E. TRANSPORTATION, CIRCULATION AND PARKING

This section describes the existing traffic, circulation, parking, and transit conditions on the project site and its vicinity and provides an analysis of the project's potential transportation-related impacts. Figure IV.E-1 shows the location of the proposed project and adjacent street system.

This analysis evaluates the "primary" project, which would include 51,365 square feet of retail/ market space and 58,700 square feet of office space. As discussed in Chapter III, Project Description, two project variants are being considered by the City. However, the focus of the analysis in this section is on the primary project, which would generate more vehicle trips and thus result in more substantial traffic-related impacts than either of the variants. This analysis thus "captures" the potential transportation impacts that would occur from implementation of either of the two variants.

This analysis evaluates the traffic-related impacts of the proposed project during both the weekday morning and evening peak hours. Traffic impacts are assessed at 27 critical intersections and on 14 key roadway segments in the study area for the following eight scenarios:

1. Existing Conditions;
2. Near-Term[1] No Project Conditions;
3. Near-Term Conditions with Re-occupancy of the Auto Dealership (on the project site);
4. Near-Term Project Conditions without Garwood Way Extension;
5. Near-Term Project Conditions with Garwood Way Extension;
6. Long-Range No Project Conditions;
7. Long-Range Project Conditions without Garwood Way Extension; and
8. Long-Range Project Conditions with Garwood Way Extension.

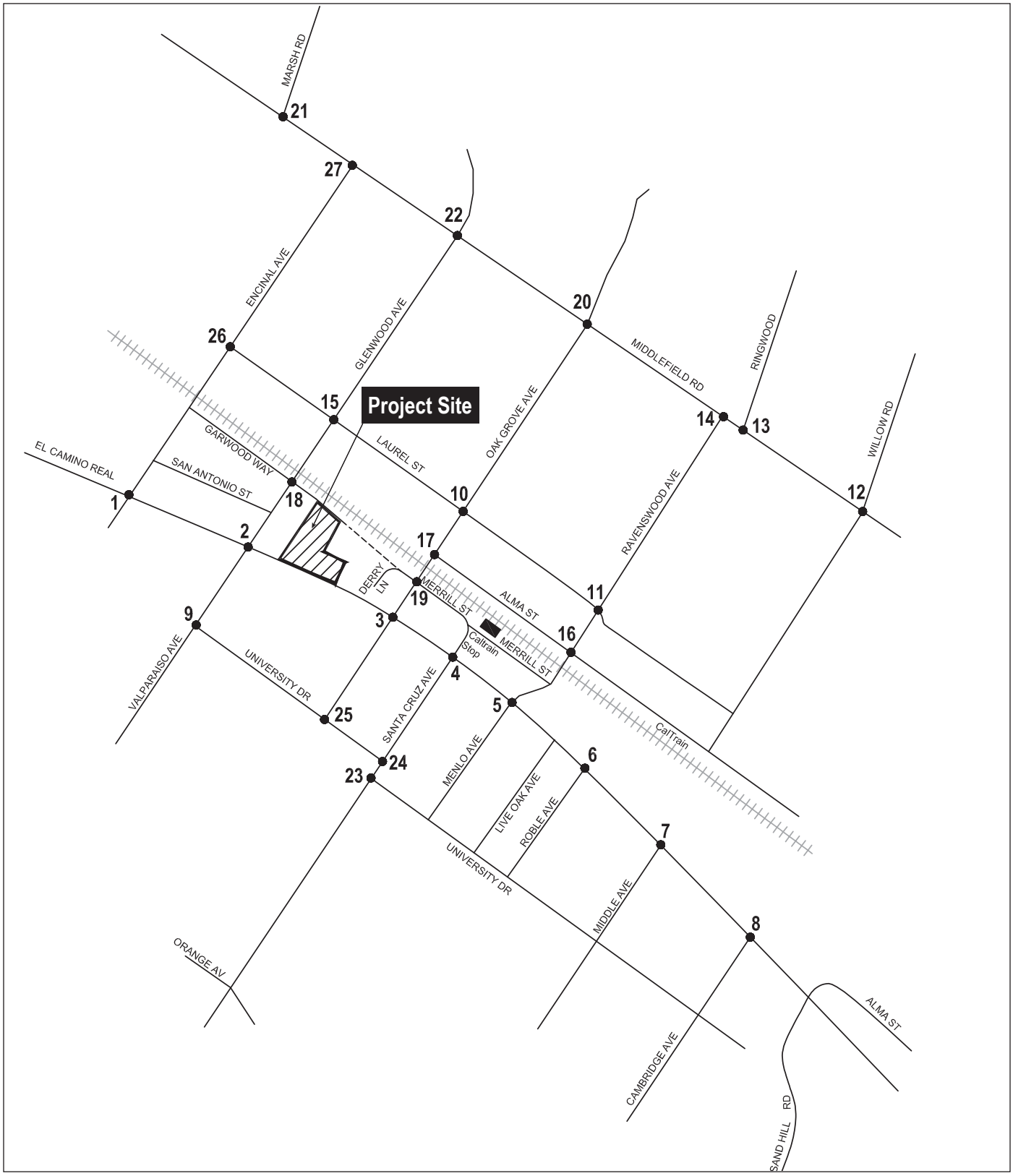
The project's potential effects on transit services, pedestrian and bicycle facilities, and parking are also evaluated.

1. Setting

The transportation-related context in which the 1300 El Camino Real Project would be constructed and operated is described below, beginning with a description of the study area and the street network that serves the project site. Next, existing levels of transit service, pedestrian and bicycle facilities in the vicinity of the project site are described. Intersection levels of service (LOS) are then defined and current conditions are summarized. The setting subsection then discusses planned transportation improvements within the study area.

a. Study Area. The project site is located in Menlo Park, east of Glenwood Avenue, and is bounded by El Camino Real on the south and Garwood Way on the north as illustrated in Figure IV.E-1.

[1] The "near-term" year refers to the project's estimated build-out date (2010) with an added 1 percent annual growth rate. The "long-range" year refers to a date 10 years in the future (2017) with an added 1 percent annual growth rate.



LSA

FIGURE IV.E-1

N

NOT TO SCALE

LEGEND

= Project Site

= Study Intersection

1300 El Camino Real Project EIR

Site Location and Study Intersections

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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The study intersections are listed in Table IV.E-1 and illustrated in Figure IV.E-1. The study intersections were selected in consultation with the City of Menlo Park and include all intersections at which the proposed project may have a significant impact. The study includes 17 key signalized intersections, of which 15 are located in Menlo Park and two are located in Atherton. In addition, eight unsignalized intersections in Menlo Park and two in Atherton were also evaluated. Although the project is expected to generate more than 100 peak-hour trips and is therefore subject to the Congestion Management Program (CMP) guidelines established by the City/County Association of Governments of San Mateo County (C/CAG), there are no CMP intersections in the vicinity of the project site.

Table IV.E-1: Study Intersections

1. *El Camino Real and Encinal Avenue*	16. Laurel Street and Glenwood Avenue (four-way stop)
2. *El Camino Real and Valparaiso Avenue/ Glenwood Avenue*	17. Alma Street and Ravenswood Avenue (two-way stop)
3. *El Camino Real and Oak Grove Avenue*	18. Alma Street and Oak Grove Avenue (two-way stop)
4. *El Camino Real and Santa Cruz Avenue*	19. Garwood Way and Glenwood Avenue (two-way stop)
5. *El Camino Real and Ravenswood Avenue/ Menlo Avenue*	20. Derry Lane (Garwood Way)/Merrill Street and Oak Grove Avenue (two-way stop)
6. *El Camino Real and Roble Avenue*	21. Santa Cruz Avenue and University Drive (N) (unsignalized)
7. *El Camino Real and Middle Avenue*	22. Oak Grove Avenue and University Drive (unsignalized)
8. *El Camino Real and Cambridge Avenue*	23. Encinal Avenue and Laurel Street (unsignalized)
9. University Drive and Valparaiso Avenue	24. Middlefield Road and Oak Grove Avenue [Atherton]
10. Laurel Street and Oak Grove Avenue	25. Middlefield Road and Marsh Road [Atherton]
11. Laurel Street and Ravenswood Avenue	26. Middlefield Road and Glenwood Avenue [Atherton] (two-way stop)
12. Middlefield Road and Willow Road	27. Encinal Avenue and Middlefield Road [Atherton] (unsignalized)
13. Middlefield Road and Ringwood Avenue	
14. Middlefield Road and Ravenswood Avenue	
15. Santa Cruz Avenue and University Drive (S)	

Note: State-controlled intersections are shown with *italic* type.
Source: Hexagon Transportation Consultants, Inc., 2009.

b. Street Network. Access to the project site would be provided via El Camino Real and Garwood Way. Other roadways within the study area include Oak Grove Avenue, Middlefield Road, Ravenswood Avenue, Santa Cruz Avenue, Glenwood Avenue, Valparaiso Avenue, Encinal Avenue, Laurel Street and Alma Street. These roadways are described below.

- ***El Camino Real,*** which is also designated State Route 82, runs in a north-south direction from the South Bay through most of the Peninsula cities. North of Encinal Avenue, El Camino Real is a six-lane divided arterial. Between Encinal Avenue and Valparaiso/Glenwood Avenue, El Camino Real has five lanes (two lanes northbound, three lanes southbound). El Camino Real narrows to a four-lane roadway at Valparaiso/Glenwood Avenue and widens again to become a six-lane roadway south of Ravenswood/Menlo Avenue. Adjacent land uses are primarily commercial.
- ***Garwood Way*** is a north-south two-lane local street connecting Glenwood Avenue with Encinal Avenue. Currently, Garwood Way ends just south of Glenwood Avenue. As part of the proposed Derry Lane Mixed Use Development, Garwood Way would be extended southeast to Oak Grove Avenue.
- ***Oak Grove Avenue*** is a two-lane collector with on-street parking. It extends in an east-west direction between University Drive and a residential neighborhood east of Middlefield Road. The

adjacent land uses north of the Caltrain railroad tracks include commercial and mixed-use developments.

- ***Middlefield Road*** runs parallel to El Camino Real from Mountain View to Redwood City. In the project site vicinity, Middlefield Road has two lanes north of Ravenswood Avenue and widens to four lanes south of Ravenswood Avenue. Bike lanes are present both north and south of Ravenswood Avenue. Middlefield Road is classified as a minor arterial in the City of Menlo Park's General Plan.
- ***Ravenswood Avenue*** is a two-lane minor arterial with bike lanes on segments not including the approach to El Camino Real and is lined by a mix of uses, including administrative and professional space, public facilities, and residential uses. Ravenswood Avenue extends from Middlefield Road to El Camino Real, where it becomes Menlo Avenue. Menlo Avenue continues southwestward from El Camino Real to University Drive.
- ***Santa Cruz Avenue*** extends southwestward from Merrill Street just east of El Camino Real to Orange Avenue, where it turns southward and terminates at Alpine Road/Junipero Serra. It is the main thoroughfare through the City's central commercial district (between El Camino Real and University Drive). Within the commercial district, Santa Cruz Avenue has one lane in each direction of travel with on-street parking and a raised landscaped median. On this roadway segment, bicyclists are required to walk their bikes on the sidewalk. West of University Drive, this arterial is lined primarily by residential uses.
- ***Glenwood Avenue*** is a two-lane street with bike lanes that extends in an east/west direction between Middlefield Road and El Camino Real. The adjacent properties comprise primarily residential uses. The City of Menlo Park's General Plan classifies Glenwood Avenue as a collector street.
- ***Valparaiso Avenue*** runs from El Camino Real westward to the Sharon Park area. This minor arterial has one lane plus a bike lane in each direction of travel. Residential uses and public facilities line the street.
- ***Encinal Avenue*** is a two-lane collector street with bicycle lanes, and connects El Camino Real with Middlefield Road. The street is lined with residential uses and a public school.
- ***Laurel Street*** extends in a north-south direction from Encinal Avenue to Willow Road. It is classified as a collector street south of Glenwood Avenue and as a local street north of Glenwood Avenue. It has two lanes and bicycle lanes. Adjacent land uses include the Menlo Park Civic Center, a public park, and residential uses.
- ***Alma Street*** is a north-south two-lane local street that runs parallel to and on the east side of the Caltrain tracks. Alma Street provides access to the Menlo Park Caltrain station, the Civic Center, the Menlo Park library, and Burgess Park.

c. Existing Transit Services. Existing transit service near the project site is provided by SamTrans, the City of Menlo Park, and Caltrain. Each of these services is described in the following sections.

(1) SamTrans. SamTrans provides bus service along the following six routes:

- Route 83 provides limited local bus service within Menlo Park and Atherton on school days only during the hours immediately before and after school. Route 83 operates along many of the local

streets surrounding the project site, including Glenwood Avenue, Santa Cruz Avenue and Merrill Street, and has a stop at the nearby Menlo Park Caltrain station.

- Route 85 provides limited local bus service to Menlo Park, Portola Valley, Skylonda and Woodside on school days only during the hours immediately before and after school. Route 85 operates along Santa Cruz Avenue and Ravenswood Avenue near the project site.
- Route 295 provides service between the Menlo Park and San Mateo Caltrain stations with 30- to 60-minute headways. Route 295 also serves the Redwood City, San Carlos, and Hillsdale Caltrain stations.
- Route 296 extends from the Redwood City Caltrain station to East Palo Alto with 30-minute headways during the peak commute hours. Within the study area, Route 296 operates along Middlefield Road, Ravenswood Avenue, Merrill Street, Oak Grove Avenue, and Laurel Street.
- Route 390 provides transit service between the Daly City BART station and Palo Alto. Route 390 has 20- to 40-minute headways during commute periods.
- Express bus line KX operates seven days a week between Palo Alto and the San Francisco Transbay Terminal with 30-minute headways during commute hours.
- Express bus line RX operates weekdays between Palo Alto and the San Francisco Transbay Terminal. To and from Menlo Park, there is one service run northbound during the AM commute period and one service run southbound during the PM commute period.

(2) Menlo Park Shuttle Service. The City of Menlo Park provides midday shuttle service to many popular destinations. The shuttle service operates Monday through Friday with 60-minute headways. The shuttle stops at all SamTrans stops in Menlo Park, the Menlo Park library, and the Menlo Park Caltrain station (to the east of the project site). In addition, the City operates the Willow Road and Marsh Road shuttle service, which provides transit service from the Caltrain station to business parks to the east and west of Highway 101. The Willow Road and/or Marsh Road shuttles meet a total of 12 trains in the morning and 14 trains in the evening.

(3) Caltrain. Commuter rail service between San Francisco and Gilroy is provided by Caltrain. There is only one Caltrain station in Menlo Park and it is located approximately 1,000 feet east of the project site along Merrill Street. At the Menlo Park station, Caltrain headways vary during the commute hours with 5- to 55-minute headways during the AM peak period and 25 to 35 minute headways during the PM peak period.

d. Pedestrian and Bicycle Facilities. There are a number of bikeways within the vicinity of the project site. Bike lanes are located along the following roadway segments:

- Valparaiso Avenue between Alameda de las Pulgas and Middlefield Road
- Santa Cruz Avenue between Orange Avenue and University Drive
- Encinal Avenue between Alma Street and Middlefield Road
- Ravenswood Avenue between Middlefield Road and Laurel Street
- Middlefield Road between Marsh Road and Willow Road
- Laurel Street between Encinal Avenue and Burgess Drive

Bike routes are located along Santa Cruz Avenue between Avy Avenue and Sand Hill Road, and on Laurel Street between Waverly Street and Willow Road.

Pedestrian facilities in the project area consist primarily of sidewalks, which are found along most of the previously described local roadways in the study area.

e. Existing Level of Service Analysis. Traffic conditions in the study area are assessed through the evaluation of peak hour levels of service (LOS) at critical intersections. The LOS concept qualitatively characterizes traffic conditions associated with varying levels of traffic congestion based on a measurable estimate of delay.

Intersection Level of Service Analysis. The level of service criteria for signalized and unsignalized intersections is presented in Table IV.E-2. These range from LOS A, which indicates free-flow conditions with little or no delay, to LOS F, which indicates congested conditions with excessive delays. The City of Menlo Park level of service standard is LOS C or better for intersections on collector streets and LOS D or better for intersections on arterial streets and local approaches to State-controlled intersections. The Town of Atherton has not adopted an intersection level of service policy.

