
Cumulative and Cumulative plus Project - PM Peak Hour

Intersection	Cumulative - No Project		Cumulative plus Project											
			Current Proposed Configuration		Access Alternative A		Access Alternative B		Access Alternative C		Access Alternative D		Access Alternative E	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
El Camino Real & Menlo Avenue/Ravenswood Avenue	113.3	F	118.3	F	124.4	F	119.1	F	122.9	F	119.7	F	121.8	F
El Camino Real & Live Oak Avenue	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
Eastbound Live Oak	*11.3*	*B*	*11.4*	*B*	*11.5*	*B*	*11.4*	*B*	*11.5*	*B*	*11.5*	*B*	*11.5*	*B*
El Camino Real & Roble Avenue	11.7	B	12.0	B	11.1	B	16.3	B	15.0	B	12.9	B	11.0	B
El Camino Real & Middle Avenue	17.6	B	29.0	C	42.9	D	17.2	B	22.5	C	26.3	C	26.2	C
El Camino Real & College Avenue	0.1	A	0.2	A	0.2	A	0.2	A	0.4	A	0.2	A	0.2	A
Eastbound College Avenue	*10.6*	*B*	*10.6*	*B*	*10.8*	*B*	*10.5*	*B*	*10.9*	*B*	*10.6*	*B*	*10.6*	*B*
Westbound Driveway	--	--	*13.8*	*B*	*9.8*	*A*	*12.7*	*B*	*10.6*	*B*	*10.4*	*B*	*10.7*	*B*
El Camino Real & Partridge Avenue	0.1	A	0.1	A	0.2	A	0.1	A	0.9	A	0.1	A	0.1	A
Eastbound Partridge Avenue	*10.4*	*B*	*10.4*	*B*	*10.6*	*B*	*10.3*	*B*	*10.7*	*B*	*10.4*	*B*	*10.4*	*B*
Westbound Driveway	--	--	*12.3*	*B*	*9.5*	*A*	*11.9*	*B*	*9.8*	*A*	*10.0*	*B*	*10.3*	*B*
El Camino Real & Cambridge Avenue	6.9	A	12.0	B	5.0	A	11.3	B	5.6	A	7.7	A	7.6	A
El Camino Real & Harvard Avenue	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
Eastbound Harvard Avenue	*10.6*	*B*	*10.6*	*B*	*9.9*	*A*	*10.2*	*B*	*9.8*	*A*	*9.7*	*A*	*10.1*	*B*
El Camino Real & Creek Drive	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
Eastbound Creek Drive	*9.6*	*A*	*9.6*	*A*	*9.3*	*A*	*9.6*	*A*	*9.2*	*A*	*9.2*	*A*	*9.5*	*A*
El Camino Real & Sand Hill Road	135.8	F	137.3	F	140.6	F	134.9	F	138.4	F	136.1	F	139.5	F

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Intersection Queuing
AM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
El Camino Real/Menlo Avenue-Ravenswood Avenue												
Available Storage		*225*		*175*	*175*	--	*325*	*600*	*600*	*250*	*335*	*70*
Existing		**238***		**326***	**305***	--	124	138	29	**320***	**654**	0
Cumulative - No Project		**398***		**398***	**401***	--	200*	315	136	**377***	**912***	4
Cumulative plus Project Conditions												
Current Proposed Configuration		**419***		**440***	**403***	--	220*	537	164	**391***	**1011***	17
Alternative A		**416***		**440***	**403***	--	220*	433	205	**391***	**1014***	17
Alternative B		**377***		**397***	**370***	--	213*	313*	22	**350***	**888***	0
Alternative C		**390***		**416***	**387***	--	224*	490	402	**364***	**935***	14
Alternative D		**422***		**434***	**401***	--	226*	513	117	**380***	**967***	15
Alternative E		**385***		**416***	**387***	--	206*	268*	50	**364***	**933***	2
El Camino Real/Roble Avenue												
Available Storage		*500*			*150*	--	*200*	*850*	--	*140*	*220*	--
Existing		129			21	--	77m	131	--	29m	217	--
Cumulative - No Project		139			20	--	71m	258	--	25m	184m	--
Cumulative plus Project Conditions												
Current Proposed Configuration		146			21	--	81m	159	--	26m	110m	--
Alternative A		146			21	--	85m	213m	--	29m	43m	--
Alternative B		128			20	--	69m	331	--	26m	32m	--
Alternative C		142			20	--	82m	191	--	27m	28m	--
Alternative D		153			20	--	76m	105m	--	25m	54m	--
Alternative E		135			20	--	78m	334	--	27m	28m	--
El Camino Real/Middle Avenue												
Available Storage	*185*	*185*			*TBD*		*280*	*1000*	--	*TBD*	*375*	--
Existing	**278**	82					198	17	--		160	--
Cumulative - No Project	**322**	**253**					262*	48	--		**466**	--
Cumulative plus Project Conditions												
Current Proposed Configuration	**389***	**408***			84		**294***	96	--	95m	**635**	--
Alternative A	**416***	**391***			121		**331***	164	--	122m	**826***	--
Alternative B	**319***	**305***				--	263*	30	--	-	**523**	--
Alternative C	**336***	**386***				--	**351***	200	--	--	**630***	--
Alternative D	**434***	**223***			20		**353***	175	--	140m	**565**	--
Alternative E	**362***	**284**			40		257*	105	--	133m	**558**	--

Intersection Queuing
AM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
El Camino Real/Cambridge Avenue												
Available Storage	*100*	*100*	*100*		*TBD*		*375*	*1000*	--	*100*	*300*	--
Existing	52		24		--		74m	23	--	30m	35	--
Cumulative - No Project	55		31		--		72m	35	--	28m	72	--
Cumulative plus Project Conditions												
Current Proposed Configuration	77		34		52		74m	55	--	67m	65	--
Alternative A	54		46			--	48m	22	--	--	78	--
Alternative B	71		23		86		62m	99	--	123m	73	--
Alternative C	50		42			--	61m	19	--	--	108	--
Alternative D	52		31		0		71m	63	--	82m	84	--
Alternative E	71		41		78		60m	24m	--	--	67	--
El Camino Real/Sand Hill Road												
Available Storage	*300*	--	*230*	--		*400*	*190*	*1300*	*1300*	*475*	*725*	*180*
Existing	154	--	54	--		166	**268***	178	19	**601***	309	7
Cumulative - No Project	277*	--	88	--		85	**296***	231	29	**586***	410	12
Cumulative plus Project Conditions												
Current Proposed Configuration	266*	--	78	--		124	**304***	271	29	**635***	507	14
Alternative A	267*	--	73	--		163	**304***	276	29	**664***	532	46
Alternative B	243*	--	85	--		120	**289***	236	26	**569***	426	14
Alternative C	247*	--	83	--		159	**297***	525	27	**620***	464	131
Alternative D	225*	--	80	--		121	**296***	258	28	**610***	473	13
Alternative E	252*	--	83	--		240*	**297***	243	25	**658***	495	20

Notes:
Bold indicates queuing that exceeds the storage capacity
TBD indicates that the storage length would be determined as part of the site design process
* indicates that the 95th percentile demand exceeds the capacity, therefore the actual queue may be higher
m' indicates that the queue is metered by the upstream traffic signal

Intersection Queuing
PM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
El Camino Real/Menlo Avenue-Ravenswood Avenue												
Available Storage	*225*			*175*	*175*	*--*	*325*	*600*	*600*	*250*	*335*	*70*
Existing	**221***			**260***	**364***	--	145	**707***	62	**292***	**440**	
Cumulative - No Project	**514***			**426***	**661***	*38*	271*m	**1316***	459*	**517***	**782**	113
Cumulative plus Project Conditions												
Current Proposed Configuration	**526***			**448***	**672***	*41*	263*m	**1386***	329*	**525***	**822***	133
Alternative A	**457***			**388***	**583***	*50*	216*m	**1203***	355*	**470***	**765***	90
Alternative B	**525***			**456***	**648***	*75*	270*m	**1402***	797*	**533***	**858***	120
Alternative C	**486***			**421***	**629***	*60*	272*m	**1272***	359*	**491***	**805***	102
Alternative D	**521***			**439***	**661***	*38*	309*m	**1365***	341*	**529***	**886***	136
Alternative E	**457***			**394***	**595***	*21*	232*m	**1217***	345*	**479***	**761***	107
El Camino Real/Roble Avenue												
Available Storage	*500*			*150*		*--*	*200*	*850*	--	*140*	*220*	--
Existing	115			87		--	112m	70	--	45m	35	--
Cumulative - No Project	178			126		*11*	131m	801	--	57m	199m	--
Cumulative plus Project Conditions												
Current Proposed Configuration	183			127		*12*	144m	535	--	59m	290m	--
Alternative A	166*			113		*7*	123m	317m	--	51m	287m	--
Alternative B	184			129		*38*	158m	816	--	62m	49m	--
Alternative C	170			118		*11*	150m	636	--	54m	293m	--
Alternative D	181			126		*11*	154m	530m	--	56m	281m	--
Alternative E	159			113		*4*	132m	447	--	50m	301m	--
El Camino Real/Middle Avenue												
Available Storage	*185*	*185*		*TBD*			*280*	*1000*	--	*TBD*	*375*	--
Existing	**248**	60					264	461	--		327	--
Cumulative - No Project	**247***	56					**324***	4	--		**404**	--
Cumulative plus Project Conditions												
Current Proposed Configuration	**478***	95		139			**465*m**	647	--	81*m	**658**	--
Alternative A	**454***	109		348*			**495***	548	--	85*m	**669***	--
Alternative B	**435***	82				27	**393m**	142	--		**613**	--
Alternative C	**443***	104				24	**651***	60	--		**741***	--
Alternative D	**498***	87		91			**566***	519	--	76*m	**778***	--
Alternative E	**423***	91		81			**441***	245	--	85*m	**238**	--

Intersection Queuing
PM Peak Hour

	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
El Camino Real/Cambridge Avenue												
Available Storage	*100*	*100*	*100*		*TBD*		*375*	*1000*	--	*100*	*300*	--
Existing		49	18		27		143	310	--	22m	36	--
Cumulative - No Project		39	5		21		76m	553m	--	12m	45	--
Cumulative plus Project Conditions												
Current Proposed Configuration		40	4		98		78m	169m	--	16m	424	--
Alternative A		61	46			15	74m	14m	--	--	105m	--
Alternative B		82	44		308*		132m	134m	--	**109m**	167	--
Alternative C	70		47			22	81m	15m	--	--	111m	--
Alternative D	71		49		103		92m	34m	--	59m	89	--
Alternative E		61	40		195		80m	32m	--	--	86	--
El Camino Real/Sand Hill Road												
Available Storage	*300*	--	*230*	--		*400*	*190*	*1300*	*1300*	*475*	*725*	*180*
Existing	**381***	--	42	--		**~**	**184**	413*	47	**538***	324	70
Cumulative - No Project	**615***	--	48	--		**1102***	**363***	705*	63	**841***	417	43
Cumulative plus Project Conditions												
Current Proposed Configuration	**635***	--	50	--		**1119***	**359***	728*	66	**827***	446	23
Alternative A	**542***	--	45	--		**1005***	**327***	633*	55	**751***	408	62
Alternative B	**629***	--	49	--		**1153***	**365***	731*	64	**855***	491	233
Alternative C	**576***	--	47	--		**1070***	**337***	672*	60	**792***	427	40
Alternative D	**626***	--	49	--		**1127***	**363***	713*	63	**383***	501	31
Alternative E	**557***	--	46	--		**1016***	**332***	635*	57	**758***	426	28

Notes:
Bold indicates queuing that exceeds the storage capacity
TBD indicates that the storage length would be determined as part of the site design process
* indicates that the 95th percentile demand exceeds the capacity, therefore the actual queue may be higher
m' indicates that the queue is metered by the upstream traffic signal
~ Volume exceeds capacity, queue is theoretically infinite

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memorandum

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Date: September 25, 2014

To: **Mr. Jesse Quirion**
City of Menlo Park

From: Mark Spencer
Tony Henderson

Project: MPA010

Subject: 500 El Camino Real – Neighborhood Cut-through Traffic Analysis

W-Trans has completed an analysis of potential neighborhood cut-through traffic for the proposed mixed-use development project at 500 El Camino Real. The memorandum summarizes current and projected future traffic conditions within the vicinity of the project-site, including an analysis of the potential for project-generated traffic to use residential streets to avoid congestion on El Camino Real. Measures are presented that could be used to minimize project-generated traffic using neighborhood streets as cut-through routes.