Table IV.E-2: Intersection Level of Service Definitions

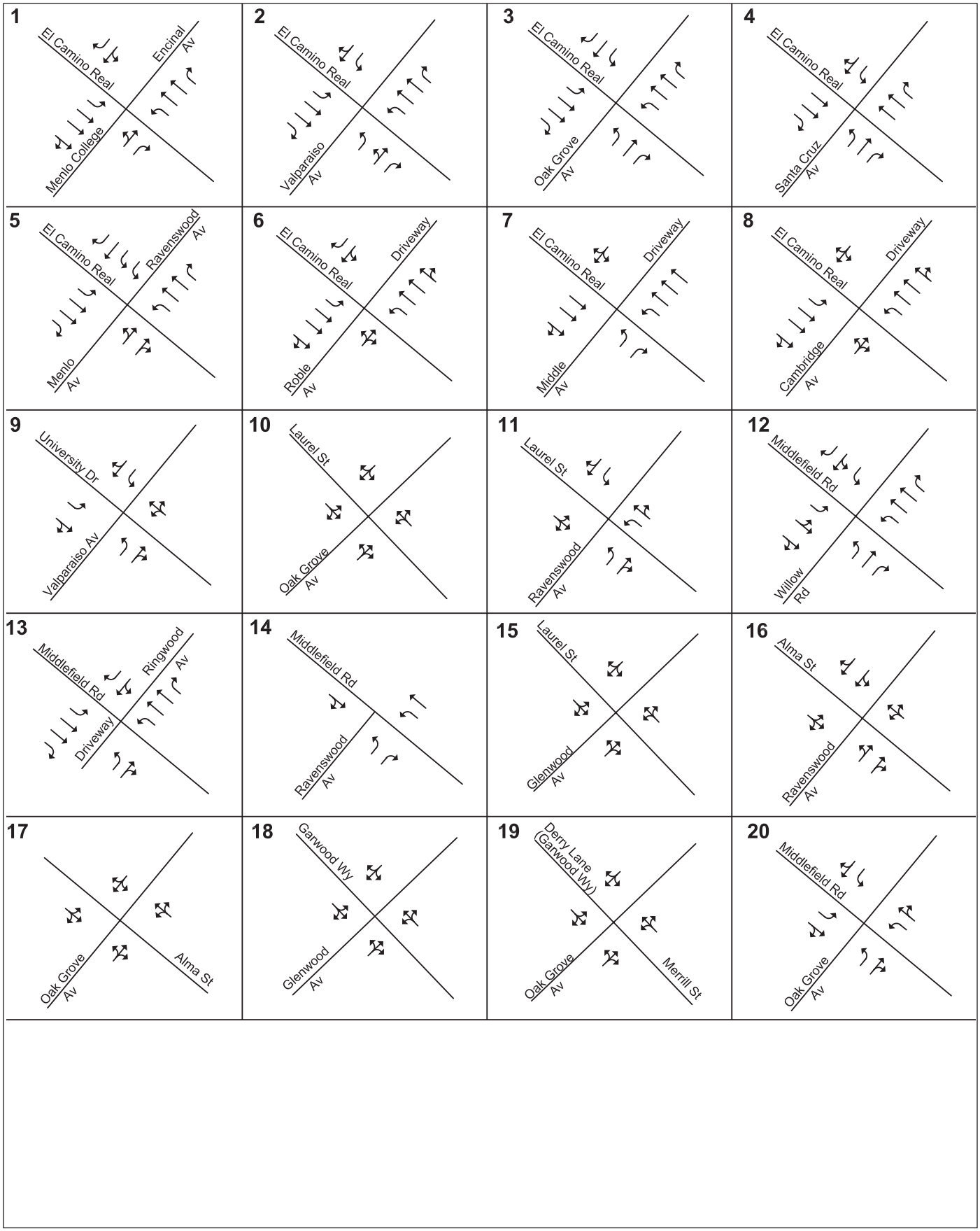
Level of Service	Description	Total Delay (seconds/vehicle)	
		Signalized Intersections	Unsignalized Intersections
A	Little or no delay	≤ 10.0	≤ 10.0
B	Short traffic delay	> 10.0 and ≤ 20.0	> 10.0 and ≤ 15.0
C	Average traffic delay	>20.0 and ≤ 35.0	> 15.0 and ≤ 25.0
D	Long traffic delay	> 35.0 and ≤ 55.0	> 25.0 and ≤ 35.0
E	Very long traffic delay	> 55.0 and ≤ 80.0	> 35.0 and ≤ 50.0
F	Extreme traffic delay	> 80.0	> 50.0

Source: *2000 Highway Capacity Manual*, Transportation Research Board, 2000.

Traffic conditions at study intersections were evaluated for the morning and evening peak hours using the methodology contained in the Transportation Research Board's *2000 Highway Capacity Manual,* as required by the City of Menlo Park. This methodology assigns a level of service based on the average control delay experienced by all vehicles using the intersection.

Figure IV.E-2 illustrates the existing lane geometry at the study intersections. Of the 27 study intersections, 17 are signalized. Traffic volumes of the study intersections were obtained from new traffic counts collected for this project-specific analysis. Existing AM and PM peak-hour traffic volumes are presented in Figure IV.E-3.

The results of the level of service analysis under existing conditions are summarized in Table IV.E-3 and Table IV.E-4. The level of service calculation sheets are included in Appendix D. The results show that all of the City-controlled study intersections in Menlo Park currently comply with the City's level of service standard. One of the signalized study intersections located in the Town of Atherton, Middlefield Road and Marsh Road, currently operates at a poor level of service (LOS F) during the PM peak hour. In addition, two unsignalized study intersections in the Town of Atherton, Middlefield Road and Glenwood Avenue, and Middlefield Road and Encinal Avenue, currently operate at a poor level of service (LOS F) during both peak hours. As noted above, the Town of Atherton has no intersection level of service standards.



LSA

FIGURE IV.E-2a

1300 El Camino Real Project EIR
Existing Lane Configurations

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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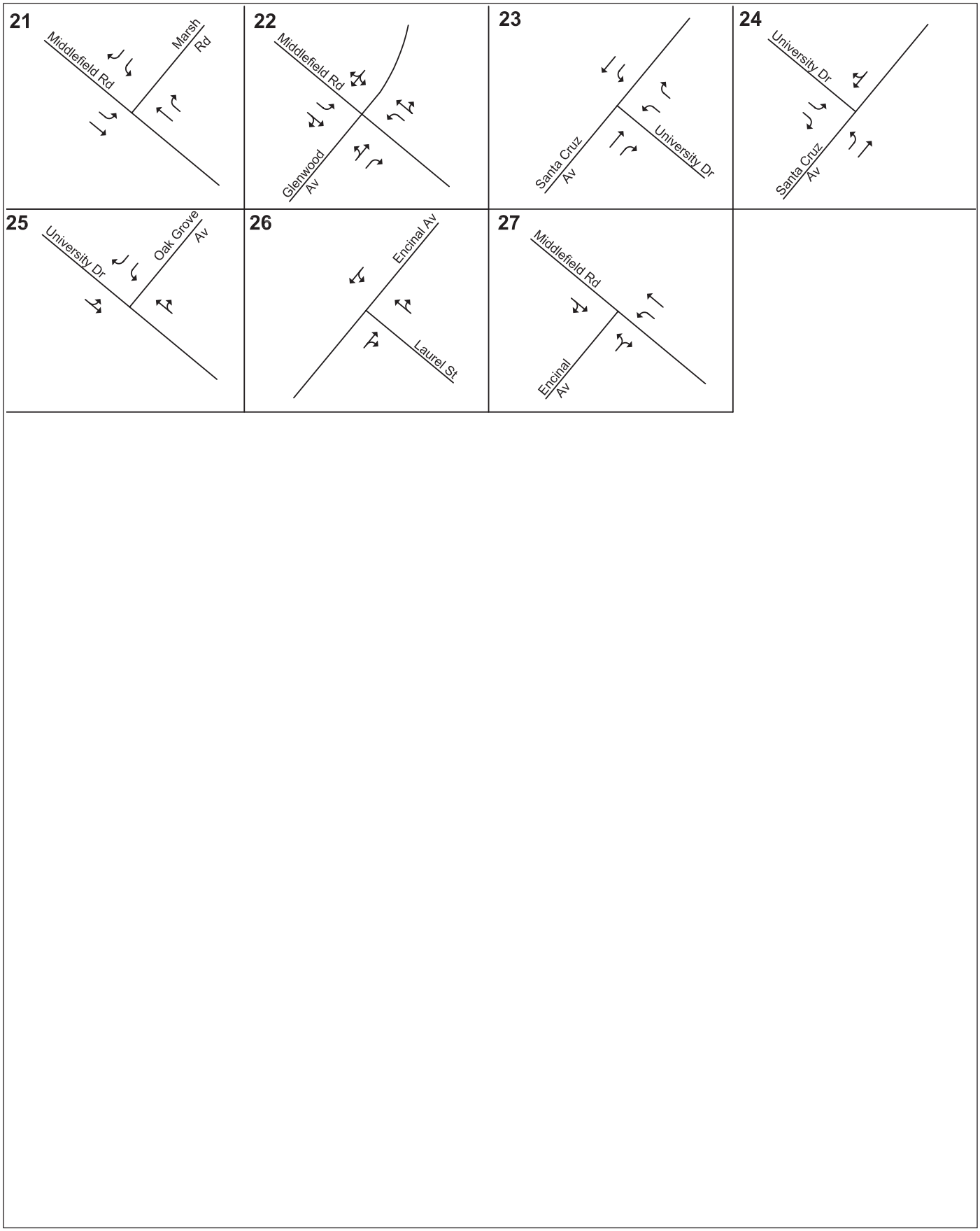

LSA

FIGURE IV.E-2b

1300 El Camino Real Project EIR
Existing Lane Configurations

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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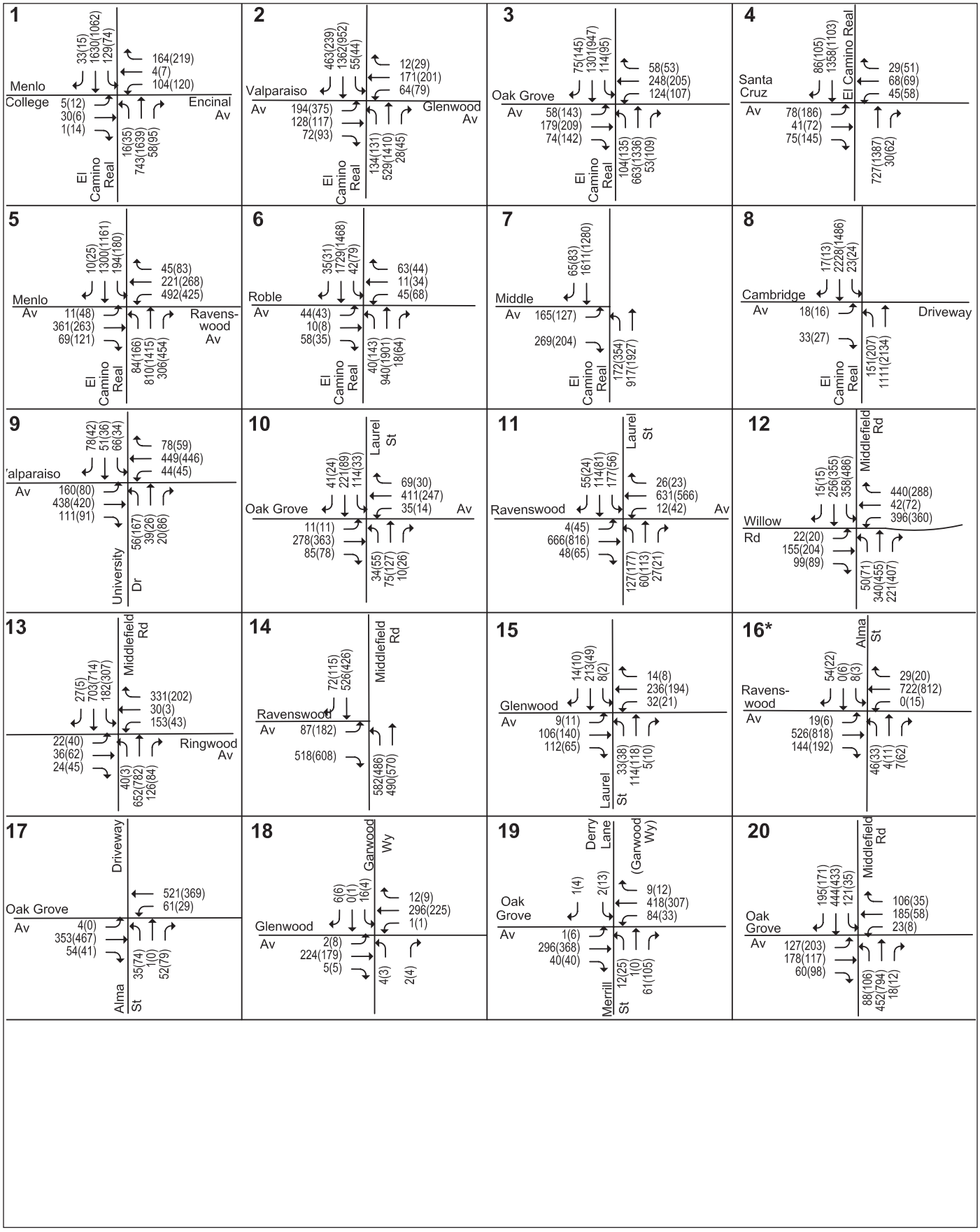

LSA

FIGURE IV.E-3a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Existing Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2006.

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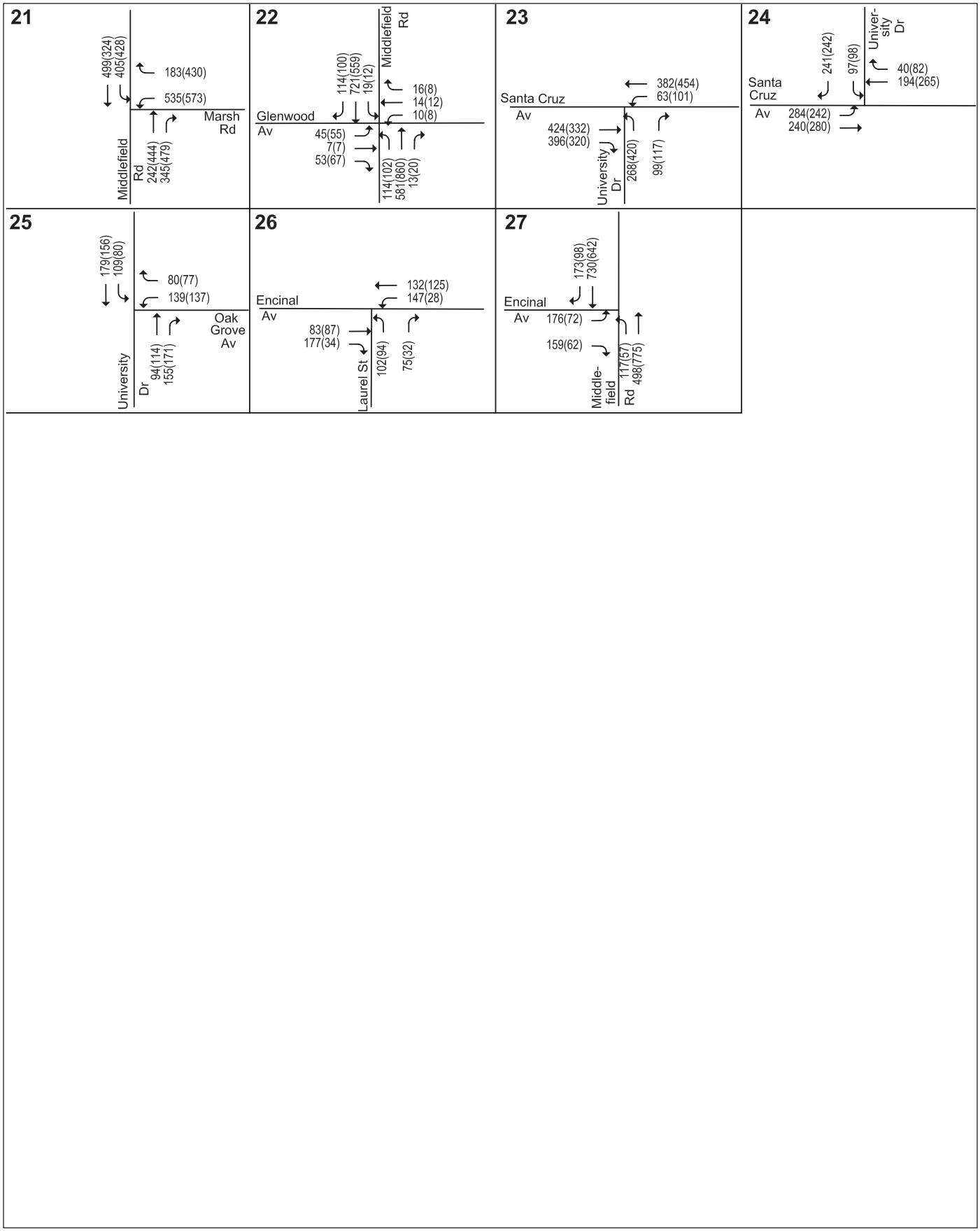