This analysis represents the third of three building block documents that were prepared for this analysis. The first element was the *500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency* (March 7, 2014), in which the proposed project was compared to the El Camino Real/Downtown Specific Plan. The second element was the *500 El Camino Real – Traffic Operational Analysis* (May 6, 2014), in which changes on El Camino Real in traffic operations were analyzed for the proposed site configuration as well as five alternative configurations.

Attached to this memorandum are the following figures:

- Figure 1A and Figure 1B – Existing Traffic Volumes
- Figure 2 – Existing Average Daily Traffic
- Figure 3A and Figure 3B – Existing Pedestrian Volumes
- Figure 4A and Figure 4B – Existing Bicycle Volumes
- Figure 5A and Figure 5B – Future without Project Traffic Volumes
- Figure 6 – Future without Project Average Daily Traffic
- Figure 7A and Figure 7B – Project Added Traffic Volumes
- Figure 8 – Daily Project Added Roadway Segment Volumes

Background Traffic Volume Data

Traffic volume data was collected for the project area in June 2013. The existing intersection traffic volumes are shown on Figure 1, and daily roadway segment volumes are shown on Figure 2.

Future traffic volumes include projected traffic volumes for the horizon year of 2035. This scenario includes traffic that would be generated by planned and approved developments identified by the City plus a growth rate of one percent per year to account for growth in regional traffic. This includes the development of projects within the El Camino Real/Downtown Specific Plan area that had pending or approved development applications before the City at the time this analysis initiated, excluding the

subject 500 El Camino Real site. Future without project intersection traffic volumes are shown on Figure 5 and projected roadway segment volumes are shown on Figure 6.

Project Information

The proposed project would include development of 199,500 square feet of general (non-medical) office space, 10,000 square feet of retail space, and 170 apartment units. The following is a summary of project information and analysis assumptions that were presented in detail in the *500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency* Memorandum as well as the *500 El Camino Real – Traffic Operational Analysis* Memorandum.

Site Access

As part of the *El Camino Real – Traffic Operational Analysis*, alternative access plans were considered for the site. Based on direction from City of Menlo Park staff, the access configuration proposed by the applicant was selected as the preferred configuration, and is therefore used for analysis presented in this memorandum. The proposed site plan submitted by the applicant includes the following access configuration:

- Middle Avenue – the existing signalized intersection would be modified to incorporate the project driveway on the east side of El Camino Real. A southbound left-turn lane would be installed on El Camino Real and all turning movements would be permitted at the driveway.
- College Avenue – the intersection would remain stop-controlled on the College Avenue and project driveway approaches. The project driveway would be restricted to right-turn in and out movements only.
- Partridge Avenue – the driveway would connect to an underground parking garage. The intersection would remain stop controlled on the Partridge Avenue and project driveway approaches. The project driveway access would be restricted to right-turn in and out movements only.
- Cambridge Avenue – a driveway is currently provided at this signalized intersection that provides access to the existing site and the adjacent Stanford Park Hotel. The driveway would be reconfigured with the proposed project, but the intersection would remain signalized and the remaining three approaches would be unchanged. All turning movements would continue to be permitted at this driveway.

For the purposes of this analysis it was assumed that internal drive aisles would allow for circulation between all parts of the project site. Therefore, drivers could enter at the Middle Avenue, College Avenue or Cambridge Avenue driveways and access any portion of the site. However, the Partridge Avenue driveway would provide access only to an underground parking structure. It is noted that this underground parking garage would also be accessible via internal drive aisles, so a driver could enter the site through any of the project driveways and then proceed to the underground parking garage.

Trip Generation

The anticipated trip generation potential for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012 and was compared to the trip generation estimations presented in the Specific Plan EIR. The trip generation potential of the project as currently proposed was developed using the rates for Apartment (Land Use 220), General Office Building (Land Use 710) and Shopping Center (Land Use 820).

Existing Uses

Since the site has recently been occupied by a Tesla sales and service center, the traffic generated by this use was deducted from the total trip generation calculations to represent the total number of net new trips that would be generated by the proposed project. Typically, this would be accomplished by using trip generation data published by ITE; however, it is acknowledged that how the Tesla center operated does not closely match any of the ITE land-use descriptions. Since the Tesla center was in operation when traffic volume data was collected in June 2013, the existing trip generation was calculated based on actual observed traffic volumes, including additional data collected in February 2014, after the center closed, details of which are provided in the *500 El Camino Real – El Camino Real/Downtown Specific Plan Vehicular Traffic Consistency* Memorandum.

Internal Capture Trips

The *Trip Generation Manual* also includes data and methodologies that can be applied to determine the proportion of internal trips that may occur within a development area that includes a variety of land uses. Internal trips occur at mixed-use developments, and in the case of the proposed project this would consist of residents patronizing adjacent retail, as well as employees of nonresidential uses patronizing other nonresidential uses. Furthermore, there is a potential for some employees of either the office or retail components to live in the on-site apartments. These trips would be made by walking and would not affect traffic on the adjacent street network.

In the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis*, a uniform reduction rate of ten percent was applied to all new development within the Specific Plan area. Such a uniform rate is appropriate when analyzing a large area plan. However, since a specific development application is being considered instead of the area-wide plan, a more detailed analysis of interaction between land uses in a specific development is appropriate. Therefore, methodologies presented in the *Trip Generation Manual* were applied to this site-specific analysis. These methodologies incorporate a projected demand between uses based on the size and trip generation potential of each use.

In general, the largest potential for internal trip capture is between retail/service use and either residential or office uses. While the proposed project has large residential and office components that would result in a demand for retail and services, the relatively small amount of retail space on the site would limit the potential for internal trip capture. It is acknowledged that there is potential for project-site residents or employees to choose to walk to adjacent retail uses or Downtown Menlo Park. However, to provide for a conservative analysis, the internal capture reduction was calculated for the proposed development only.

The ITE publication does not provide guidance for internal trip capture during the a.m. peak hour. Since retail uses are either generally closed or generate minimal traffic during the a.m. peak hour, the potential for internal trip capture is minimal. To account for the potential a.m. internal trip capture from business that may be open, internal trip capture rates published by ITE for the p.m. peak hour were assigned to the a.m. peak hour trip generation rates. It is noted during the a.m. peak hour, the applied internal capture rates would reduce the trip generation by two trips, which represents less than one-half of one-percent of total trips.

Pass-by Trips

Some portion of traffic associated with retail uses may be drawn from existing traffic on nearby streets. These vehicle trips would not be considered "new," but are instead comprised of drivers who are

already driving on the adjacent street system and choose to make an interim stop, and are referred to as "pass-by." However, since the retail component of the proposed project is only 10,000 square feet, no adjustment to trip generation projections were made for pass-by trips. This results in a conservative analysis and is consistent with methodologies presented in the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis.*

Transit Usage

Some project site employees or residents may choose to utilize transit instead of driving to complete their trips. To account for transit use, a trip reduction rate that was presented in the Specific Plan EIR was applied to this analysis. In the Specific Plan EIR, a two percent trip reduction was applied to apartment uses, a one percent reduction was applied to the office uses, and no reduction as applied to the retail components. Given the proximity of the site to the both the Menlo Park Caltrain Station (approximately one-half mile north, or about a 10 to 15 minute walk) and Palo Alto Caltrain Station (approximately three-quarters of a mile south, or about a 15 to 20 minute walk) , there is a possibility for higher transit use. To provide a conservative analysis, however, the rates applied in the Specific Plan EIR traffic analysis were also applied to this site-specific analysis.

Trip Generation Summary

The proposed project is expected to generate approximately 3,115 net new trips on a typical weekday, of which 402 would occur during the a.m. peak hour and 393 would occur during the p.m. peak hour. Table 1 presents a summary of project trip generation.

Table 1
Proposed Project Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Apartment	170 du	6.79	1,154	0.51	87	17	70	0.65	111	72	39
Office Building	199.5 ksf	11.12	2,219	1.67	333	293	40	1.51	302	51	251
Retail	10 ksf	42.70	427	0.96	10	6	4	3.71	37	18	19
Subtotal			3,800		430	316	114		450	141	309
Internal Capture Reduction [1]			*-148*		*-2*	*-1*	*-1*		*-12*	*-6*	*-6*
Transit Reductions [2]			*–44*		*-5*	*-3*	*-2*		*–5*	*-1*	*-4*
Subtotal			3,608		423	312	111		433	134	299
Existing Use [3]			-493		-21	-13	-8		-40	-19	-21
Total Net New Trips			**3,115**		**402**	**299**	**103**		**393**	**115**	**278**

Note: du = dwelling unit; ksf = 1,000 square feet
[1] Source: *Trip Generation Manual;* Effective reduction rate: 0.46% of a.m. peak hour trips and 2.7% of p.m. peak hour trips
[2] Transit Reduction Rates applied: 2% of residential trips, 1% of office trips, no reduction of retail trips
[3] Source: Data collected in June 2013 and February 2014

Trip Distribution

The traffic projected to be generated by the proposed project was distributed to local and regional destinations based on the City of Menlo Park *Circulation System Assessment* (CSA) document. The CSA includes three distribution profiles depending on the type of land use: residential, employment and commercial. These percentages are based on the differing travel characteristics that are generally found for these land uses and the locations of homes, businesses and other origins and destinations. The CSA distribution profiles are shown in Table 2 and the distributed traffic is shown on the attached Figure 7 and Figure 8. These CSA distribution profiles were also used in development of the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis.*

Table 2
CSA Traffic Distribution– West Menlo/Downtown/El Camino Real Area

Destination	Residential	Employment	Commercial
I-280 North	5%	12%	7%
I-280 South	9%	16%	3%
Sand Hill West	1%	1%	1%
SR 84 East	2%	20%	1%
US 101 South	9%	17%	3%
US 101 North	2%	4%	2%
Alameda North	6%	4%	4%
El Camino Real North	10%	7%	6%
Alpine South	0%	0%	0%
Junipero South	5%	3%	4%
Sand Hill East	3%	1%	3%
Middlefield South	0%	0%	0%
El Camino Real South	14%	7%	15%
Middlefield North	0%	0%	0%
Local Sharon Heights	5%	1%	8%
Local Downtown	26%	6%	38%
Local Willows	3%	1%	5%
Local Belle Haven	0%	0%	0%

Source: 2004 Circulation System Assessment Document, City of Menlo Park

Operational Analysis

The study intersections along El Camino Real were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2000.

Service Standards

The City of Menlo Park has established a threshold of Level of Service (LOS) D or better for all study intersections, except for the intersection of El Camino Real/Sand Hill Road which is located in the City of Palo Alto and has an LOS E or better threshold.