LSA

FIGURE IV.E-3b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Existing Traffic Volumes

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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Table IV.E-3: Existing Levels of Service at City-Controlled Intersections

City/Intersection	Type of Control	LOS Standard[a]	Peak Hour	Count Date	Existing Conditions		
					LOS[b]	Average Delay[c]	Critical Delay[d]
Menlo Park							
9. University Drive and Valparaiso Avenue	Signal	D	AM	5/2/2006	C	21.9	25.4
			PM	5/2/2006	C	25.1	27.3
10. Laurel Street and Oak Grove Avenue	Signal	C	AM	5/3/2006	B	14.4	16.3
			PM	5/3/2006	A	10.0	10.3
11. Laurel Street and Ravenswood Avenue	Signal	D	AM	5/3/2006	B	17.9	20.5
			PM	5/3/2006	B	14.8	15.5
12. Middlefield Road and Willow Road	Signal	D	AM	5/4/2006	C	30.0	31.9
			PM	5/4/2006	D	41.9	44.1
13. Middlefield Road and Ringwood Avenue	Signal	D	AM	5/4/2006	C	23.6	27.9
			PM	5/4/2006	C	22.4	29.0
14. Middlefield Road and Ravenswood Avenue	Signal	D	AM	5/9/2006	C	31.8	43.3
			PM	5/4/2006	C	31.2	43.8
15. Laurel Street and Glenwood Avenue	4-way stop	C	AM	5/3/2006	B	12.0	NA
			PM	5/3/2006	A	9.8	NA
16. Alma Street and Ravenswood Avenue [e]	2-way stop	D	AM	5/2/2006	D	32.4	NA
			PM	5/2/2006	B	13.6	NA
17. Alma Street and Oak Grove Avenue	2-way stop	C	AM	5/10/2006	C	19.4	NA
			PM	5/9/2006	C	23.1	NA
18. Garwood Way and Glenwood Avenue	2-way stop	C	AM	5/3/2006	B	12.8	NA
			PM	5/3/2006	B	10.9	NA
19. Derry Lane/Merrill Street and Oak Grove Ave	2-way stop	C	AM	5/3/2006	C	20.5	NA
			PM	5/3/2006	C	20.5	NA
23. University Drive (S) and Santa Cruz Avenue	Signal	D	AM	10/24/2006	C	23.1	29.2
			PM	10/24/2006	C	28.9	32.4
24. University Drive (N) and Santa Cruz Avenue	4-way stop	D	AM	10/24/2006	B	13.7	NA
			PM	10/24/2006	A	9.1	NA
25. Oak Grove Avenue and University Drive	4-way stop	C	AM	5/24/2007	A	5.7	NA
			PM	5/24/2007	A	5.7	NA
26. Encinal Avenue and Laurel Street	4-way stop	C	AM	5/15/2007	A	5.5	NA
			PM	5/15/2007	A	2.8	NA
Atherton							
20. Middlefield Road and Oak Grove Avenue	Signal	D	AM	5/4/2006	B	17.3	17.8
			PM	5/4/2006	B	16.2	18.1
21. Middlefield Road and Marsh Road	Signal	D	AM	5/4/2006	D	32.5	43.9
			PM	5/4/2006	F	73.9	> 90
22. Middlefield Road and Glenwood Avenue	2-way stop	D	AM	5/2/2006	F	> 90	NA
			PM	5/2/2006	F	> 90	NA
27. Middlefield Road and Encinal Avenue	2-way stop	D	AM	5/23/2007	F	> 90	NA
			PM	5/23/2007	F	> 90	NA

[a] Level of Service Standard. At intersections involving two collector streets, the City of Menlo Park's standard is LOS C. At intersections involving an arterial street, the City of Menlo Park's standard is LOS D. The Town of Atherton has not designated a minimum acceptable level of service.

[b] Level of service (based on average delay).

[c] Average control delay (seconds per vehicle) including all movements for intersections controlled by a signal or four-way stop. At intersections under two-way stop control, average delay is reported for the worst controlled lane group.

[d] Average control delay (seconds per vehicle) for the critical movements only.

[e] During the PM peak hour, regulatory signage restricts Alma Street to right turns only. Level of service calculations reflect no illegal movements.

Shading indicates substandard level of service conditions.

Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-4: Existing Levels of Service at State-Controlled Intersections

Intersection/ Local Approach		Peak Hour	Existing Conditions		
			LOS[a]	Average Delay[b]	Critical Delay[c]
1.	**Encinal Avenue and El Camino Real**	**AM**	**B**	**15.3**	**11.4**
		PM	**B**	**16.9**	**16.6**
	EB Encinal Avenue	AM	D	41.4	41.5
		PM	D	42.4	47.8
	WB Encinal Avenue	AM	D	35.1	47.2
		PM	E	55.2	60.6
2.	**Valparaiso Avenue/Glenwood Avenue and El Camino Real**	**AM**	**F**	**82.5**	**> 90**
		PM	**D**	**37.6**	**41.5**
	EB Valparaiso Avenue	AM	D	41.2	43.2
		PM	D	50.5	53.7
	WB Glenwood Avenue	AM	D	44.2	45.8
		PM	D	51.7	54.1
3.	**Oak Grove Avenue and El Camino Real**	**AM**	**C**	**31.8**	**33.1**
		PM	**C**	**34.3**	**35.4**
	EB Oak Grove Avenue	AM	D	46.1	42.8
		PM	D	48.1	71.2
	WB Oak Grove Avenue	AM	D	46.2	69.6
		PM	E	61.5	50.9
4.	**Santa Cruz Avenue and El Camino Real**	**AM**	**C**	**25.9**	**28.9**
		PM	**C**	**26.1**	**28.3**
	EB Santa Cruz Avenue	AM	D	39.6	39.8
		PM	D	48.1	49.6
	WB Santa Cruz Avenue	AM	D	39.9	40.4
		PM	D	45.6	46.3
5.	**Menlo Avenue/Ravenswood Avenue and El Camino Real**	**AM**	**D**	**41.2**	**44.4**
		PM	**D**	**53.4**	**67.0**
	EB Menlo Avenue	AM	D	45.2	45.2
		PM	D	52.6	52.6
	WB Ravenswood Avenue	AM	D	45.5	47.5
		PM	D	53.2	61.4
6.	**Roble Avenue and El Camino Real**	**AM**	**B**	**14.6**	**13.5**
		PM	**B**	**19.1**	**16.8**
	EB Roble Avenue	AM	D	46.9	46.9
		PM	D	45.8	45.8
7.	**Middle Avenue and El Camino Real**	**AM**	**C**	**20.5**	**25.4**
		PM	**C**	**21.1**	**34.9**
	EB Middle Avenue	AM	D	40.5	52.5
		PM	C	30.1	48.2
8.	**Cambridge Avenue and El Camino Real**	**AM**	**C**	**20.3**	**23.9**
		PM	**B**	**16.8**	**11.4**
	EB Cambridge Avenue	AM	D	44.2	44.2
		PM	D	43.7	43.7

[a] Level of service (based on average delay for the subject intersection/approach).
[b] Average control delay (seconds per vehicle) including all movements on the subject intersection/approach
[c] Average control delay (seconds per vehicle) for the critical movement on the subject intersection/approach
[d] Westbound approach (private driveway) is not subject to the City's LOS standard.
WB = westbound; EB = eastbound
Shading indicates overall intersection operates at a substandard level of service.
Source: Hexagon Transportation Consultants, Inc., 2009.

An analysis of State-controlled intersections shows that the intersection of Valparaiso Avenue/ Glenwood Avenue and El Camino Real currently operates at an unacceptable level (LOS F) during the AM peak hour based on the overall average intersection delay. However, both of the local approaches at this intersection operate at acceptable levels of service (LOS D or better). Two local approaches at two other State-controlled intersections currently operate at LOS E or F; however, the overall average delay at these intersections corresponds to an acceptable level of service.

f. Planned Transportation Improvements. Grade-separations with the Caltrain tracks at Ravenswood, Oak Grove, Glenwood, and Encinal Avenues are currently being studied. Refer to Chapter III for additional detail. The exact designs of the grade separations and their schedule for implementation have not been determined. When a final design for grade separation is determined, it will be required to undergo environmental review. A grade separation was not included in the scenarios analyzed below.

Currently, Garwood Way provides direct access to the project site and terminates near the northeast corner of the project site. In association with the Derry Lane project, Garwood Way would be extended to Oak Grove Avenue.

Left turns and through movements are prohibited at the intersection of Alma Street and Ravenswood Avenue at the north and south legs during the PM peak commute hour via regulatory signage. A similar turn restriction is also planned for the AM peak commute hour.

2. Analysis Approach and Methodology

a. Overview. Traffic impacts are assessed at 27 critical intersections in the study area for the following eight scenarios:

(1) Existing Conditions;

(2) Near-Term No Project Conditions;

(3) Near-Term Conditions with Re-occupancy of the Auto Dealership;

(4) Near-Term Project Conditions without Garwood Way Extension;

(5) Near-Term Project Conditions with Garwood Way Extension;

(6) Long-Range No Project Conditions;

(7) Long-Range Project Conditions without Garwood Way Extension; and

(8) Long-Range Project Conditions with Garwood Way Extension.

Near-term no project traffic volumes were derived by adding to existing (2006) traffic volumes an annual growth rate of 1 percent for 4 years in anticipation of project buildout in the year 2010. The annual growth rate is consistent with the City of Menlo Park's Circulation System Assessment (CSA) document. The growth rate represents traffic increases anticipated as a result of future developments that are unknown at this time. In addition to this background rate of growth, the projected trips from specific approved and planned developments that have not yet been constructed were also added to existing traffic volumes. The City of Menlo Park's CSA document contains a list of specific approved, but not yet constructed, developments in the City of Menlo Park. A supplemental list of the most recent planned development not included in the CSA document was obtained from the City of Menlo Park. The cities of Palo Alto and Redwood City also supplied lists of approved and planned

projects. A combined list of all approved and planned projects in the project site vicinity is provided in Appendix D. As previously described, the proposed Derry Lane project would extend Garwood Way southward to Oak Grove Avenue. Since the Derry Lane project is included in the near-term no project scenario, it is assumed that the Garwood Way extension will be completed in this scenario. In order to compare trips generated by the proposed project with trips generated by the re-occupancy of the currently vacant auto dealership onsite, a near-term with auto dealership scenario were studied. The traffic that would be generated by the re-occupancy of the vacant auto dealership onsite were added to near-term no project traffic volumes to obtain traffic volumes under near-term with auto dealership conditions. This analysis is included in Appendix D. The Garwood Way extension were assumed in the near-term with auto dealership conditions (Appendix D).

Since the completion of the Garwood Way extension is uncertain, project conditions were studied both with and without the Garwood Way extension. Project trips were assigned to the roadway network in each case and added to near-term no project traffic volumes to obtain traffic volumes under near-term project conditions with and without the Garwood Way extension.

The long-range scenarios depict a horizon year of 2017. Traffic volumes under long-range no project conditions were estimated by applying to the existing volumes an annual growth rate of 1 percent, then adding the trips from approved and planned developments. Most of the approved and pending projects in the vicinity of the site are expected to be completed within the next few years. A few planned developments have a planning horizon beyond the year 2010. The traffic generated by these projects was included in only the long-range scenarios. Therefore, the analysis of long-range no project traffic conditions assumes additional development that was not included in the near-term no project scenario. Traffic volumes under Scenarios 7 and 8, Long-Range Project Conditions without Garwood Way extension and with Garwood Way extension, were estimated by adding the traffic associated with the proposed project on 1300 El Camino Real to the long-range no project traffic volumes.

b. Transportation Component of Project. The following section describes the expected project trip generation and distribution, and access to the project site.

(1) Trip Generation. The amount of traffic that would be added to the roadway system by the proposed project was estimated by multiplying the applicable trip generation rates by the size of the development. Trip generation rates were taken from the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation,* Seventh Edition, 2003. The trips generated by the proposed office and retail/market uses were estimated separately based on the size of each use.

In accordance with the Institute of Transportation Engineers (ITE) *Trip Generation Handbook* 2001, the trip generation estimates for the proposed grocery store space were reduced by 25 percent to account for pass-by-trips. Pass-by-trips are trips that would already be on the adjacent roadways (and are therefore already counted as part of the background traffic) but would turn into the site while passing by.

The project trip generation estimates are presented in Table IV.E-5. It is estimated that the project would add 258 trips during the AM peak hour and 490 trips during the PM peak hour.

Table IV.E-5: Project Trip Generation

Land Use	Size (sq. ft.)	AM Peak Hour				PM Peak Hour				Daily	
		Rate	In	Out	Total	Rate	In	Out	Total	Rate	Trips
Proposed Uses											
Office [a]	58,700	1.55	80	11	91	1.49	15	72	87	11.01	646
Grocery Store [b]	51,365	3.25	87	80	167	10.5	327	210	537	102.24	5,251
Pass-By Trip Reduction							-82	-52	-134		
Total Trips			**167**	**91**	**258**		**260**	**230**	**490**		**5,897**

[a] ITE Code 710, General Office Building
[b] ITE Code 850, Supermarket
Source: ITE *Trip Generation*, Seventh Edition, 2003; Hexagon Transportation Consultants, Inc., 2009.

The project trip estimates summarized above do not reflect any reduction for transit usage. The project site is located less than ¼-mile from the Menlo Park Caltrain Station. Due to the site's close proximity to commuter rail service, the mix of proposed land uses, and the proposed pedestrian and bicycle facilities, it is likely that the project would generate vehicular traffic at a rate that is lower than the average rate published in ITE's *Trip Generation.* Based on published data on office workers at Transit Oriented Development (TOD) sites throughout California, including Caltrain station-area workers, the trip estimates presented in this section may overstate the proposed office trips by approximately 4 percent.[2] However, in order to undertake a conservative analysis (i.e., so as not to underestimate potential impacts), the project trip estimates for the proposed office use were not reduced to account for the higher-than-average transit usage that is expected at this site.

Because the site has been vacant for more than 1 year, the project trip generation estimates do not include any credit for the trips generated by the auto dealership that previously occupied the site. However, trip generation estimates were prepared for the previous use to allow a comparison with the currently proposed project. Table IV.E-6 presents the trip estimates for the previous use. It is estimated that re-occupancy of the previous auto dealership would generate 62 vehicle trips during the AM peak hour and 79 vehicle trips during the PM peak hour.

Table IV.E-6: Trip Generation Estimates for Previous Use

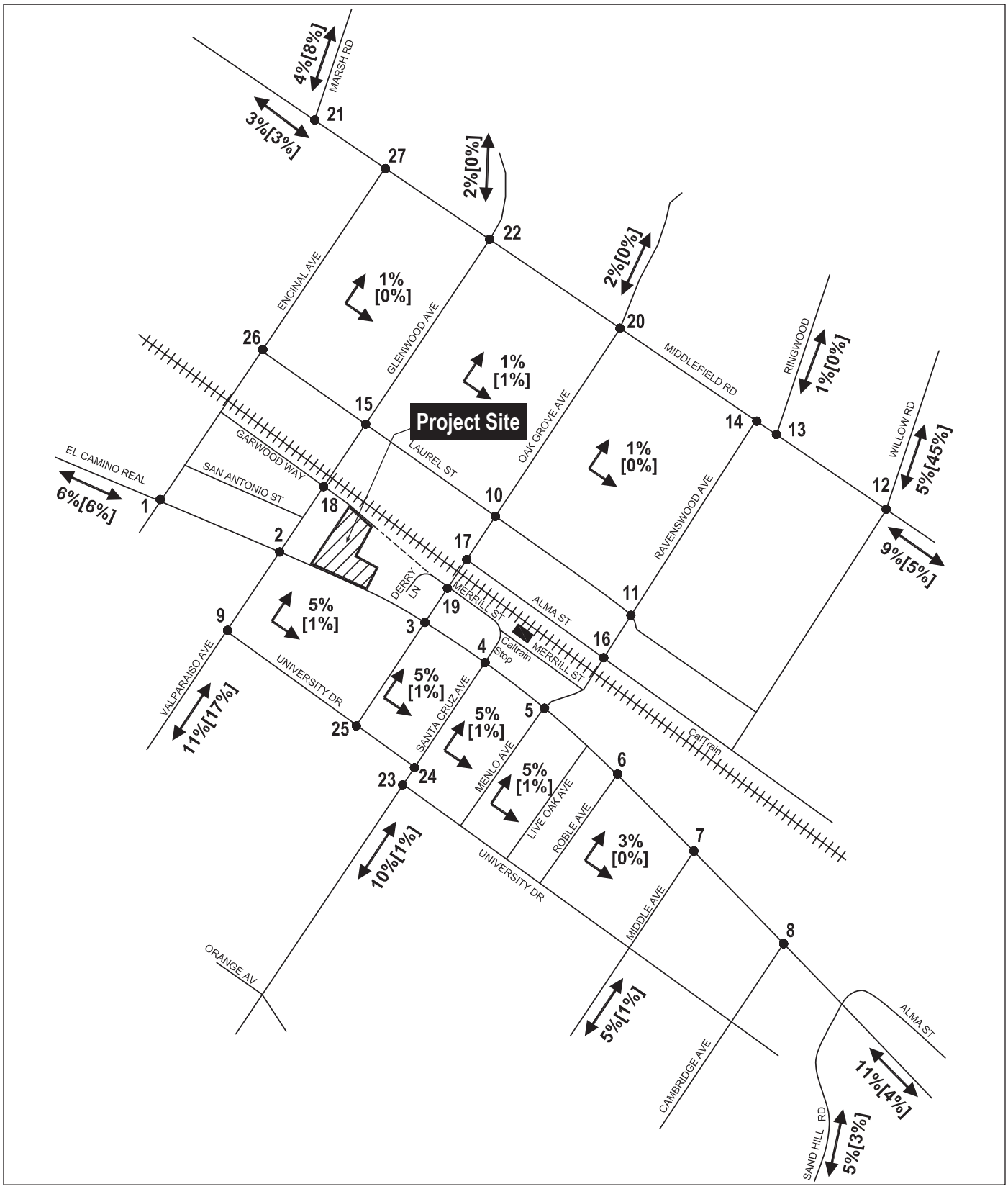
Land Use	Size (sq. ft.)	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	Total
Reoccupancy of Previous Use								
Auto Dealership [a]	30,000 s.f.	46	16	62	31	48	79	1,000

[a] ITE Code 841, New Car Sales
Source: ITE *Trip Generation*, Seventh Edition, 2003; Hexagon Transportation Consultants, Inc., 2009.