Level of Service

An operational analysis for intersections along El Camino Real was completed for existing conditions as well as projected future and future plus project conditions. Under future conditions, the intersections of El Camino Real/Menlo Avenue-Ravenswood Avenue is expected to operate unacceptably. With the

addition of project-generated traffic, the intersection would continue to operate unacceptably. Mitigation measures for this intersection were addressed in the *Menlo Park El Camino Real/Downtown Specific Plan Draft EIR* (Mitigation Measure TR-7b). The level of service results are summarized in Table 3. It is noted that due to some modifications and enhancements to the intersection operational analysis tools used (such has adjustments to traffic signal timing or programmed intersection configuration), the results presented in Table 3 have changed slightly than what was shown in the *500 El Camino Real – Traffic Operational Analysis* Memorandum. However, the findings have not changed as a result of these adjustments.

Table 3
Future and Future plus Project Peak Hour Levels of Service

Study Intersection ***Approach***	**Existing Conditions**				**Future Conditions**				**Future plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
El Camino Real/Menlo Ave-Ravenswood Ave	40.7	D	43.0	D	**71.3**	**E**	**115.0**	**F**	**77.6**	**E**	**121.6**	**F**
El Camino Real/Live Oak Ave	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A	0.2	A
Eastbound Live Oak	*10.5*	*B*	*11.0*	*B*	*12.0*	*B*	*11.3*	*B*	*12.0*	*B*	*11.4*	*B*
El Camino Real/Roble Ave	7.9	A	12.1	B	6.9	A	8.8	A	5.9	A	12.5	B
El Camino Real/Middle Ave	12.1	B	11.8	B	17.6	B	17.6	B	25.7	C	22.7	C
El Camino Real/College Ave	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.2	A
Eastbound College Ave	*9.7*	*A*	*9.6*	*A*	*10.8*	*B*	*10.4*	*B*	*11.3*	*B*	*10.7*	*B*
Westbound Driveway	–	–	–	–	–	–	–	–	*9.3*	*A*	*10.9*	*B*
El Camino Real/Partridge Ave	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
Eastbound Partridge Ave	*9.7*	*A*	*9.4*	*A*	*10.8*	*B*	*10.3*	*B*	*11.4*	*B*	*10.5*	*B*
Westbound Driveway	–	–	–	–	–	–	–	–	*8.9*	*A*	*10.5*	*B*
El Camino Real/Cambridge Ave	3.7	A	5.8	A	4.3	A	5.6	A	4.9	A	8.3	A
El Camino Real/Harvard Ave	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A	0.1	A
Eastbound Harvard Ave	*9.3*	*A*	*9.4*	*A*	*10.0*	*A*	*9.6*	*A*	*10.2*	*B*	*9.9*	*A*
El Camino Real/Sand Hill Rd	19.7	B	40.4	D	24.1	C	74.1	E	28.4	C	77.5	E

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text = deficient operation

It is noted that the intersection of El Camino Real/Roble Avenue is projected to experience a slight decrease in overall intersection delay with the implementation of the project. This should not be interpreted that the project results in a positive benefit to the intersection. Instead, the project-generated traffic is expect to predominantly use underutilized movements, thereby resulting in more efficient use of the traffic signal timing. Based on this, the project's impact to the intersection would be negligible.

Roadway Segment Analysis

In addition to the intersection capacity analysis, a roadway volume threshold analysis was completed. The City of Menlo Park, in the Transportation Impact Analysis Guidelines section of the Circulation System Assessment (CSA) document, has established acceptable thresholds for traffic added to local and collector streets. These thresholds do not necessarily represent the capacity of the streets, but instead are a quality of life target set by the City to balance the needs of regional mobility while minimizing traffic volumes on neighborhood streets.

As summarized in Table 4, the project-added traffic is expected to exceed the acceptable threshold on Middle Avenue, Cambridge Avenue, University Drive and Yale Road.

Table 4
Future Roadway Segment Analysis

Segment	Classification	ADT	Additional Trips to Exceed Threshold	Project-Added Volume	Potentially Significant Impact
Middle Avenue - between El Camino Real and University Drive	Collector	10,717	50	**528**	**Yes**
College Avenue - between University Drive and El Camino Real	Local	842	76	45	No
Partridge Avenue - between University Drive and El Camino Real	Local	688	138	20	No
Cambridge Avenue - between University Drive and El Camino Real	Local	1,779	25	**151**	**Yes**
University Drive - between Middle Avenue and Cambridge Avenue	Local	2,428	25	**100**	**Yes**
Yale Road - between Middle Avenue and Cambridge Avenue	Local	263	53	**73**	**Yes**

Notes: ADT = Average Daily Traffic, projected for the year 2035; **Bold** indicates a potentially significant impact

The roadway segment impact to Middle Avenue was identified in the *Menlo Park El Camino Real/Downtown Specific Plan Draft EIR* (Impact TR-8) and was found to be a significant and unavoidable impact (Mitigation Measure TR-8). The Cambridge Avenue, University Drive and Yale Road segments were not studied in the *Menlo Park El Camino Real/Downtown Specific Plan Draft EIR;* therefore, no finding of significance was previously made for these segments. However, based on this analysis, the project would result in a significant impact on Cambridge Avenue and Yale Road. The added traffic to the remaining study segments is expected to be within the acceptable threshold.

Neighborhood Traffic Management Program

El Camino Real currently experiences congestion, especially during peak periods. In the future, the level of congestion is expected to increase. As a result, some drivers may choose to follow alternative routes through a neighborhood in an effort to avoid driving in congested conditions along El Camino Real. To account for this, a portion of project-generated traffic was assumed to travel on local neighborhood streets, thereby resulting in an increase in traffic on these local streets. The addition of project-generated traffic on neighborhood streets, regardless of the quantity, may be a concern to residents. Therefore, the following sections present techniques that could be used to reduce the amount of traffic traveling on neighborhood streets that do not have an origin or destination on those streets.

The City of Menlo Park has established a Neighborhood Traffic Management Program (NTMP), with the goals of correcting "demonstrably unsafe conditions" and "to provide residents of residential streets with protection and release from disproportionate traffic increases".

The NTMP identifies two levels of potential traffic management measures. Level I, or "express", measures are focused on education and enforcement, with limited physical changes to the roadway. These features may include:

- Educational programs
- Targeted police enforcement
- Regulatory signs
    - Speed Limit signs
    - STOP signs
    - Truck restriction signs
    - Parking prohibition signs
- Static warning and specialty signs
    - High visibility signs
    - School Area signs
    - Pedestrian Crossing signs
    - Neighborhood information signs
- Special striping and markings
    - Reduced lane width/edge line
    - Marking of street narrowing features
    - High visibility crosswalks
    - Red curbs
- Dynamic speed signs
- Radar speed trailer
- Improvement to street lighting
- Addition or removal of turn lanes
- Changes in traffic signal timing
- Street Trees

Level II measures are generally more restrictive and may result in diversion of existing neighborhood traffic and restricted access within a neighborhood. Level II features are identified to include:

- Flashing Beacons
- Crosswalk Warning Systems
- Textured pavement

- Gateways and entry treatments
- Turn Prohibition signs
- Traffic circles
- Speed humps and cushions
- Speed tables and raised crosswalks
- Bulbouts, curb extensions, and chokers
- Median island slow points
- Chicanes and angle points
- Median barriers
- Forced-turn channelization
- Diagonal diverters
- Half (one-way) street closure
- Full street closure

Many of these measures are used for the purpose of traffic calming, with the goal of reducing travel speed. Reduction in speed would not directly reduce cut-through traffic on neighborhood streets. However, any reduction in travel speeds could make these neighborhood streets a less attractive route, thereby indirectly reducing cut-through traffic.

Emergency Response

The NTMP notes that the need for "emergency vehicle access and response should be preserved." The Fire District has prepared a map of primary response routes, on which the implementation of traffic calming measures will not be permitted if it will delay emergency response by one minute or more. Furthermore, the City has established in the NTMP that "the use of stop signs and all Level II features will be evaluated in consultation with the Fire District."

Within the study area, the following streets are identified as a primary emergency response route:

- El Camino Real
- Middle Avenue
- Cambridge Avenue
- Creek Drive

Existing Traffic Management Features

Three Level II traffic calming measures have previously been installed within the study area, including speed humps on Cambridge Avenue, bulbouts at Cambridge Avenue/University Drive and gateways feature on the southern leg of Middle Avenue/University Drive as well as on Cambridge Avenue near Alto Lane. Furthermore, many of the neighborhood streets immediately adjacent to the proposed project site (such as College Avenue, Partridge Avenue and Cambridge Avenue), are relatively narrow (36 feet wide or less), have on-street parking and are lined with large trees. While these streets were not necessarily designed with the intent of calming traffic and minimizing cut-through movements, the design itself lends itself to providing these benefits.

Traffic Management Strategies

To reduce the potential for cut-through traffic on neighborhood streets in the vicinity of the project site, the following traffic management techniques may be considered. The measures focus primarily on Middle Avenue and Cambridge Avenue as these are the neighborhood streets expected to experience

the highest level of cut-through traffic. Potential strategies are presented for specific locations as well as the area as a whole.

Additional consideration was given to both University Drive and Yale Road as these roadways would also experience potentially significant impacts related to the proposed project. While segment-specific strategies are not identified for University Drive or Yale Road, application of project-wide traffic management strategies discussed below, as well as application of traffic management strategies on Middle Avenue and Cambridge Avenue, would benefit these streets by reducing traffic that travels on all neighborhood streets.

Middle Avenue

Middle Avenue, west of El Camino Real is the widest of the neighborhood streets adjacent to the project site at approximately 40 feet wide. It is designated as a collector in the City of Menlo Park General Plan. It provides connectivity between El Camino Real and Olive Street, with intermediate connections to University Drive and Downtown Menlo Park. Furthermore, there are no trees or other large features on Middle Avenue near El Camino Real, so visually the street may appear to be more like a regional street and therefore more enticing than the other neighborhood streets. After El Camino Real, Middle Avenue is expected to experience the second highest level of project-added traffic.

Lane Markings

Currently, the westbound lane of Middle Avenue, west of El Camino real is approximately 20 feet wide, but is marked as a single lane without on-street parking. This wide single travel-lane may result in drivers to view Middle Avenue as a wide-open street appropriate for regional traffic. In an effort to visually narrow the street, a westbound right-turn lane could be considered west of El Camino Real entering the Safeway driveway.

East of the Safeway driveway, an edge line to mark the lane width could be considered. Where parking is prohibited, cross-hatch markings in the shoulder area may be an option to avoid the appearance that the shoulder is intended for parking (this would be in addition to the continued maintenance of red-curb markings and no parking signs).

The *Menlo Park Comprehensive Bicycle Development Plan* (January 2005), identifies Middle Avenue as a route for future designation as a Class III bicycle route. However, in the El Camino Real/Downtown Specific Plan, Middle Avenue was identified for "Future Class II/Minimum Class III" bicycle facilities. Class III bicycle routes do not include dedicated bicycle facilities, but instead signs and pavement markings are provided to direct bicyclists to use the route while informing drivers that bicyclists may be on the route. Installation of the potential turn lane and/or shoulder discussed above would not restrict future designation of the bicycle route.

If the City chooses to pursue Class II bicycle lanes on this route, this additional roadway space would need to be used for bicycle lanes instead of the turn lane and shoulder. However, installation of a Class II bicycle lane on this segment would have a similar beneficial impact on Middle Avenue by visually narrowing the street. Therefore, it is recommended that modifications to the lane makings to this segment be made only after the City has selected the preferred bicycle facility for Middle Avenue.

Speed Feedback Signs

Speed feedback signs provide drivers with instant feedback when they are exceeding the posted speed limit. This is unlikely to directly affect the volume of traffic traveling on these streets, but would instead help encourage drivers to travel at a speed appropriate for the corridor. Potential locations for speed feedback sign on Middle Avenue include the segment mid-way between El Camino Real and University Drive, facing each direction of traffic.

Bulbouts

Intersection bulbouts (or curb extensions) are generally used as a tool to reduce pedestrian crossing distances by extending the sidewalk into the street at an intersection. These bulbouts can provide a secondary benefit of narrowing the street, which makes the street appear less appropriate for through traffic. Additionally, bulbouts also have the potential for a traffic-calming and speed reduction affects.

Bulbouts could be considered at the intersection of Middle Avenue/University Drive. Bulbouts could be considered on three corners without impacting travel lanes, with the northwest corner remaining as-is, as there is a westbound right-turn lane. Furthermore, bulbouts could also be considered in mid-segment locations on Middle Avenue between El Camino Real and University Drive. The midblock locations would help visually narrow the road, which would likely help reduce traffic speeds. Potential locations for installation of bulbouts include the following minor-street intersections:

- Middle Avenue/Blake Street, aligned with the existing crosswalk
- Middle Avenue/Kenwood Drive
- Middle Avenue/Morey Drive

Installation of bulbouts could result in negative impacts on emergency response by reducing the intersection turning radius. Therefore, if the City considers installation of bulbouts, a Level II design feature as specified in the City's NTMP, coordination with the Fire District would be necessary to determine if the impacts to emergency response are acceptable. Furthermore, installation of bulbouts may result in the loss of one to two on-street parking spaces per bulbout.

College Avenue and Partridge Avenue

Of the neighborhood streets located adjacent to the project site, College Avenue and Partridge Avenue are expected to experience the lowest level of cut-through traffic. This is attributed to the fact that there is no direct access proposed between the project site and these streets; therefore, the use of these streets for cut-through purposes would result in a fairly circuitous route. Therefore, no traffic management measures are recommended for consideration at this time. However, as part of monitoring discussed in the "Project Monitoring" section below, the City could reevaluate these streets after occupancy of the project to determine if traffic calming measures should be considered.

Cambridge Avenue

Cambridge Avenue between El Camino Real and University Drive currently has speed humps installed mid-block, bulbouts at the intersection of Cambridge Avenue/University Drive and a gateway feature near Alto Lane. Since these features are already installed on the street, no additional traffic management measures are recommended for consideration at this time. However, as part of monitoring discussed in the "Project Monitoring" section below, the City could reevaluate the street after occupancy of the project to determine if additional traffic calming measures should be considered.

Enforcement

Increased police enforcement is a recommended tool that is used to promote safer driving. This would not directly stop drivers from using neighborhood streets for cut-through routes, but instead can be beneficial in reducing travel speeds on these routes which may discourage the use of these routes. Increased police enforcement would include an occasional, targeted deployment of police officers to a particular area to cite drivers who exceed the speed limit, or violate other traffic laws.

Education

Educational campaigns could be targeted at project-site employees, residents and visitors. This could include preparing printed and online directions to the site that are provided to the office and retail staff and visitors. This information would direct people to use alternate routes to access the site.

Gateway Treatments

Installation of gateway treatments could be beneficial to remind drivers that they are entering a residential neighborhood that may not be an appropriate route for regional traffic. This could include installation of either temporary or permanent signs or monuments at the entry to the neighborhood, and could be incorporated into public art displays. The City could consider coordinating with neighborhood groups to determine if there is desire and willingness in the neighborhood to install such gateway treatments.

Other Measures Considered and Rejected

In addition to the measures discussed above, the following, more invasive, measures to restrict cut-through traffic were considered on study roads, but were found not to be appropriate in this instance.

Street Closures

A partial closure of adjacent neighborhood streets to through traffic would greatly restrict cut-through traffic. However, this would also result in the need to redirect traffic that currently uses the route and would restrict access to properties along the route. Furthermore, street closures would result in increased emergency response time. Therefore, partial street closures should not be considered.

Median Islands

Median islands can have a traffic calming affect by visually narrowing the street. However, since these are residential streets, there are numerous driveways along both sides of the street. Installation of median islands on neighborhood streets would greatly restrict access to individual homes, and therefore should not be considered.

One-Way Conversions

Converting streets to allow only one-way traffic would have the potential to reduce cut-through traffic, but would also result in other consequences:

- This would restrict access to adjacent properties, resulting in a redistribution of traffic onto other nearby streets.

- May induce higher travel speeds by providing two lanes in one direction of travel (without opposing travel lanes) compared to the existing configuration of one lane in each direction.
- May result in an increase in cut-through traffic in the allowed direction of travel, while drivers traveling in the restricted direction would need to seek other routes.
- Could result in increased emergency response times as emergency vehicles may not be able to drive on the most-direct route possible.

Turn Restrictions

One potential cut-through route would involve drivers traveling on Middle Avenue, then connecting to University Drive to continue to the north. A possible strategy would be to restrict turning movements at the intersection of Middle Avenue/University Drive, during either just peak travel periods or at all times. Restricting the southbound left-turn and westbound right-turn movements would produce the greatest benefit on reducing traffic on Middle Avenue. However, there would be other implications related to any turn restriction:

- Turn restrictions would restrict the travel of all drivers on this route, including people with homes on either Middle Avenue or University Drive. To minimize the impact, a turn restriction could be limited to peak time periods.
- Turn restrictions would likely result in a redistribution of some traffic onto other local streets, such as Fremont Street and Cambridge Avenue, thereby impacting conditions on these routes.
- Generally, it is preferred to establish movement restrictions with physical barriers such as center medians and channelizing islands as turn restrictions may be difficult to enforce. However, installation of these barriers at the intersection would affect other movements. Therefore, any reduction in traffic on Middle Avenue would be dependent on drivers' compliance with regulatory signs, and enforcement of these regulations as necessary.

Speed Humps

Speed humps are designed to physically limit the speed at which drivers travel on a street. Since Middle Avenue is classified as a collector street and is identified as a primary emergency response route, speed humps should not be considered on Middle Avenue.

<u>Project Monitoring</u>

Upon completion and occupancy of the project, a monitoring plan could be established to determine the actual changes in traffic on neighborhood streets. The details of a monitoring plan would need to be determined in coordination with City staff, but could include the following:

- Collection of traffic volume and speed data on the following six streets prior to occupancy of the proposed project:
    - Middle Avenue
    - College Avenue
    - Partridge Avenue
    - Cambridge Avenue
    - University Drive
    - Yale Road
- Once occupied, the traffic volume data would be collected again on a regular basis (for example, one week annually, for a period of five years).

- If the data collection shows a larger than projected increase in traffic on these streets, and/or a substantial increase in travel speeds, traffic management strategies should then be considered.
- If the data collection show a less than projected increase in traffic on these streets and no increase in substantial travel speeds, no further action would be necessary.

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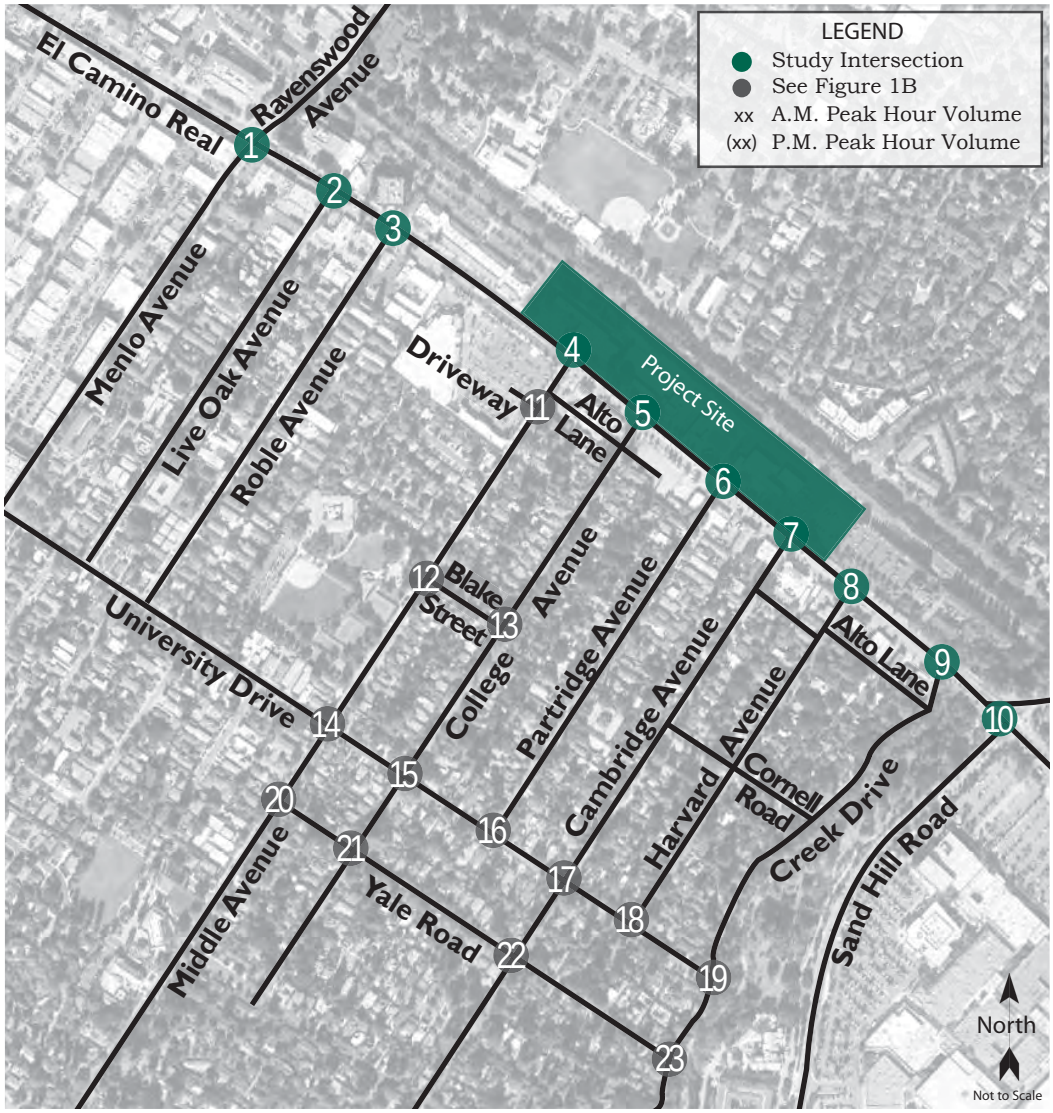
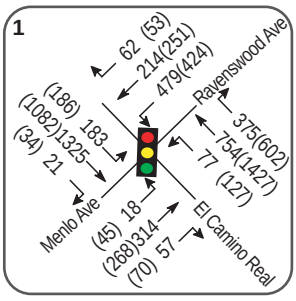
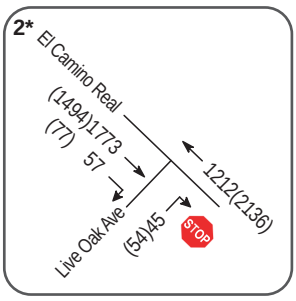
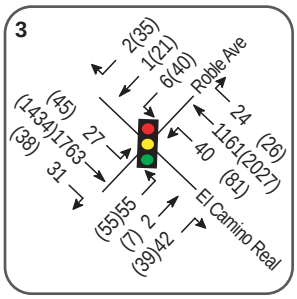
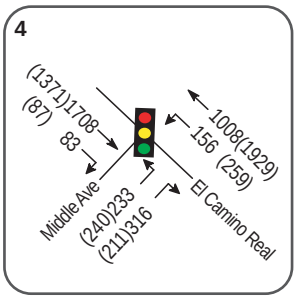
Attachments:
Figure 1A and Figure 1B – Existing Traffic Volumes
Figure 2 – Existing Average Daily Traffic
Figure 3A and Figure 3B – Existing Pedestrian Volumes
Figure 4A and Figure 4B – Existing Bicycle Volumes
Figure 5A and Figure 5B – Future without Project Traffic Volumes
Figure 6 – Future without Project Average Daily Traffic
Figure 7A and Figure 7B – Project Added Traffic Volumes
Figure 8 – Daily Project Added Roadway Segment Volumes