(2) Trip Distribution. The trip distribution pattern for the proposed project was estimated based on existing travel patterns on the surrounding roadway system, the locations of complementary land uses, and information obtained from the City of Menlo Park's CSA document. Figure IV.E-4 illustrates the project's anticipated trip distribution pattern.

(3) Site Access. Access to the proposed project is illustrated in Figure III-2b. The project's driveways would consist of one right-in/right-out driveway on El Camino Real and two full-access

[2] Cervero, R. 1993. *Ridership Impacts of Transit-Focused Development in California.* Berkeley, California: Institute of Urban and Regional Development, University of California at Berkeley.



LSA

FIGURE IV.E-4

LEGEND

= Project Site

= Study Intersection

XX(XX)[XX] = Commercial (Residential)[Employment]

N

NOT TO SCALE

1300 El Camino Real Project EIR

Project Trip Distribution

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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driveways on Garwood Way. The Garwood Way extension would run along the northern boundary of the site, parallel to the Caltrain tracks, connecting Oak Grove Avenue to Glenwood Avenue and providing access to the project site at both its north and south sides.

3. Impacts and Mitigation Measures

This section of the EIR contains three key subsections:

- A detailed presentation of significance criteria used to determine whether the project's effects would be considered significant;
- A description of traffic conditions under near-term and long-range no project conditions; and
- An analysis of the impacts and mitigation measures associated with the project.

a. Criteria of Significance. The City of Menlo Park's criteria were used to determine if the project would result in a significant traffic impact. *Generally* a project would have a significant effect on the environment if it would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips on roads, or congestion at intersections), or change the condition of an existing street (i.e., through street closures, changing direction of travel) in a manner that would substantially affect access or traffic load and capacity of the street system. Adverse effects to the surrounding pedestrian and bicycle facilities and transit system also were considered. *Specifically*, the following detailed significance criteria apply to intersections, roadway segments, parking, pedestrian and bicycle facilities, and transit.

(1) Standards of Significance for Intersections. The criteria for determining if the proposed project would create a significant adverse impact on intersections are described below:

- A project is considered to have a potentially "significant" traffic impact if the addition of project traffic causes an intersection on a collector street operating at LOS A through C to operate at an unacceptable level (LOS D, E or F) or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first. A potential "significant" traffic impact would also occur if a project causes an intersection on arterial streets or local approaches to State controlled signalized intersections operating at LOS A through D to operate at an unacceptable level (LOS E or F) or have an increase of 23 seconds greater in average vehicle delay, whichever comes first.
- A project is also considered to have a potentially "significant" traffic impact if the addition of project traffic causes an increase of more than 0.8 seconds (4 seconds for intersections in the Town of Atherton) of average delay to vehicles on all critical movements for intersections operating at a near term LOS D through F for collector streets and at a near term LOS E or F for arterial streets. For local approaches to State-controlled intersections, a project is considered to have a potentially "significant" impact if the addition of project traffic causes an increase of more than 0.8 seconds of delay to vehicles on the most critical movements for intersections operating at a near term LOS E or F.

(2) Standards of Significance for Roadway Segments. The criteria for determining if the proposed project would create a significant adverse impact on roadway segments are described below:

- On minor arterial streets, a traffic impact may be considered potentially significant if the existing Average Daily Traffic (ADT) volume is: (1) greater than 18,000 (90 percent of capacity), and there is a net increase of 100 trips or more in ADT due to project-related traffic; (2) the ADT is greater than 10,000 (50 percent of capacity) but less than 18,000, and project-related traffic increases the ADT by 12.5 percent or the ADT becomes 18,000 or more; or (3) the ADT is less than 10,000, and project-related traffic increases the ADT by 25 percent.
- On collector streets, a traffic impact may be considered potentially significant if the existing ADT is: (1) greater than 9,000 (90 percent of capacity), and there is a net increase of 50 trips or more in ADT due to project-related traffic; (2) the ADT is greater than 5,000 (50 percent of capacity) but less than 9,000, and project-related traffic increases the ADT by 12.5 percent or the ADT becomes 9,000 or more; or (3) the ADT is less than 5,000, and project-related traffic increases the ADT by 25 percent.
- On local streets, a traffic impact may be considered potentially significant if the existing ADT is: (1) greater than 1,350 (90 percent of capacity), and there is a net increase of 25 trips or more in ADT due to project related traffic; (2) the ADT is greater than 750 (50 percent of capacity) but less than 1,350, and project related traffic increases the ADT by 12.5 percent or the ADT becomes 1,350 or more; or (3) the ADT is less than 750, and project-related traffic increases the ADT by 25 percent.

(3) Standards of Significance for Parking. The proposed project would create a significant parking impact if the project would not provide adequate parking to accommodate anticipated project-generated demand, and there are not a sufficient number of off-site spaces in proximity of the site to accommodate the unmet demand.

(4) Standards of Significance for Pedestrian and Bicycle Facilities. The proposed project would create a significant impact related to pedestrian or bicycle facilities if one or more of the following criteria are met or exceeded:

- The project would not provide adequate pedestrian or bicycle facilities to connect to the area circulation system, or
- Vehicles would cross pedestrian facilities on a regular basis without adequate design and/or warning systems, causing safety hazards, or
- The project design would cause increased potential for bicycle/vehicle conflicts.

(5) Standards of Significance for Transit Service. The proposed project would create a significant impact related to transit service if either of the following criteria are met or exceeded:

- The proposed project would generate a substantial increase in transit riders that cannot be adequately served by the existing transit services, or
- The proposed project would generate demand for transit services in an area that is more than ¼-mile from existing transit routes.

b. Traffic Operations Under No Project Conditions. This section describes no project traffic conditions under both near-term (2010) and long-range (2017) scenarios.

(1) Near-Term Traffic Conditions. Near-term no project traffic volumes were derived by adding to existing traffic volumes an annual growth rate of 1 percent for 4 years in anticipation of the project buildout in the year 2010. The annual growth rate is consistent with the City of Menlo Park's Circulation System Assessment (CSA) document. The growth rate represents traffic increases anticipated as a result of future developments that are unknown at this time. In addition, the projected trips from approved and planned developments that have not yet been constructed were also added to existing traffic volumes. The City of Menlo Park's CSA document contains a list of approved, but not yet constructed, developments in the City of Menlo Park. A supplemental list of the most recent planned development not included in the CSA document was obtained from the City of Menlo Park.

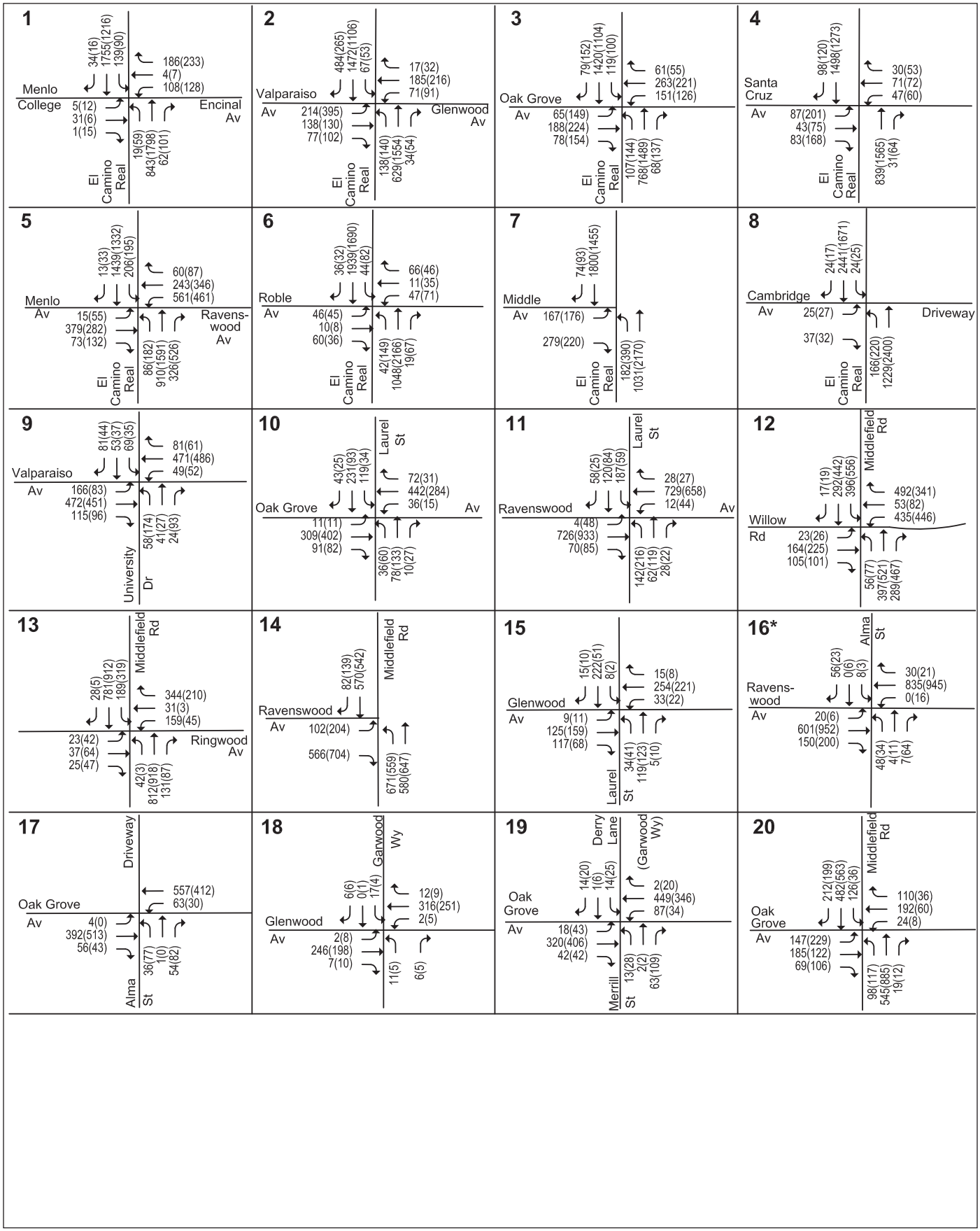
The Cities of Palo Alto and Redwood City also supplied lists of planned and approved projects. A combined list of all approved and planned projects in the project site vicinity is provided in Appendix D. As previously described, the proposed Derry Lane project would extend Garwood Way to Oak Grove Avenue. Since the Derry Lane project is included in the near-term no project scenario, it is assumed that the Garwood Way extension would be completed in this scenario. Figure IV.E-5 illustrates the near-term no project traffic volumes.

(2) Long-Range Traffic Conditions. The long-range scenarios depict a horizon year of 2017. Traffic volumes under long-range no project conditions were estimated by applying to the existing volumes an annual growth rate of 1 percent, then adding the trips from approved and planned developments. The annual growth rate is consistent with the City of Menlo Park's CSA document. The growth rate represents traffic increases anticipated as a result of future developments that are unknown at this time. All of the approved and pending projects in the project site vicinity are expected to be completed within the next few years. Therefore, the analysis of long-range traffic conditions was based on the same pending projects included in the near-term scenarios. Traffic volumes under long-range no project conditions are shown in Figure IV.E-6.

(3) Intersection Level of Service Analysis. The results of the level of service analysis under near-term and long-range no project conditions are summarized in Table IV.E-7 and Table IV.E-8. The level of service calculation sheets are included in Appendix D.

The results show that all of the City-controlled signalized study intersections in the City of Menlo Park would operate at acceptable levels during the peak commute hours under near-term no project conditions. Under the long-range no project scenario, the intersection of Middlefield Road and Ravenswood Avenue would deteriorate to a substandard level (LOS E) during the AM peak hour. In addition, one signalized study intersection in the Town of Atherton, Middlefield Road and Marsh Road, would operate at a poor level of service (LOS E or F) during the AM and PM peak hours under both near-term and long-range no project conditions.

The Alma Street and Oak Grove Avenue and Garwood Way/Merrill Street and Oak Grove Avenue unsignalized study intersections in the City of Menlo Park would operate at sub-standard levels of service during one or both peak hours under both near-term and long-range no project scenarios.



LSA

FIGURE IV.E-5a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term No Project Traffic Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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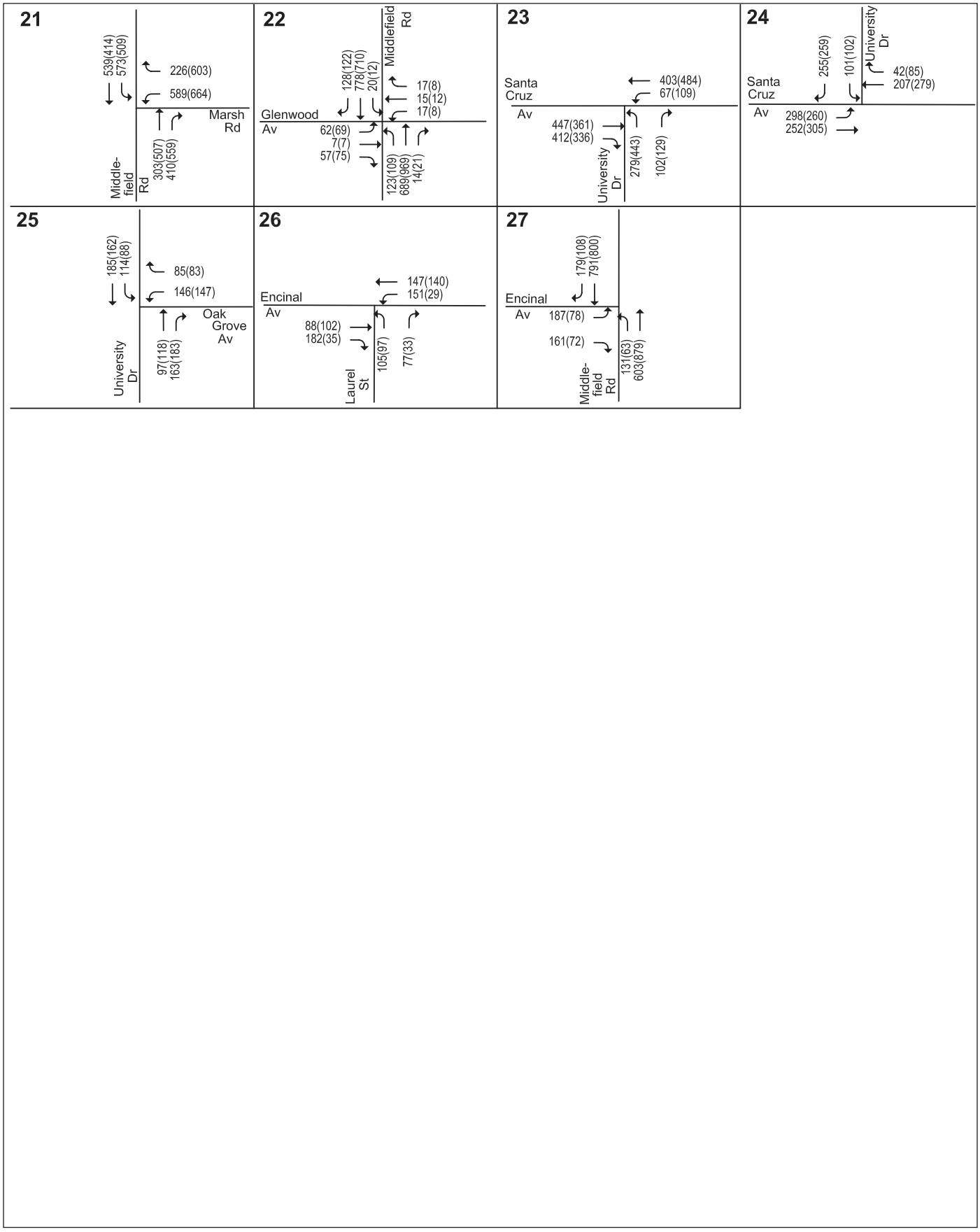