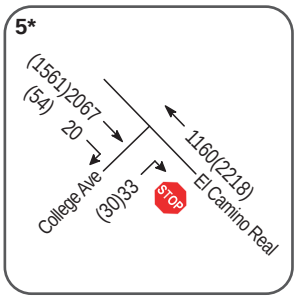


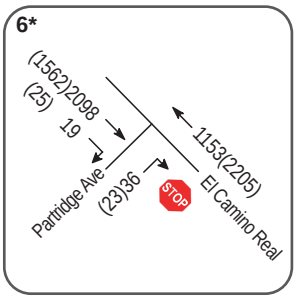


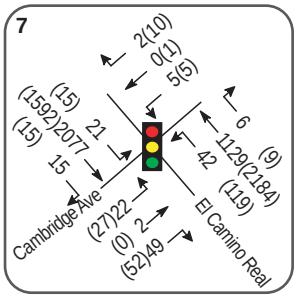


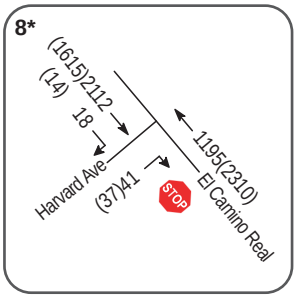


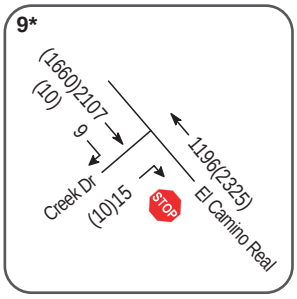


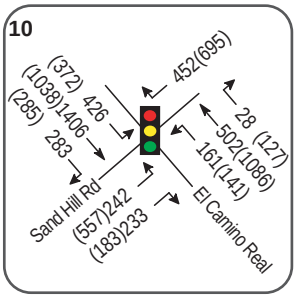






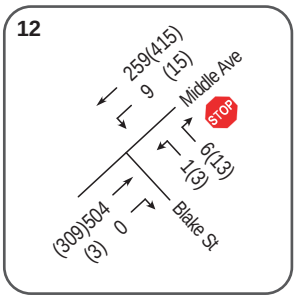


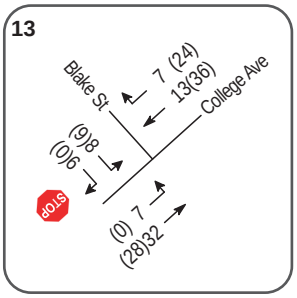


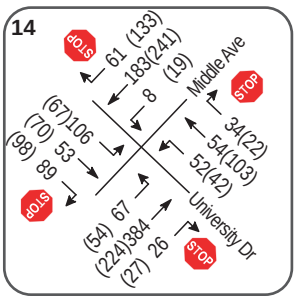


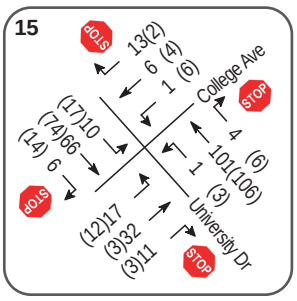
*Northbound through traffic volumes were balanced based on upstream and downstream intersection volumes. 010mpa 7-2014-Final.ai 9/14

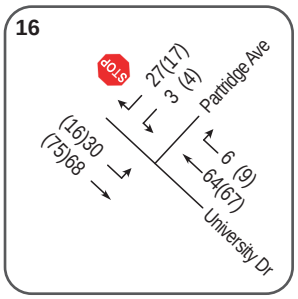
Figure 8 - Existing Traffic Volumes - El Camino Real

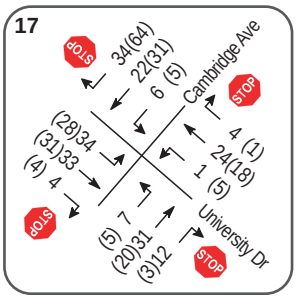


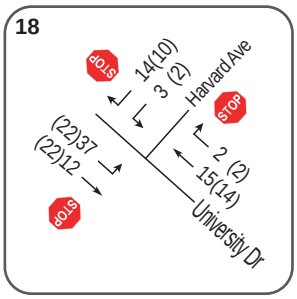


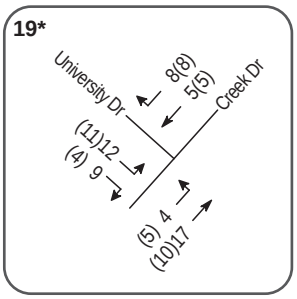


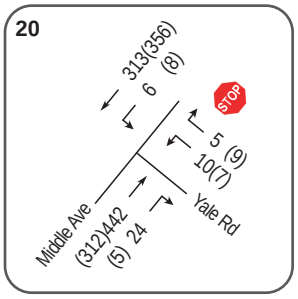


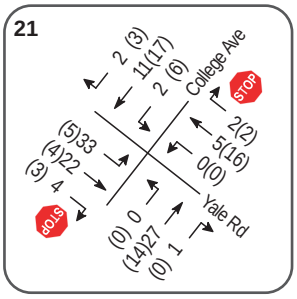


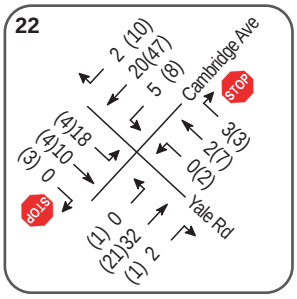


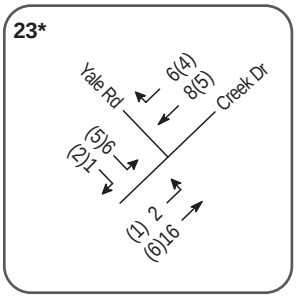












*These intersections are uncontrolled on all approaches.

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North

Not to Scale

LEGEND

Project Driveway

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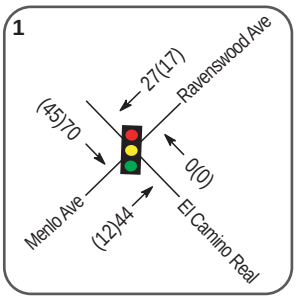

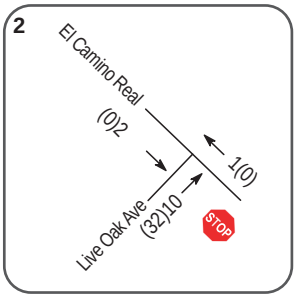

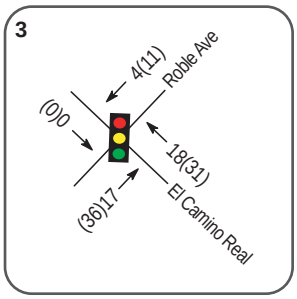

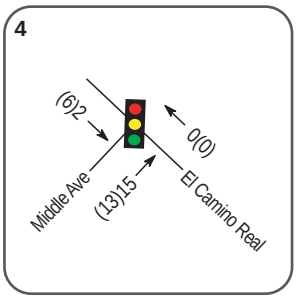

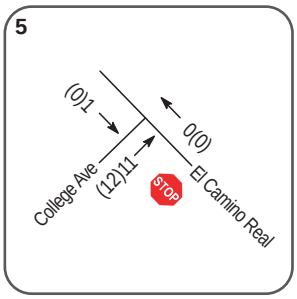

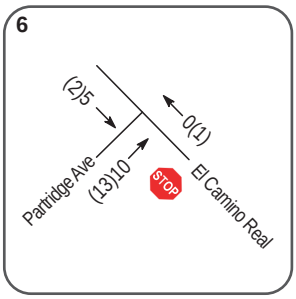

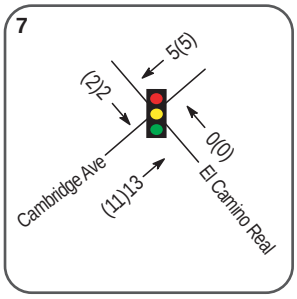

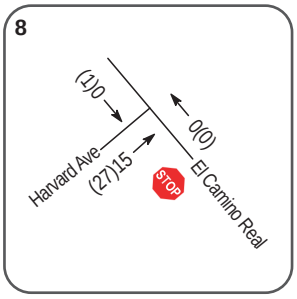

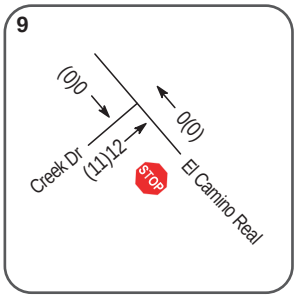

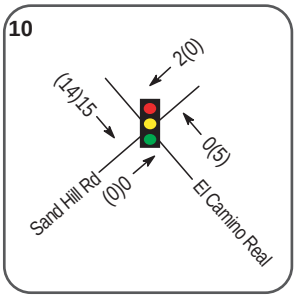

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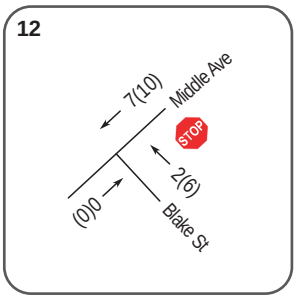

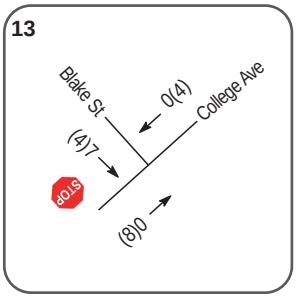

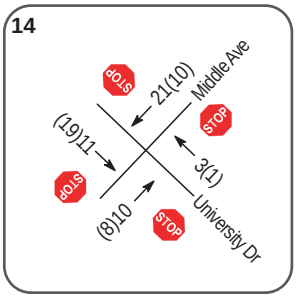

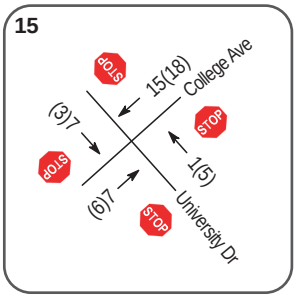

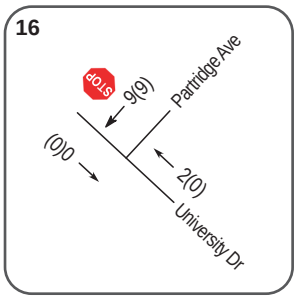

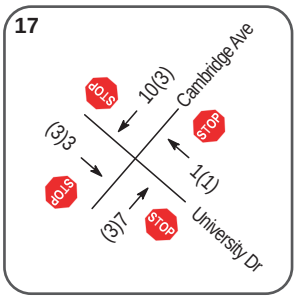

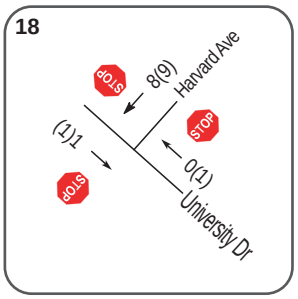

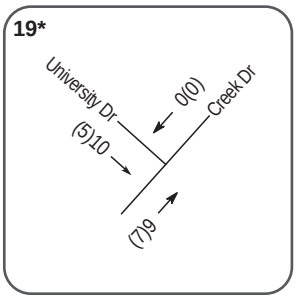

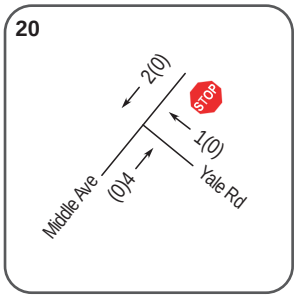

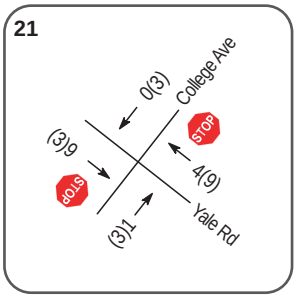

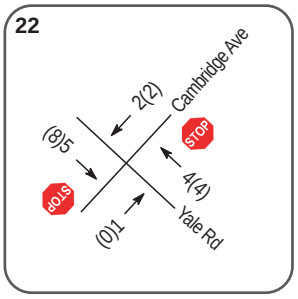

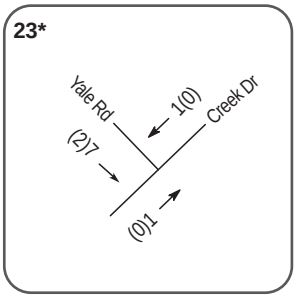

*These intersections are uncontrolled on all approaches.

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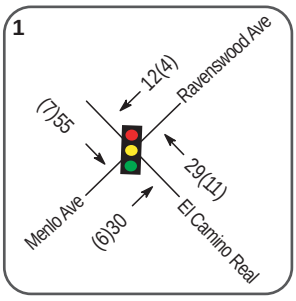

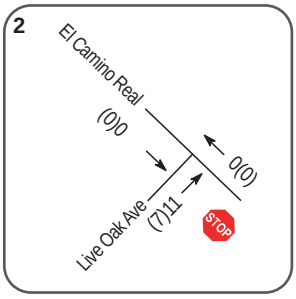

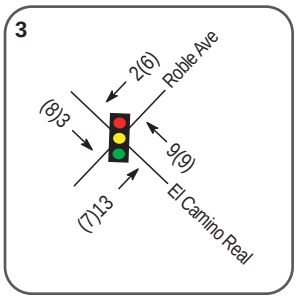

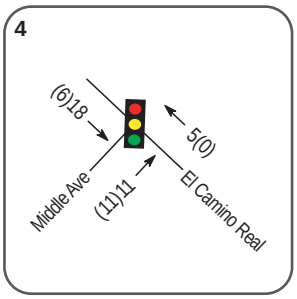

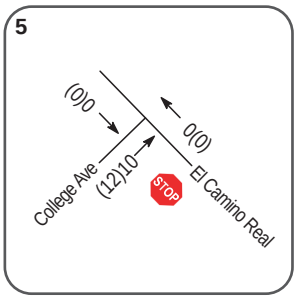

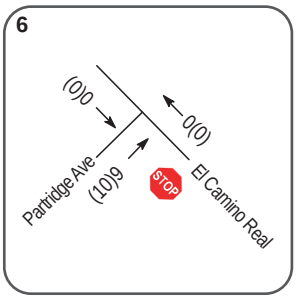

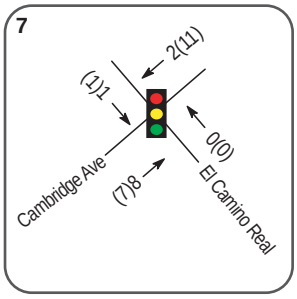

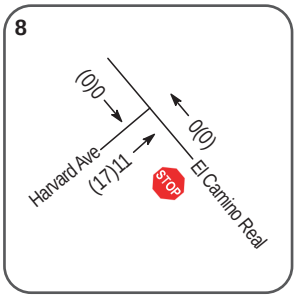

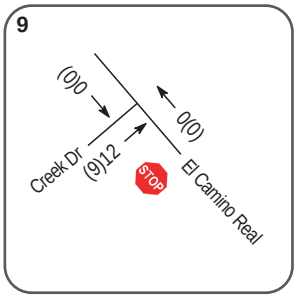

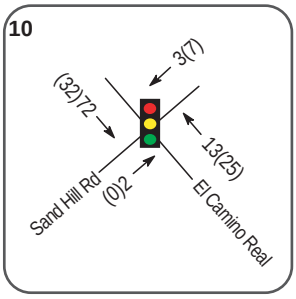

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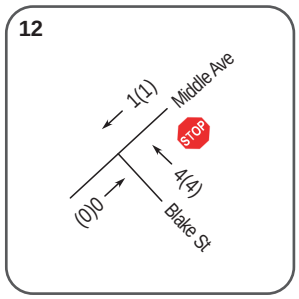
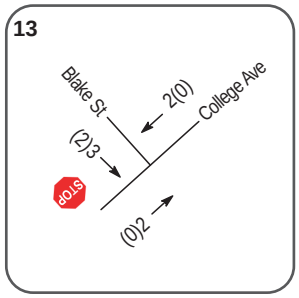
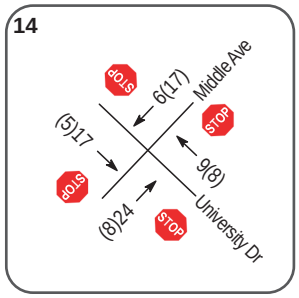
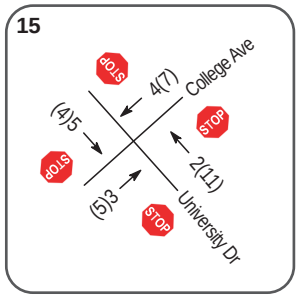
Traffic Engineering Analysis for the 500 El Camino Real Project

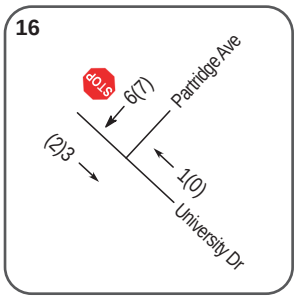
Figure 4A – Existing Bicycle Volumes - El Camino Real

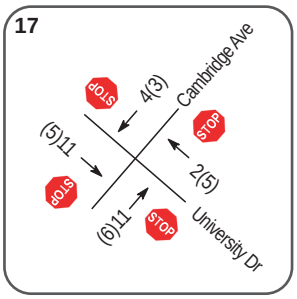


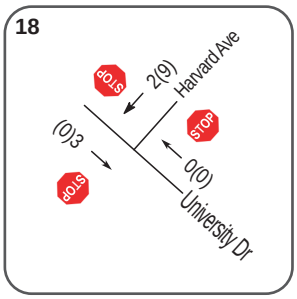


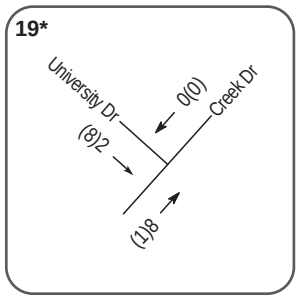


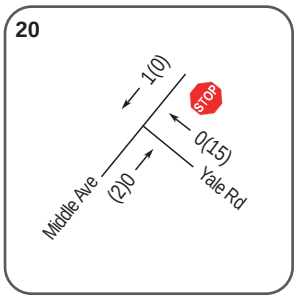


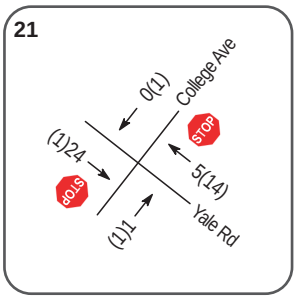


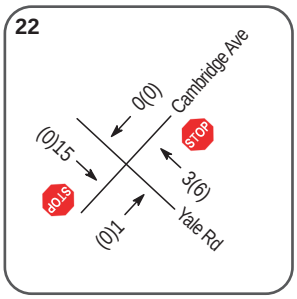


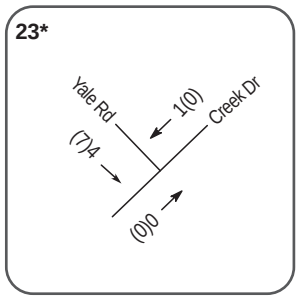












*These intersections are uncontrolled on all approaches.

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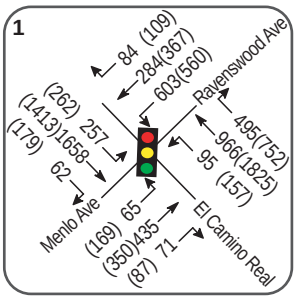
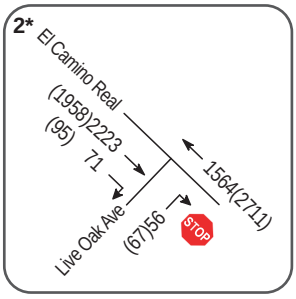
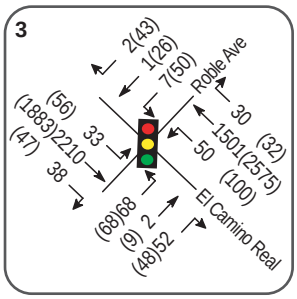
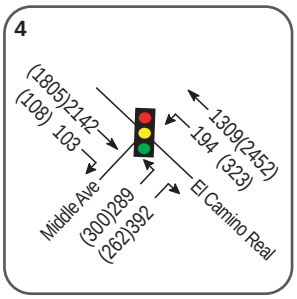
Figure 4B – Existing Bicycle Volumes - Neighborhood Streets