LSA

FIGURE IV.E-5b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term No Project Traffic Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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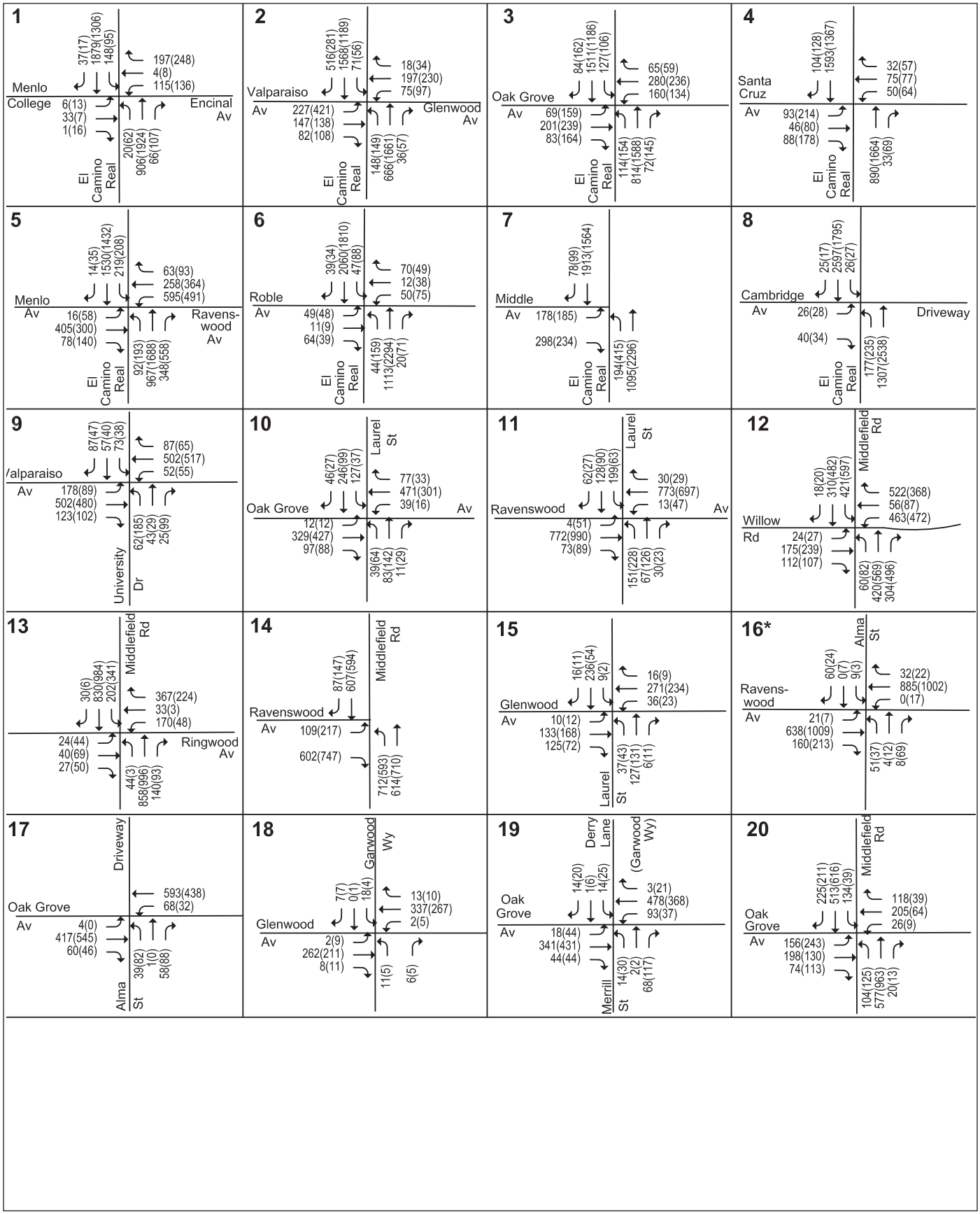

LSA

FIGURE IV.E-6a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range No Project Traffic Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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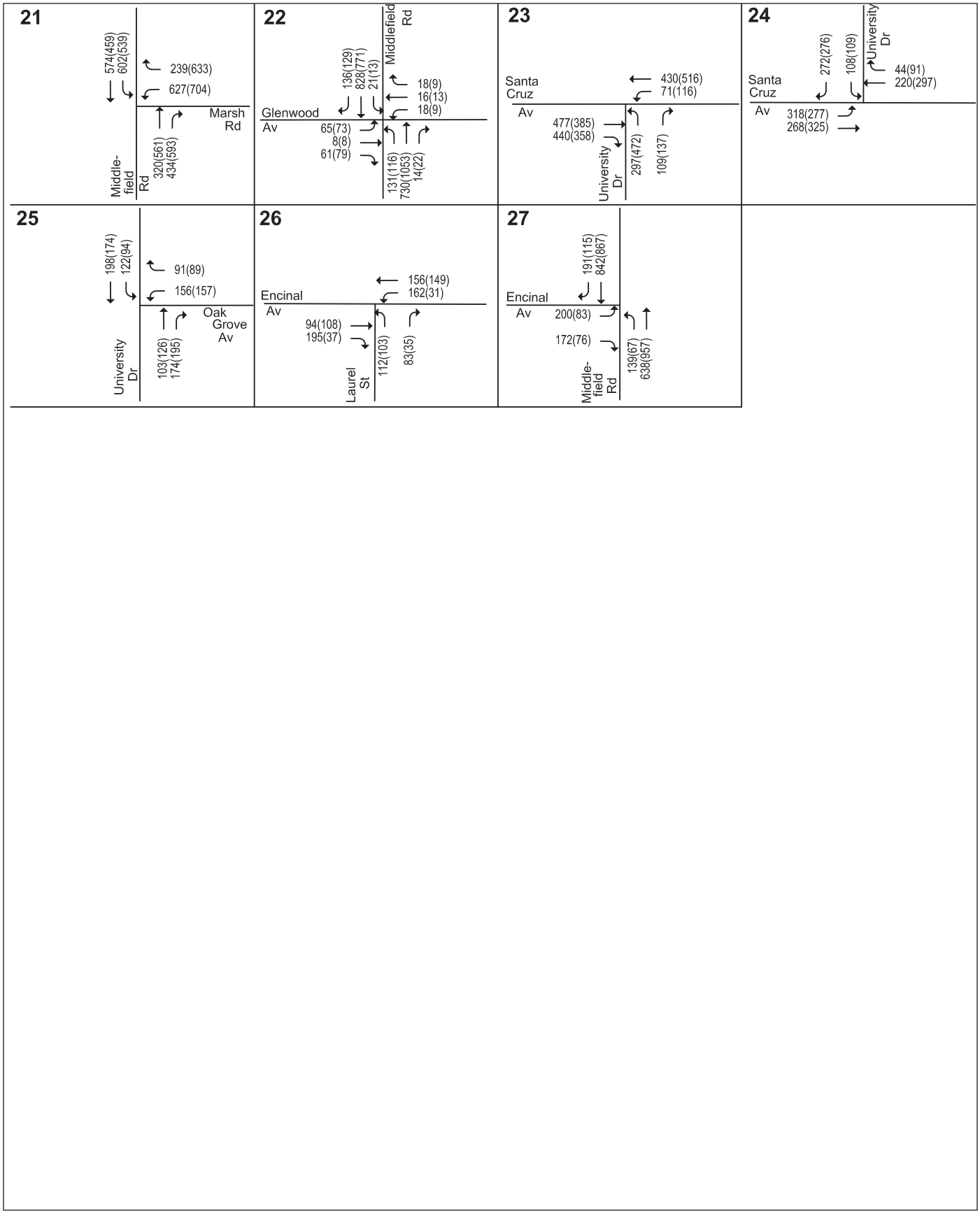

LSA

FIGURE IV.E-6b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range No Project Traffic Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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Table IV.E-7: No Project Levels of Service at City-Controlled Intersections

City/Intersection	Type of Control	LOS Standard[a]	Peak Hour	Existing Conditions			Near-Term No Project			Long-Range No Project		
				LOS[b]	Avg. Delay[c]	Critical Delay[d]	LOS[b]	Avg. Delay[c]	Critical Delay[d]	LOS[b]	Avg. Delay[c]	Critical Delay[d]
Menlo Park												
9. University Drive and Valparaiso Avenue	Signal	D	AM	C	21.9	25.4	C	22.8	26.5	C	24.3	28.7
			PM	C	25.1	27.3	C	26.5	28.8	C	28.5	31.1
10. Laurel Street and Oak Grove Avenue	Signal	C	AM	B	14.4	16.3	B	15.5	17.8	B	17.3	20.4
			PM	A	10.0	10.3	B	10.1	10.5	B	10.4	10.8
11. Laurel Street and Ravenswood Avenue	Signal	D	AM	B	17.9	20.5	C	21.4	25.1	C	25.9	31.3
			PM	B	14.8	15.5	C	22.0	26.1	C	28.6	36.2
12. Middlefield Road and Willow Road	Signal	D	AM	C	30.0	31.9	C	30.9	33.4	C	31.7	34.5
			PM	D	41.9	44.1	D	44.4	50.1	D	46.2	52.2
13. Middlefield Road and Ringwood Avenue	Signal	D	AM	C	23.6	27.9	C	23.7	28.7	C	24.5	29.8
			PM	C	22.4	29.0	C	22.4	30.2	C	23.6	32.2
14. Middlefield Road and Ravenswood Avenue	Signal	D	AM	C	31.8	43.3	D	49.9	69.3	**E**	**64.3**	**> 90**
			PM	C	31.2	43.8	D	40.9	57.2	D	49.4	69.9
15. Laurel Street and Glenwood Avenue	4-way stop	C	AM	B	12.0	NA	B	12.9	NA	B	14.2	NA
			PM	A	9.8	NA	B	10.3	NA	B	10.7	NA
16. Alma Street and Ravenswood Avenue [e]	2-way stop	D	AM	D	32.4	NA	B	12.4	NA	B	12.9	NA
			PM	B	13.6	NA	B	14.9	NA	C	15.8	NA
17. Alma Street and Oak Grove Avenue	2-way stop	C	AM	C	19.4	NA	C	22.6	NA	**D**	**27.5**	**NA**
			PM	C	23.1	NA	**D**	**29.1**	**NA**	**E**	**37.3**	**NA**
18. Garwood Way and Glenwood Avenue	2-way stop	C	AM	B	12.8	NA	B	13.5	NA	B	14.0	NA
			PM	B	10.9	NA	B	11.3	NA	B	11.5	NA
19. Derry Lane/Merrill Street and Oak Grove Ave	2-way stop	C	AM	C	20.5	NA	C	23.2	NA	**D**	**26.6**	**NA**
			PM	C	20.5	NA	**D**	**26.9**	**NA**	**D**	**31.3**	**NA**
23. University Drive (S) and Santa Cruz Avenue	Signal	D	AM	C	23.1	29.2	C	23.6	29.9	C	24.3	31.0
			PM	C	28.9	32.4	C	29.8	33.5	C	30.9	34.8
24. University Drive (N) and Santa Cruz Avenue	4-way stop	D	AM	B	13.7	NA	B	14.5	NA	B	15.8	NA
			PM	A	9.1	NA	B	10.4	NA	B	12.1	NA
25. Oak Grove Avenue and University Drive	4-way stop	C	AM	A	5.7	NA	A	6.1	NA	A	6.9	NA
			PM	A	5.7	NA	A	6.4	NA	A	7.4	NA
26. Encinal Avenue and Laurel Street	4-way stop	C	AM	A	5.5	NA	A	5.8	NA	A	6.6	NA
			PM	A	2.8	NA	A	3.1	NA	A	3.3	NA
Atherton												
20. Middlefield Road and Oak Grove Avenue	Signal	D	AM	B	17.3	17.8	C	20.5	50.2	C	31.0	> 90
			PM	B	16.2	18.1	B	20.0	23.4	C	26.2	31.5
21. Middlefield Road and Marsh Road	Signal	D	AM	D	32.5	43.9	**E**	**> 90**	**88.3**	**E**	**> 90**	**> 90**
			PM	**F**	**73.9**	**> 90**	**F**	**> 90**	**> 90**	**F**	**> 90**	**> 90**
22. Middlefield Road and Glenwood Avenue	2-way stop	D	AM	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**
			PM	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**
27. Middlefield Road and Encinal Avenue	2-way stop	D	AM	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**
			PM	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**	**F**	**> 90**	**NA**

Table notes on next page.

[a] Level of Service Standard. At intersections involving two collector streets, the City of Menlo Park's standard is LOS C. At intersections involving an arterial street, the City of Menlo Park's standard is LOS D. Menlo Park's standards were applied at intersections in the Town of Atherton, which has not designated a minimum acceptable level of service.
[b] Level of service (based on average delay).
[c] Average control delay (seconds per vehicle) including all movements for intersections controlled by a signal or four-way stop. At intersections under two-way stop control, average delay is reported for the worst controlled lane group.
[d] Average control delay (seconds per vehicle) for the critical movements only.
[e] During the PM peak hour, regulatory signage restricts Alma Street to right turns only. Level of service calculations reflect no illegal movements.

Shading indicates substandard level of service conditions.

Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-8: No Project Levels of Service at State-Controlled Intersections

Intersection/Local Approach	Peak Hour	Existing Conditions			Near-Term No Project			Long-Range No Project		
		LOS[a]	Average Delay[b]	Critical Delay[c]	LOS[a]	Average Delay[b]	Critical Delay[c]	LOS[a]	Average Delay[b]	Critical Delay[c]
1. Encinal and El Camino Real	**AM**	**B**	**15.3**	**11.4**	**B**	**15.6**	**11.7**	**B**	**16.1**	**12.2**
	PM	**B**	**16.9**	**16.6**	**B**	**18.1**	**18.8**	**B**	**19.3**	**20.6**
Eastbound Encinal	AM	D	41.4	41.5	D	41.9	42.0	D	42.1	42.2
	PM	D	42.4	47.8	D	43.3	48.4	D	43.3	48.5
Westbound Encinal	AM	D	35.1	47.2	D	36.4	49.1	D	37.4	50.9
	PM	E	55.2	60.6	E	58.5	66.8	D	43.3	72.4
2. Valparaiso/Glenwood and El Camino Real	**AM**	**F**	**82.5**	**> 90**	**F**	**> 90**	**> 90**	**F**	**> 90**	**> 90**
	PM	**D**	**37.6**	**41.5**	**D**	**42.6**	**48.5**	**D**	**49.7**	**59.0**
Eastbound Valparaiso	AM	D	41.2	43.2	D	42.2	44.2	D	42.2	45.0
	PM	D	50.5	53.7	D	52.6	56.1	D	52.7	59.6
Westbound Glenwood	AM	D	44.2	45.8	D	46.1	48.2	D	46.1	50.4
	PM	D	51.7	54.1	D	53.9	57.1	D	52.7	60.5
3. Oak Grove and El Camino Real	**AM**	**C**	**31.8**	**33.1**	**C**	**34.3**	**37.4**	**D**	**37.0**	**41.4**
	PM	**C**	**34.3**	**35.4**	**D**	**36.7**	**38.6**	**D**	**39.5**	**42.9**
Eastbound Oak Grove	AM	D	46.1	42.8	D	48.2	43.2	D	48.2	44.0
	PM	D	48.1	71.2	D	53.0	82.2	D	54.8	> 90
Westbound Oak Grove	AM	D	46.2	69.6	D	49.5	77.6	D	49.5	87.5
	PM	E	61.5	50.9	E	66.2	52.7	D	54.8	54.9
4. Santa Cruz and El Camino Real	**AM**	**C**	**25.9**	**28.9**	**C**	**28.8**	**33.5**	**C**	**32.6**	**39.5**
	PM	**C**	**26.1**	**28.3**	**C**	**28.4**	**31.3**	**C**	**30.5**	**34.2**
Eastbound Santa Cruz	AM	D	39.6	39.8	D	39.9	40.1	D	39.9	40.2
	PM	D	48.1	49.6	D	49.5	51.0	D	50.7	52.6
Westbound Santa Cruz	AM	D	39.9	40.4	D	40.0	40.5	D	40.0	40.7
	PM	D	45.6	46.3	D	45.8	46.5	D	46.0	46.8
5. Menlo/Ravenswood and El Camino Real	**AM**	**D**	**41.2**	**44.4**	**D**	**47.5**	**53.3**	**E**	**55.1**	**64.4**
	PM	**D**	**53.4**	**67.0**	**E**	**75.1**	**> 90**	**F**	**> 90**	**> 90**
Eastbound Menlo	AM	D	45.2	45.2	D	46.2	46.2	D	46.2	47.7
	PM	D	52.6	52.6	E	55.2	55.2	E	55.5	58.0
Westbound Ravenswood	AM	D	45.5	47.5	D	49.0	52.2	D	49.0	56.2
	PM	D	53.2	61.4	E	72.1	> 90	E	55.5	> 90
6. Roble and El Camino Real	**AM**	**B**	**14.6**	**13.5**	**B**	**14.8**	**14.1**	**B**	**15.2**	**14.7**
	PM	**B**	**19.1**	**16.8**	**B**	**19.7**	**17.8**	**C**	**20.8**	**18.9**
Eastbound Roble	AM	D	46.9	46.9	D	47.1	47.1	D	47.1	47.6
	PM	D	45.8	45.8	D	46.0	46.0	D	46.0	46.4
7. Middle and El Camino Real	**AM**	**C**	**20.5**	**25.4**	**C**	**20.9**	**26.1**	**C**	**21.9**	**27.5**
	PM	**C**	**21.1**	**34.9**	**C**	**23.1**	**38.0**	**C**	**24.5**	**40.3**
Eastbound Middle	AM	D	40.5	52.5	D	41.9	53.7	D	41.9	56.1
	PM	C	30.1	48.2	D	35.5	55.4	D	35.8	57.7
8. Cambridge and El Camino Real	**AM**	**C**	**20.3**	**23.9**	**C**	**22.8**	**27.5**	**C**	**25.6**	**31.7**
	PM	**B**	**16.8**	**11.4**	**C**	**20.4**	**15.3**	**C**	**21.8**	**16.5**
Eastbound Cambridge	AM	D	44.2	44.2	D	44.7	44.7	D	44.7	44.9
	PM	D	43.7	43.7	D	44.7	44.7	D	44.7	44.8

[a] Level of service (based on average delay for the subject intersection/approach).
[b] Average control delay (seconds per vehicle) including all movements on the subject intersection/approach.
[c] Average control delay (seconds per vehicle) for the critical movement on the subject intersection/approach.
Shading indicates overall intersection operates at a substandard level of service.
Source: Hexagon Transportation Consultants, Inc., 2009.

In addition, the two unsignalized study intersections in the Town of Atherton, Middlefield Road and Glenwood Avenue, and Middlefield Road and Encinal Avenue, would continue to operate at a poor level of service (LOS F) during both peak hours under both near-term and long-range no project scenarios.

An analysis of State-controlled intersections determined that two intersections would operate at an unacceptable level (LOS E or F) based on the overall average intersection delay. The intersection of Valparaiso Avenue/Glenwood Avenue and El Camino Real would continue to operate at its current substandard level (LOS F) during the AM peak hour under both near-term and long-range no project conditions. However, the local approaches to this intersection would operate at acceptable levels during this time period. The intersection of Menlo Avenue/Ravenswood Avenue and El Camino Real is expected to degrade from LOS D under existing conditions to an unacceptable level (LOS E or F) during at least one peak hour under both near-term and long-range no project scenarios.

(4) Roadway Segment Analysis. Table IV.E-9 summarizes the near-term and long-range roadway segment analysis under no project conditions. Of the roadways analyzed, Middlefield Road, Ravenswood Avenue, and Valparaiso Avenue are classified as minor arterials. Oak Grove Avenue, Glenwood Avenue, and Laurel Street are classified as collector streets. The remaining study roadway segments are classified as local streets. Even without the traffic that would be added by the proposed project, traffic volumes on the following five study area roadways are projected to be at near capacity levels: Middlefield Road, Ravenswood Avenue, Oak Grove Avenue, Alma Street and Merrill Street.

Table IV.E-9: No Project Roadway Segment Analysis Results

Roadway	Segment	Street Classification	Existing ADT Volume	Near-Term No Project ADT Volume	Long-Range No Project ADT Volume
Middlefield Road	North of Glenwood Ave.	Minor Arterial	**18,287**	**21,359**	**23,089**
	South of Oak Grove Ave.	Minor Arterial	14,579	16,992	**18,462**
Ravenswood Avenue	East of Laurel St.	Minor Arterial	17,305	**19,568**	**20,779**
Valparaiso Avenue	West of El Camino Real	Minor Arterial	12,865	13,829	14,730
Oak Grove Avenue	West of Laurel St.	Collector	**10,251**	**11,211**	**11,929**
	East of Laurel St.	Collector	**9,087**	**9,960**	**10,597**
Glenwood Avenue	West of Laurel St.	Collector	5,502	6,052	6,437
	East of Laurel St.	Collector	4,567	5,070	5,390
Encinal Avenue	East of Laurel St.	Collector	1,193	1,459	1,542
Laurel Street	South of Oak Grove Ave.	Collector	3,784	3,986	4,251
	North of Glenwood Ave.	Local	439	452	483
Alma Street	South of Oak Grove Ave.	Local	**1,563**	**1,626**	**1,735**
Merrill Street	South of Oak Grove Ave.	Local	**2,794**	**3,006**	**3,202**
Garwood Way	South of Glenwood Ave.	Local	96	220	227

Note: **Bold** indicates the roadway segment volume is or would be greater than 90 percent of capacity as defined by the City of Menlo Park.
Source: Hexagon Transportation Consultants, Inc., 2009.

c. Traffic Operations with Project Analysis, Impacts and Mitigations. The effects of the proposed project on both near-term (2010) and long-range (2017) conditions are described below:

(1) Near-Term Traffic Conditions. Proposed project trips were developed by assigning the peak hour project trips presented in Table IV.E-5 to the study intersections based on the project traffic distribution pattern illustrated in Figure IV.E-4. The trips were assigned both with the completion of the Garwood Way extension and without the Garwood Way extension. Figures IV.E-7 and IV.E-8 present the trips generated at each study intersection without and with the Garwood Way extension, respectively. Figure IV.E-9 and Figure IV.E-10 illustrate the traffic volumes estimated under near-term project conditions without the Garwood Way extension and near-term project conditions with the Garwood Way extension, respectively. For comparison, the traffic volumes estimated for near-term conditions with re-occupancy of the existing auto dealership are presented in Figure IV.E-11.

Intersection Level of Service Analysis. The results of the level of service analysis under near-term conditions are summarized in Table IV.E-10 and Table IV.E-11. The level of service calculation sheets are included in Appendix D.

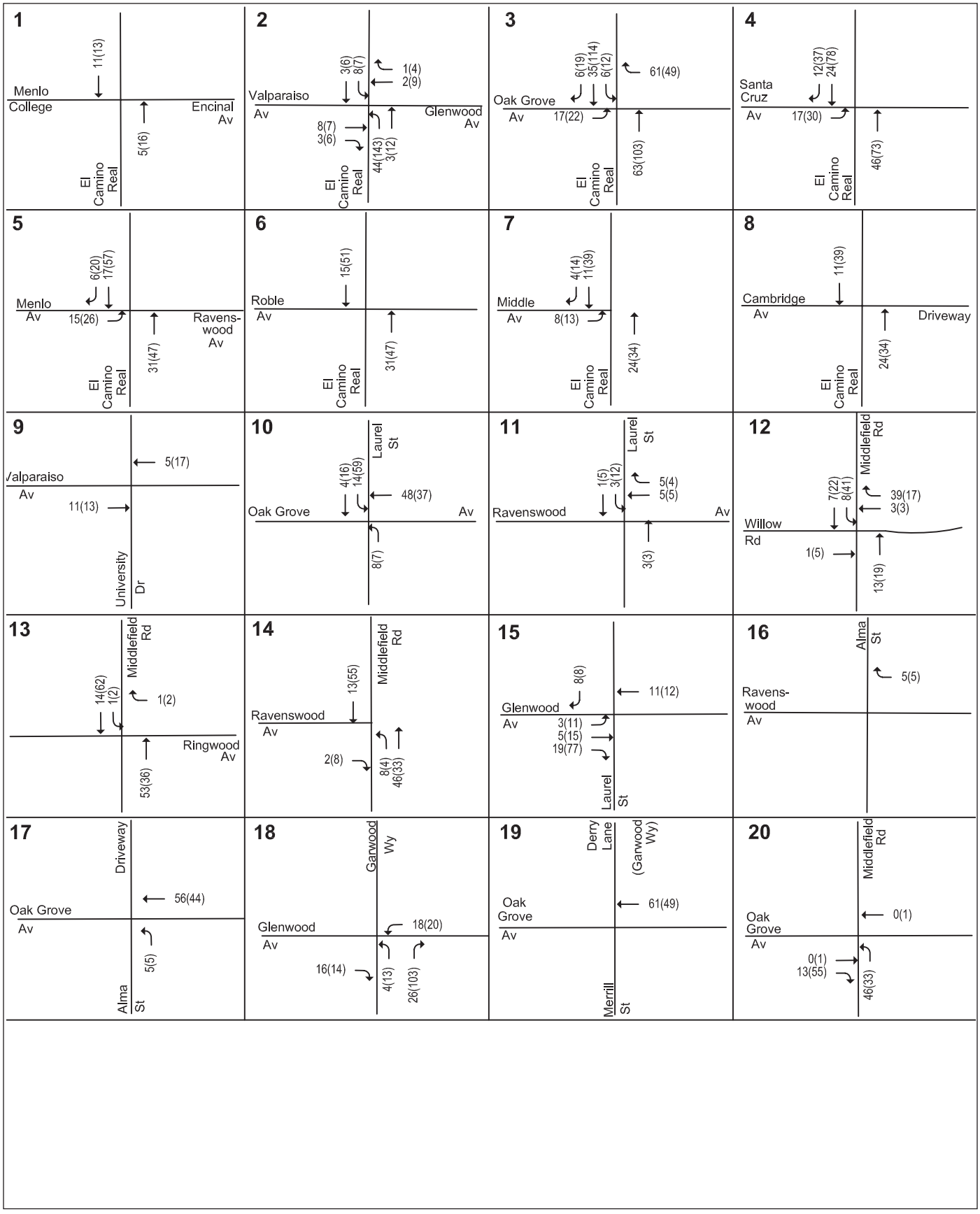
The results show that all but one of the City-controlled signalized study intersections would operate at acceptable levels during the peak commute hours. The intersection of Middlefield Road and Marsh Road in Atherton would operate at LOS F during the PM peak hour both with and without the Garwood Way extension. The additional traffic that would be generated by the project would cause the critical delay to increase by more than 4 seconds per vehicle. This net change in delay would exceed the significance threshold for study intersections in the Town of Atherton.

Four of the unsignalized study intersections would operate at sub-standard conditions under near-term project conditions (both with and without the Garwood Way extension). At each of the following four intersections, the project would cause the intersection to degrade from an acceptable level to an unacceptable level or cause the average delay for the worst stop-controlled approach to increase by more than 0.8 seconds (4 seconds for intersections in the Town of Atherton): Alma Street and Oak Grove Avenue, Garwood Way/Merrill Street and Oak Grove Avenue, Middlefield Road and Glenwood Avenue, and Middlefield Road and Encinal Avenue.

An analysis of State-controlled intersections determined that two intersections would operate at a sub-standard level (LOS E or F) based on the overall average delay. Measured against the City of Menlo Park's standards of significance, only one State-controlled study intersection, Menlo Avenue/ Ravenswood Avenue and El Camino Real, would be significantly effected by the project under near-term conditions with or without the Garwood Way extension. The intersection of Valparaiso Avenue/ Glenwood Avenue and El Camino Real is also projected to operate at a substandard level of service; however, the increase in delay on the locally controlled approaches is considered to be less than significant at this intersection. The remaining State-controlled intersections are expected to operate at LOS D or better during the peak commute periods.

Roadway Segment Analysis. Table IV.E-12 summarizes the near-term roadway segment analysis for the project. Along with the State-controlled El Camino Real, Garwood Way is expected to carry the greatest number of project trips.

Based on the standards of significance for roadway segments, the project without the Garwood Way extension would cause a significant traffic impact on eight roadway segments under near-term conditions. With the Garwood Way extension, the project would cause a significant near-term traffic impact on seven roadway segments.



LSA

FIGURE IV.E-7a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Project Trip Assignment

Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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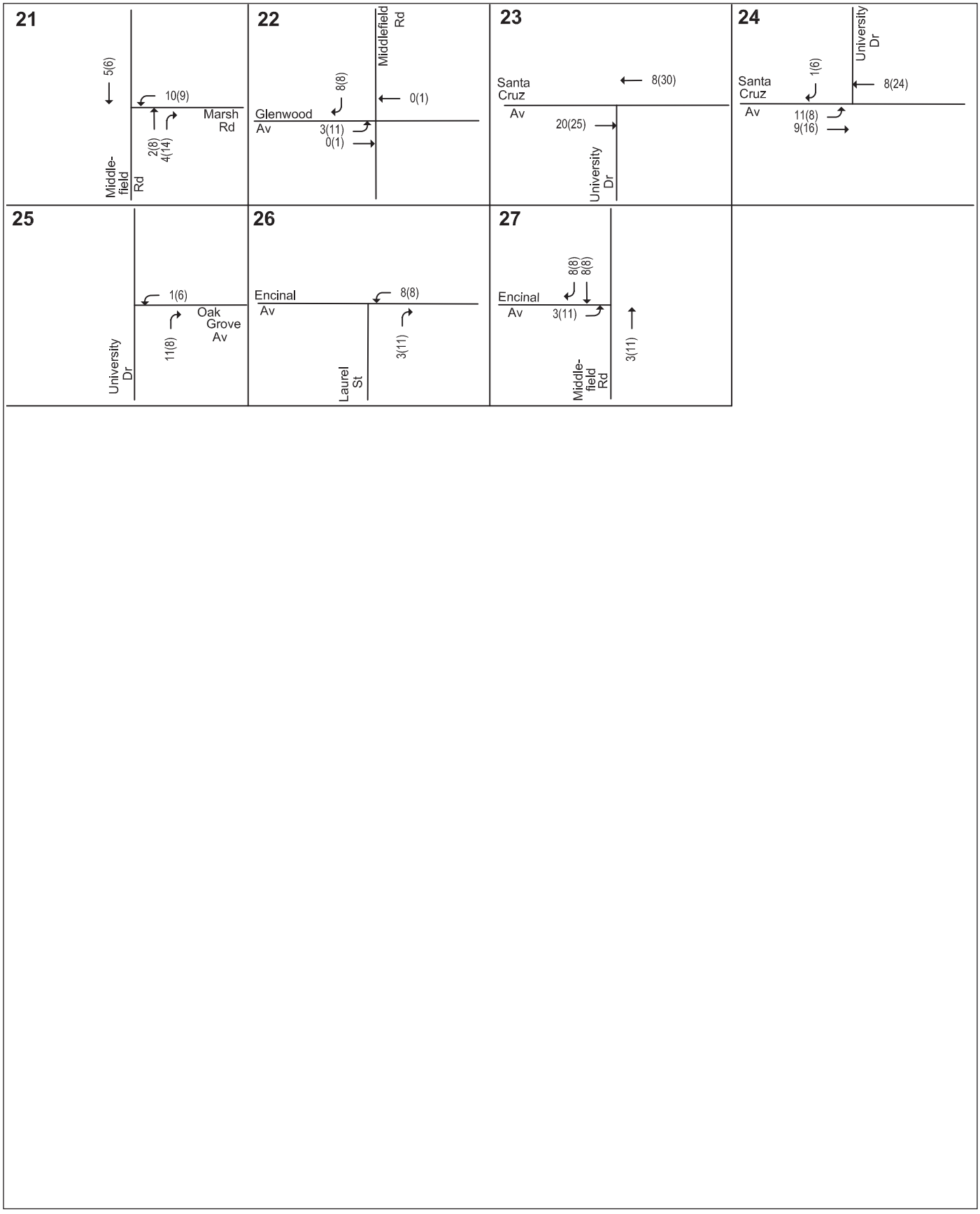