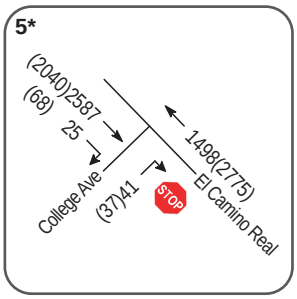
w-trans

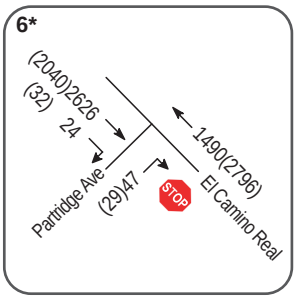


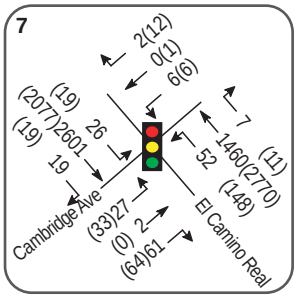


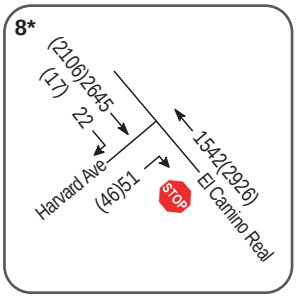


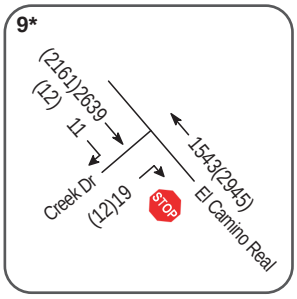


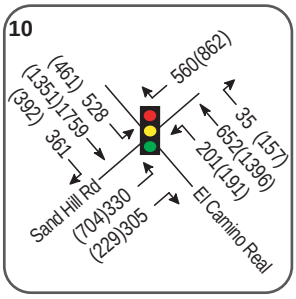




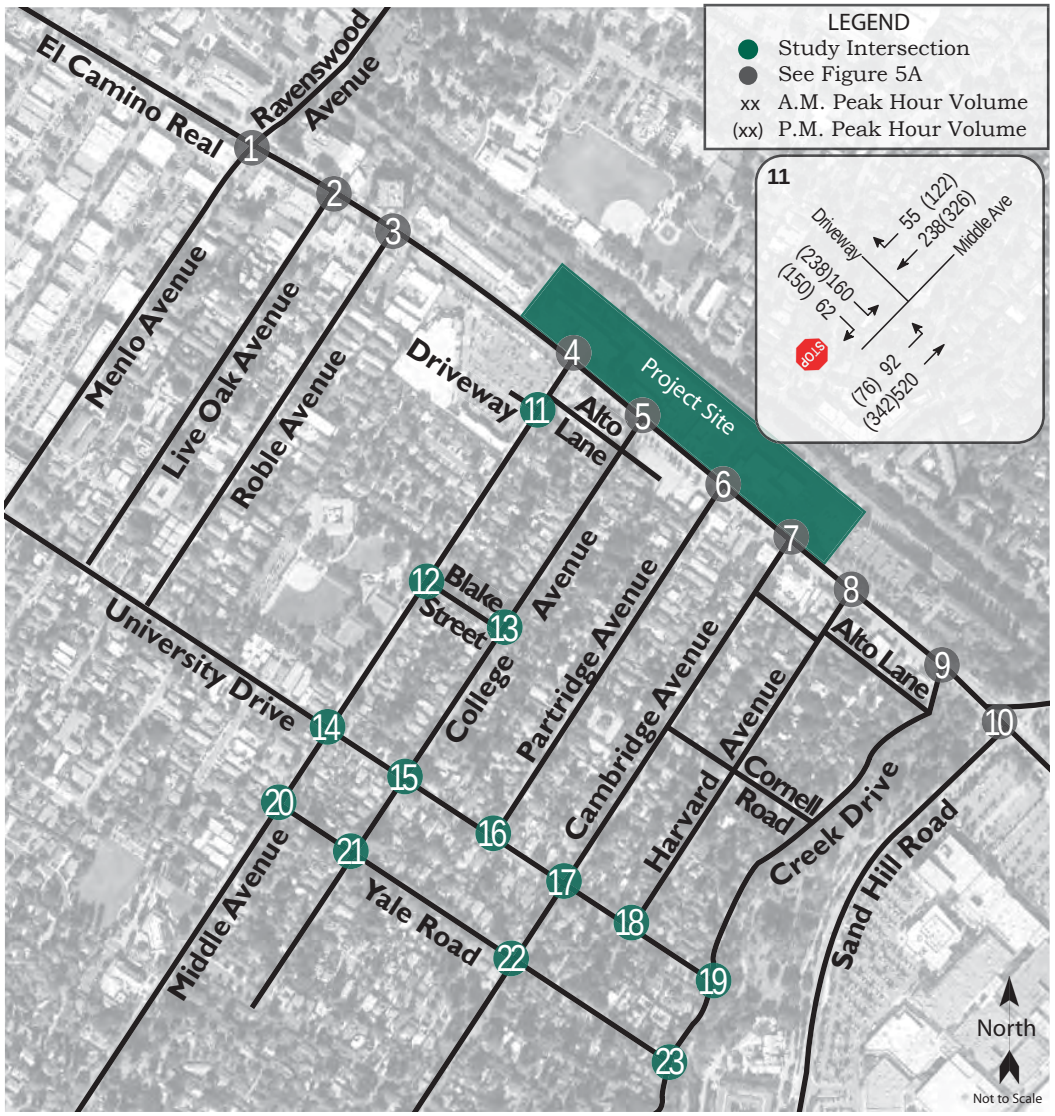


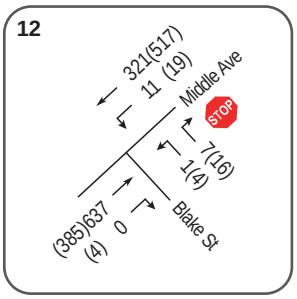


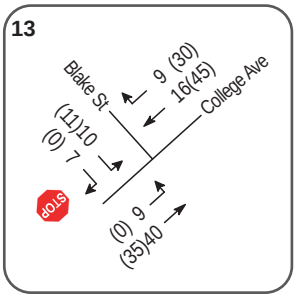


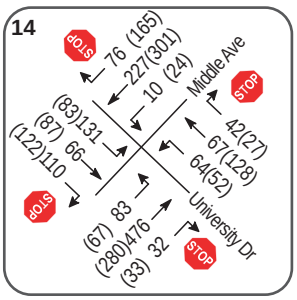


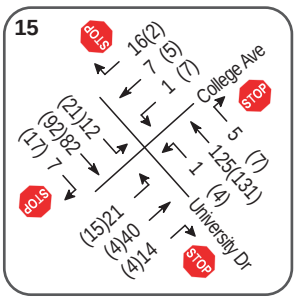
*Northbound through traffic volumes were balanced based on upstream and downstream intersection volumes. 010mpa 7-2014-Final.ai 9/14

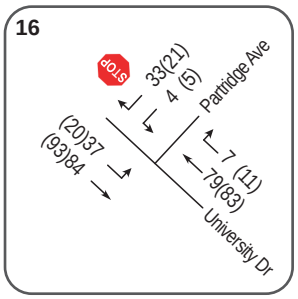


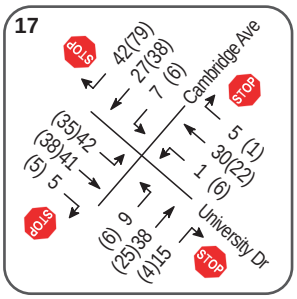


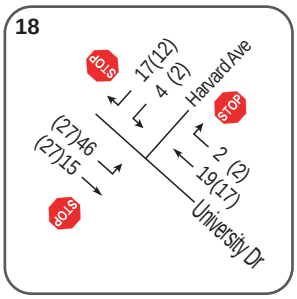


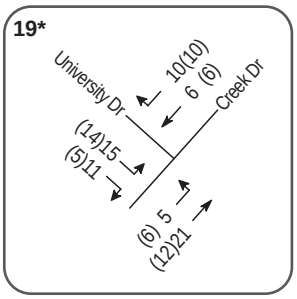


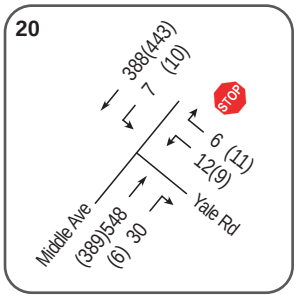


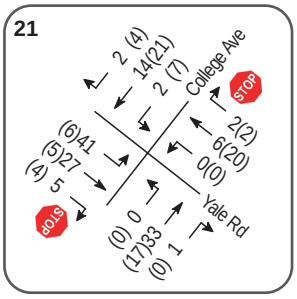


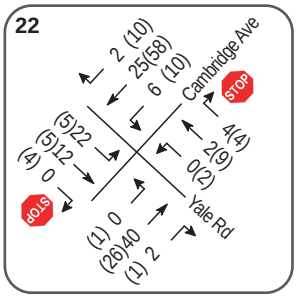


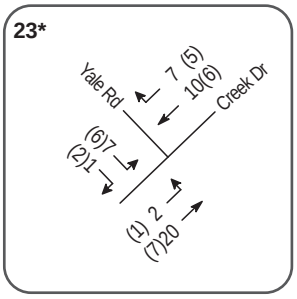












*These intersections are uncontrolled on all approaches.

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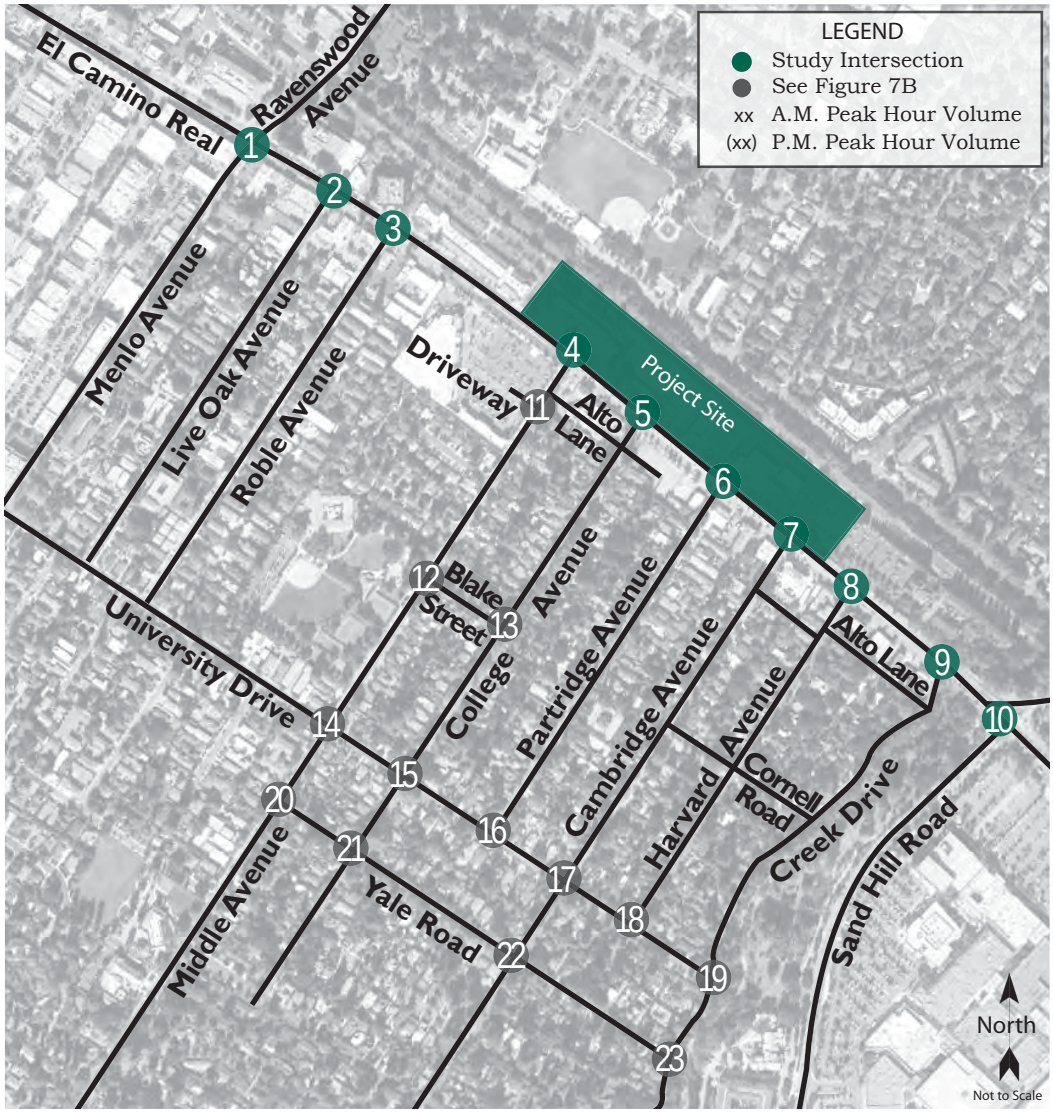
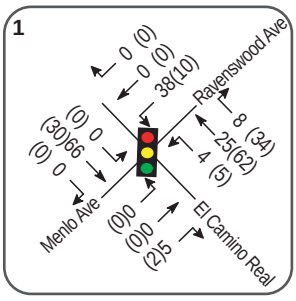
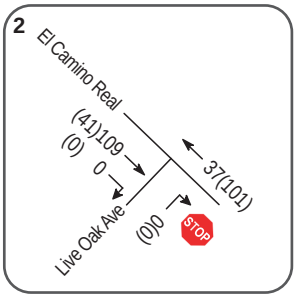
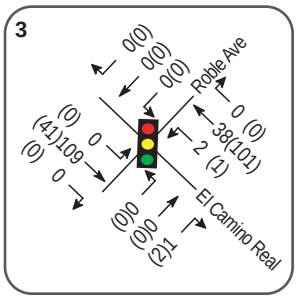
Traffic Engineering Analysis for the 500 El Camino Real Project