LSA

FIGURE IV.E-7b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

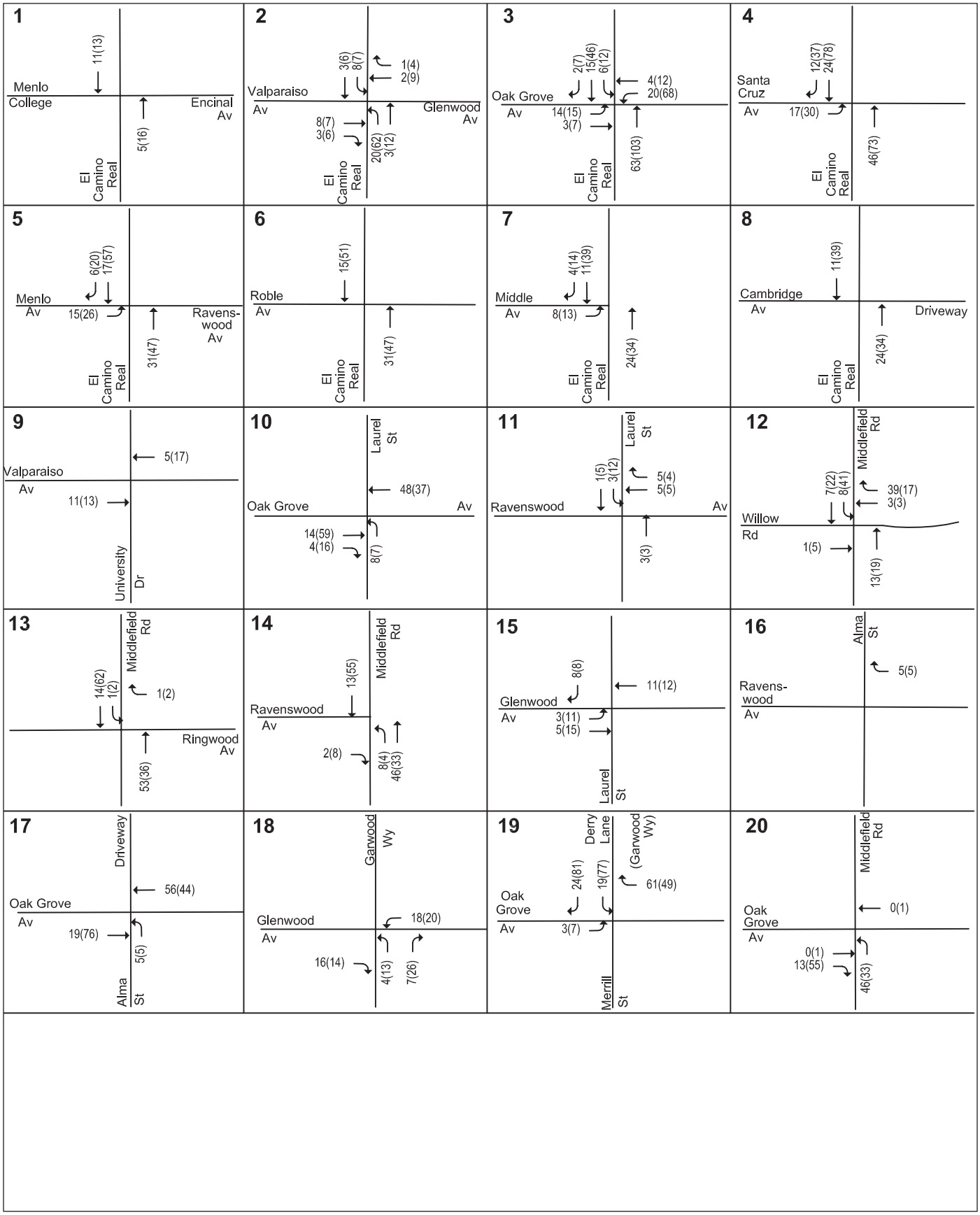
1300 El Camino Real Project EIR

Project Trip Assignment

Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE7b.ai (2/12/09)



LSA

FIGURE IV.E-8a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

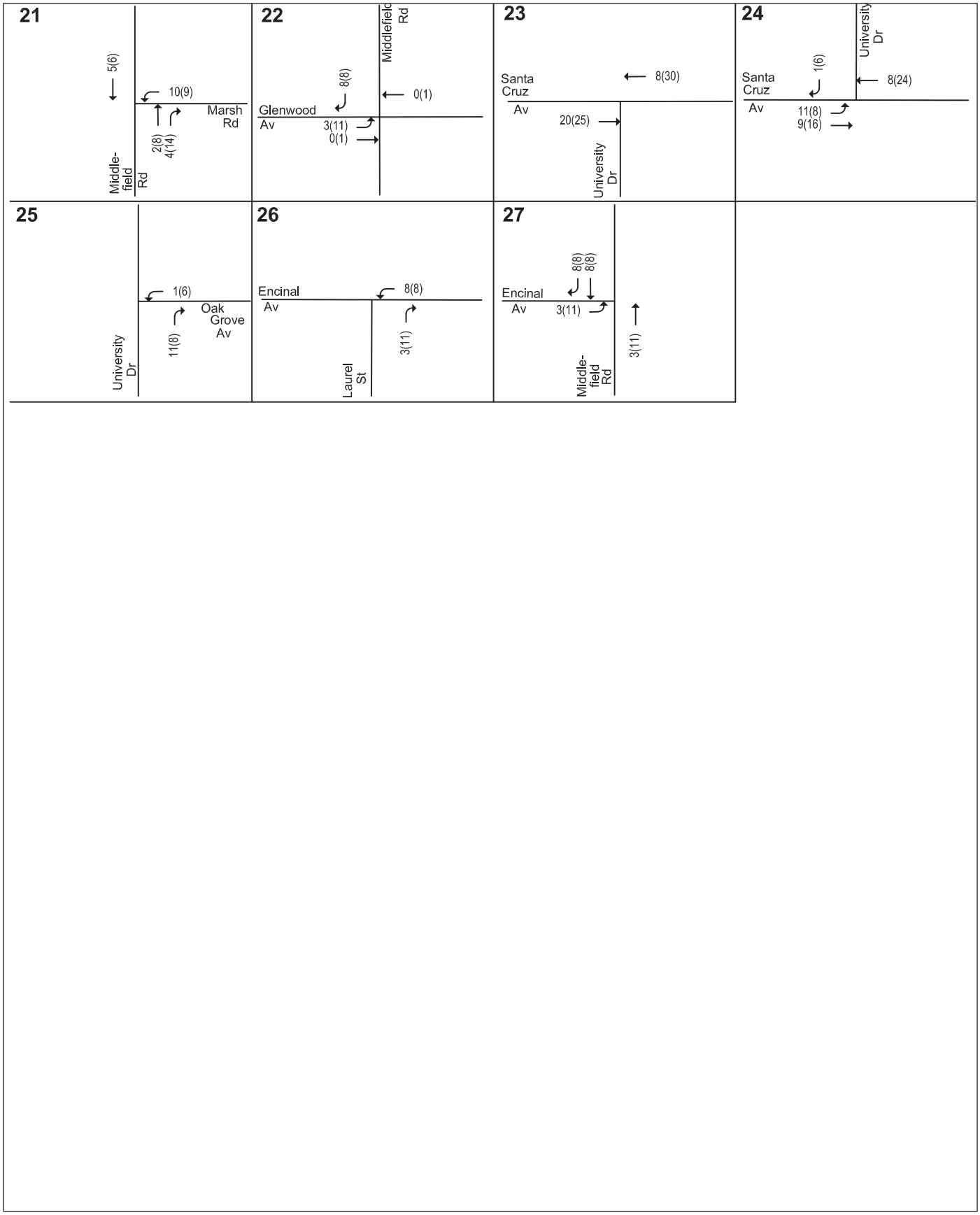
1300 El Camino Real Project EIR

Project Trip Assignment

With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE8a.ai (2/12/09)



LSA

FIGURE IV.E-8b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

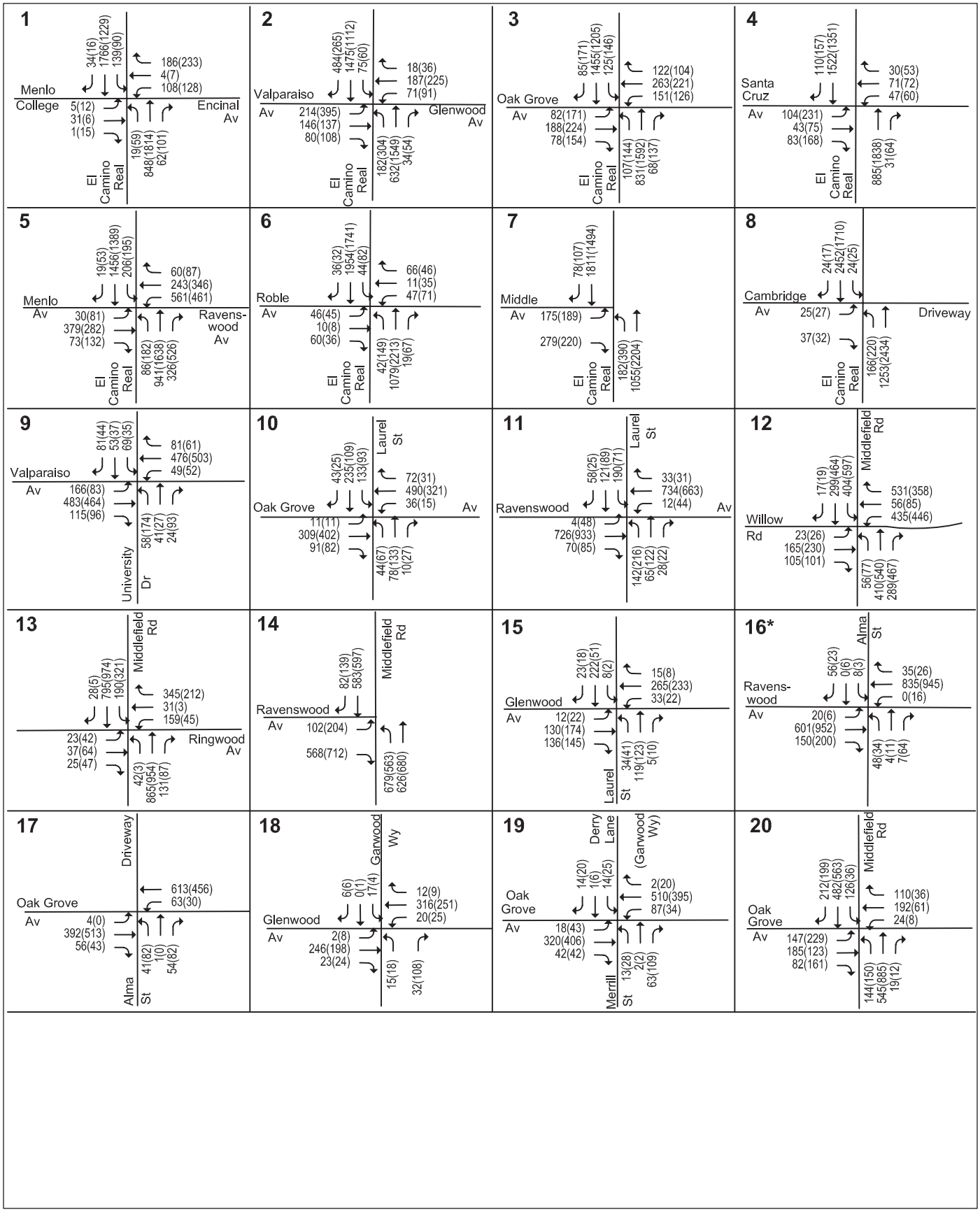
1300 El Camino Real Project EIR

Project Trip Assignment

With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE8b.ai (2/12/09)



LSA

FIGURE IV.E-9a

LEGEND

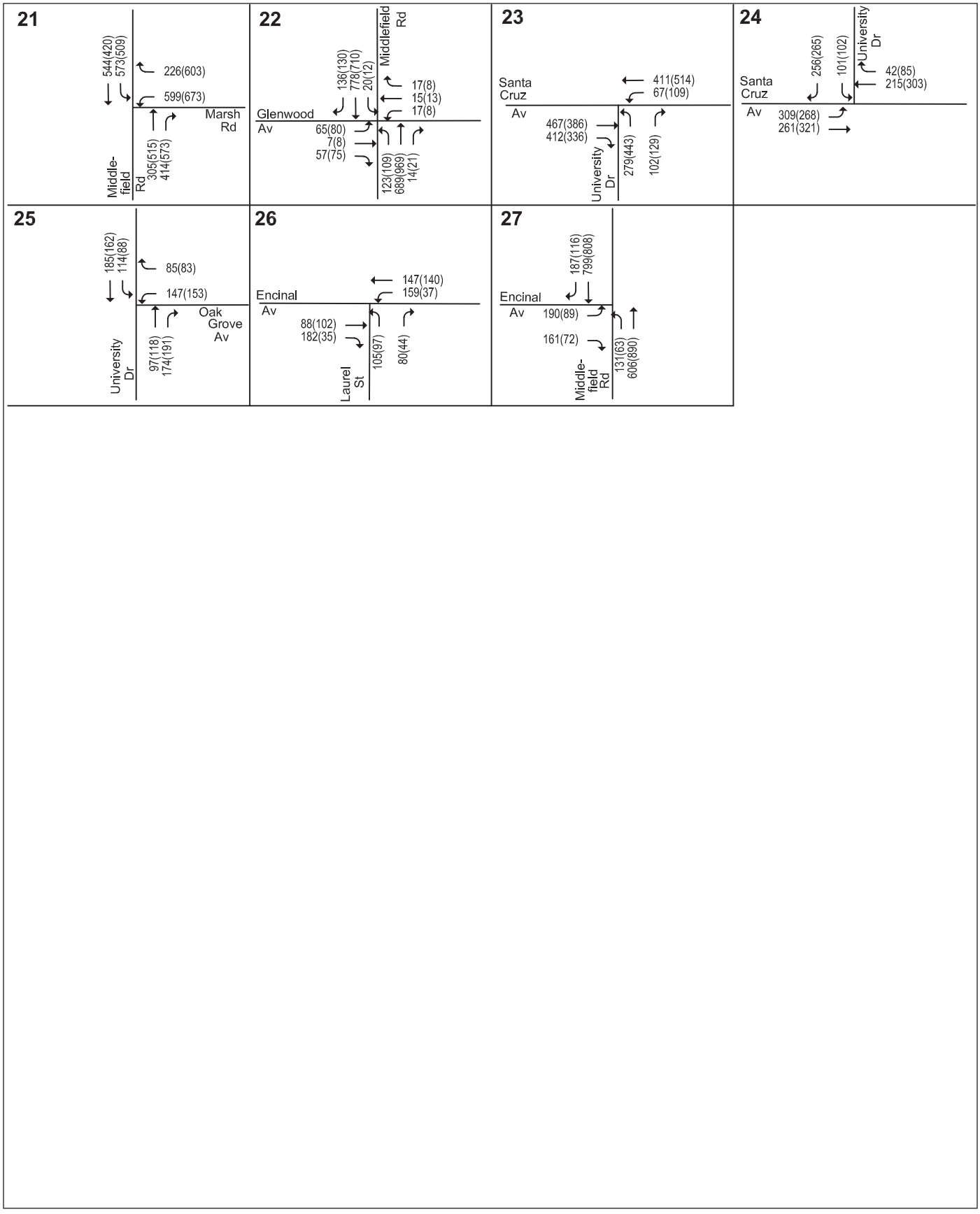
XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term Project Conditions
Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE9a.ai (2/12/09)