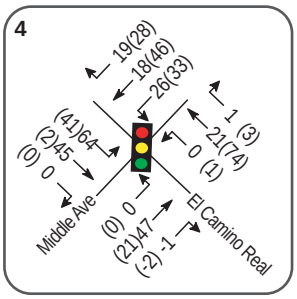
Figure 6 – Future without Project Average Daily Traffic

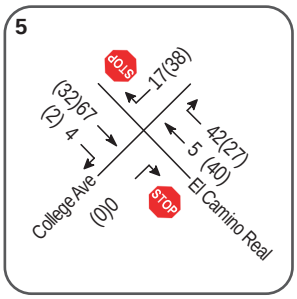


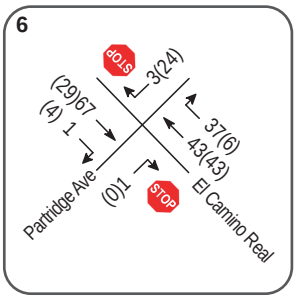


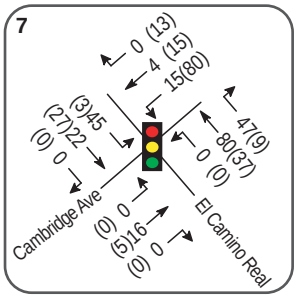


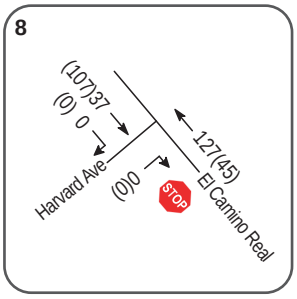


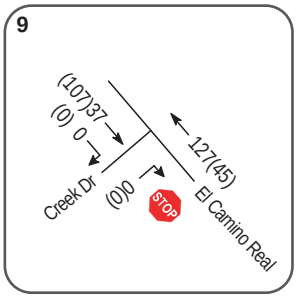


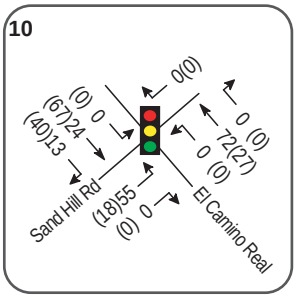












Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic
Due to rounding, total added traffic volumes are within +/- 3 trips of the total project net new trip generation

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Figure 7A Project Added Traffic Volumes - El Camino Real

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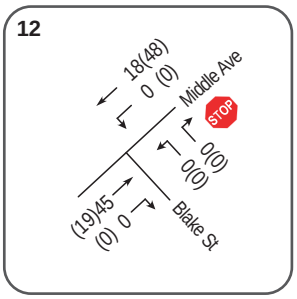
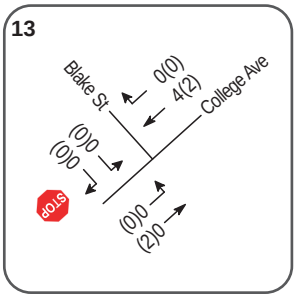
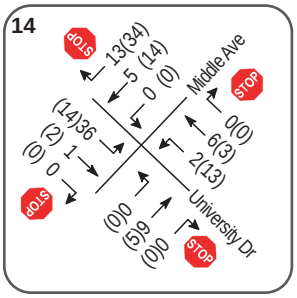
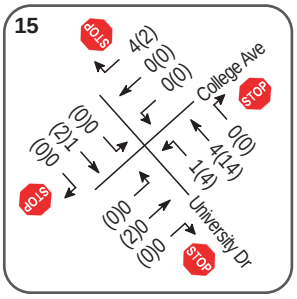
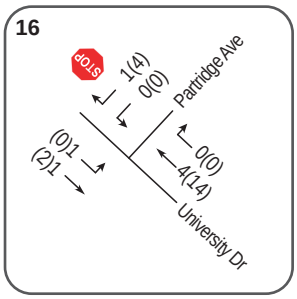
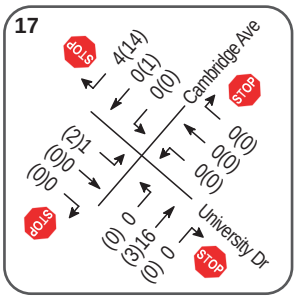


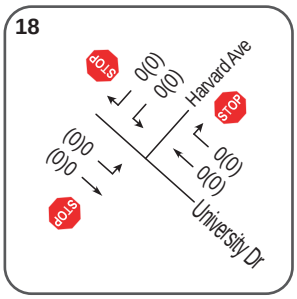


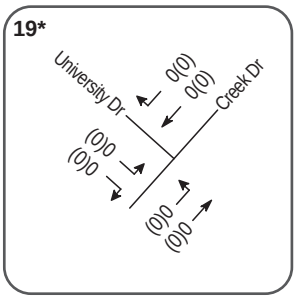


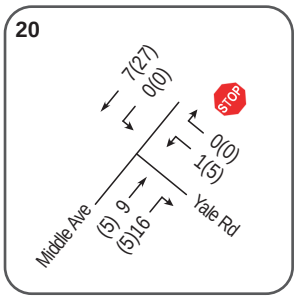


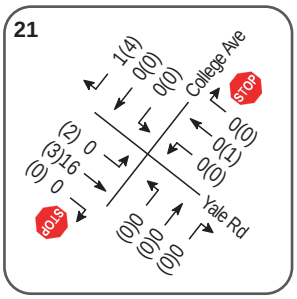


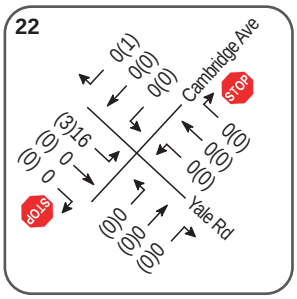


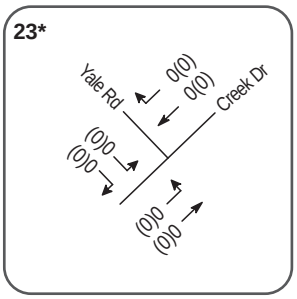






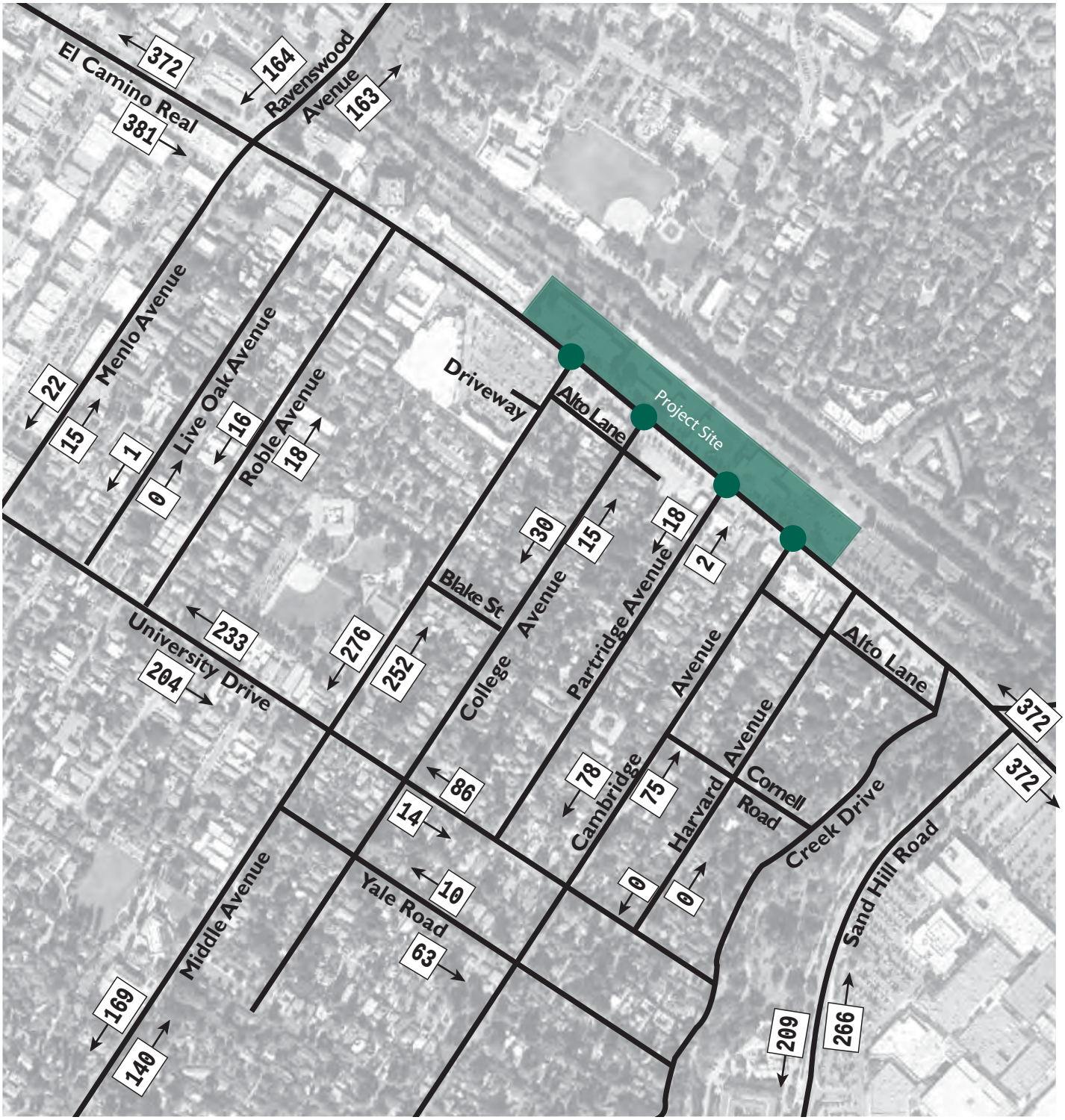






*These intersections are uncontrolled on all approaches.

Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic 010mpa 7-2014-Final.ai 9/14



North

Not to Scale

LEGEND

Project Driveway

Note: Net change includes the removal of traffic generated by existing land uses and the addition of proposed project-generated traffic
Due to rounding, total added traffic volumes are within +/- 3 trips of the total project net new trip generation

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Figure 6: Daily Project Added Roadway Segment Volumes

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