LSA

FIGURE IV.E-9b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term Project Conditions Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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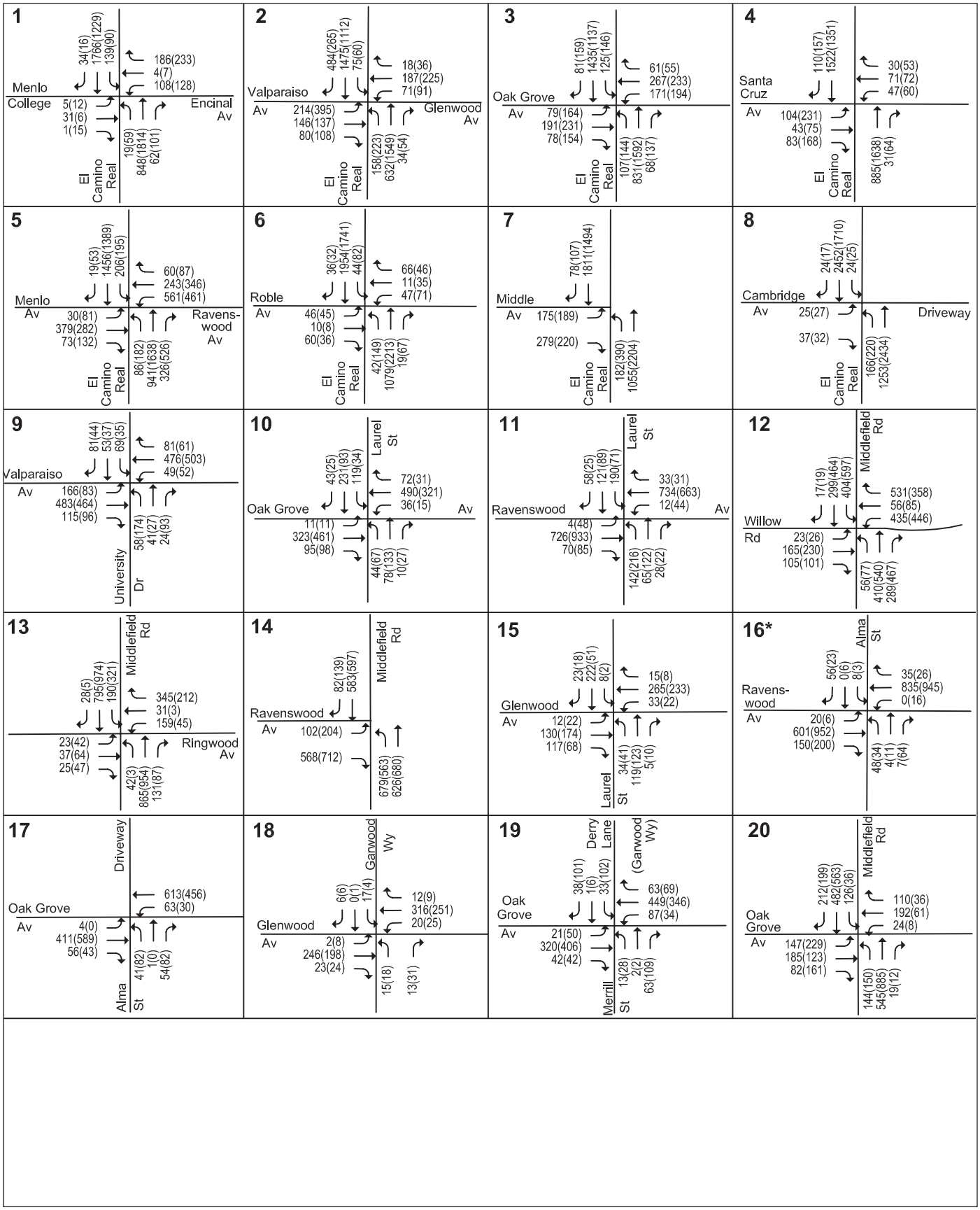

LSA

FIGURE IV.E-10a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term Project Conditions With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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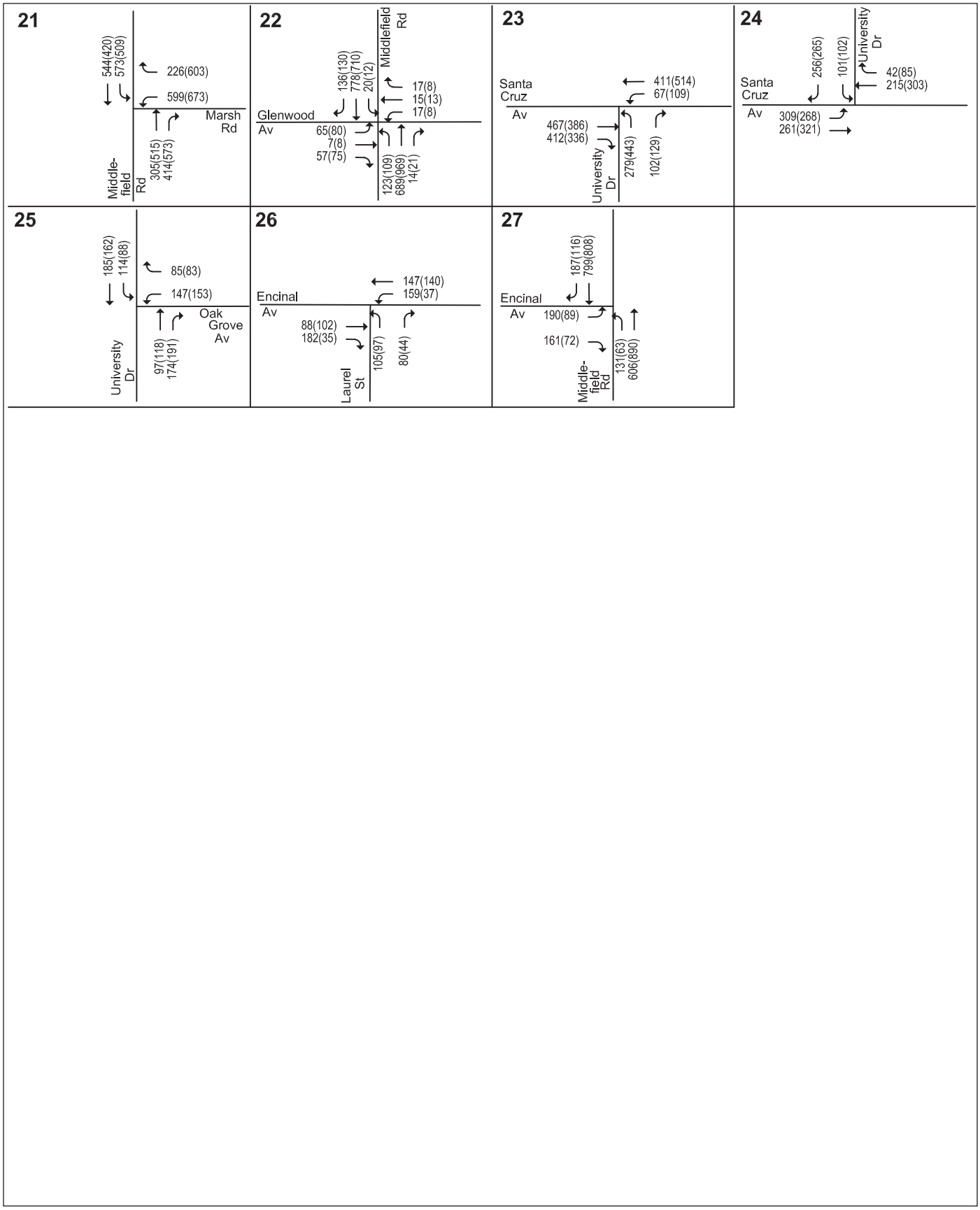

LSA

FIGURE IV.E-10b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term Project Conditions

With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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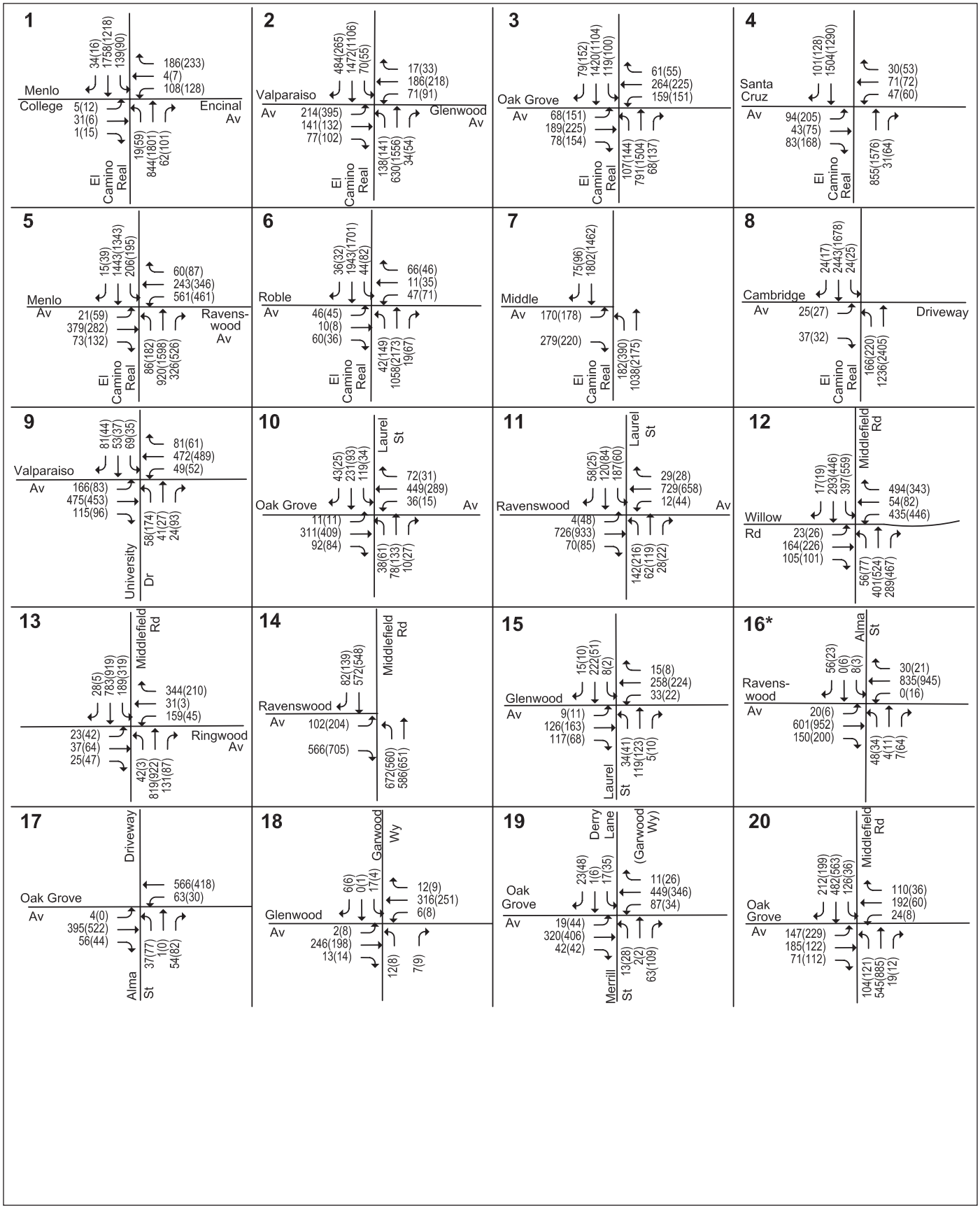

LSA

FIGURE IV.E-11a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term With Auto Dealership Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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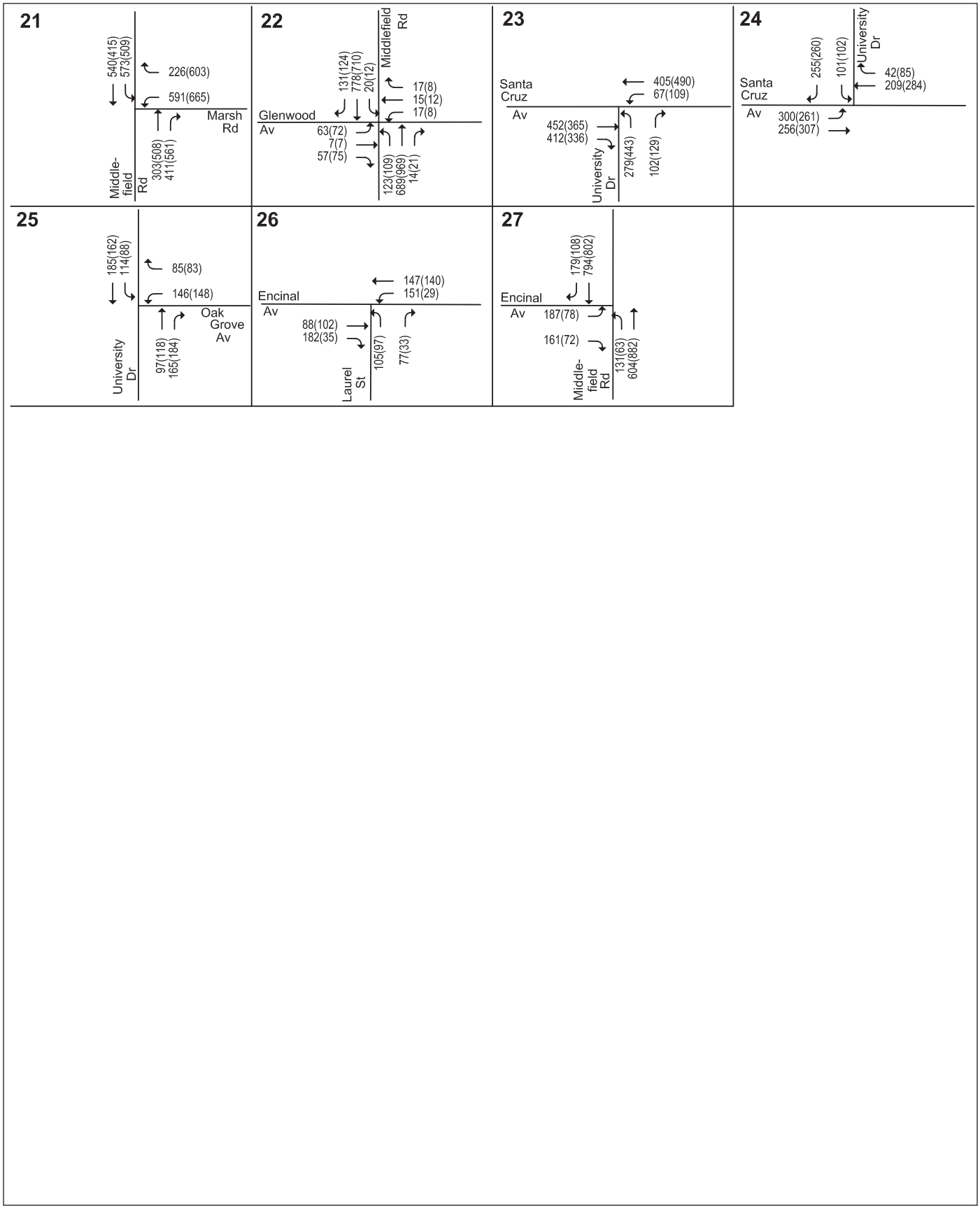

LSA

FIGURE IV.E-11b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Near-Term With Auto Dealership Conditions

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2007.

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Table IV.E-10: Near-Term Levels of Service at City-Controlled Intersections

City/Intersection	Type of Control	LOS Standard[a]	Peak Hour	Near-Term No Project			Near-Term with Auto Dealership				Near-Term Project without Garwood Way Extension				Near-Term Project with Garwood Way Extension			
				LOS[b]	Avg. Delay[c]	Critical Delay[d]	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay
Menlo Park																		
9. University Drive and Valparaiso Avenue	Signal	D	AM	C	22.8	26.5	C	22.8	26.6	0.1	C	22.8	26.6	0.1	C	22.8	26.6	0.1
			PM	C	26.5	28.8	C	26.5	28.8	0.0	C	26.6	29.0	0.2	C	26.6	29.0	0.2
10. Laurel Street and Oak Grove Avenue	Signal	C	AM	B	15.5	17.8	B	15.6	18.0	0.2	B	17.3	20.5	2.7	B	16.2	19.1	1.3
			PM	B	10.1	10.5	B	10.1	10.5	0.0	B	10.8	10.7	0.2	B	10.1	10.7	0.2
11. Laurel Street and Ravenswood Avenue	Signal	D	AM	C	21.4	25.1	C	21.4	25.1	0.0	C	22.0	25.6	0.5	C	22.0	25.6	0.5
			PM	C	22.0	26.1	C	22.1	26.0	-0.1	C	22.9	28.0	1.9	C	22.9	28.3	2.2
12. Middlefield Road and Willow Road	Signal	D	AM	C	30.9	33.4	C	30.9	33.5	0.1	C	31.2	34.3	0.9	C	31.2	34.3	0.9
			PM	D	44.4	50.1	D	44.5	50.2	0.1	D	45.1	50.8	0.7	D	45.1	50.8	0.7
13. Middlefield Road and Ringwood Avenue	Signal	D	AM	C	23.7	28.7	C	23.7	28.7	0.0	C	23.8	28.9	0.2	C	23.8	28.9	0.2
			PM	C	22.4	30.2	C	22.4	30.2	0.0	C	22.4	30.5	0.3	C	22.4	30.5	0.3
14. Middlefield Road and Ravenswood Avenue	Signal	D	AM	D	49.9	69.3	D	50.2	69.9	0.6	D	52.0	73.5	4.2	D	52.0	73.5	4.2
			PM	D	40.9	57.2	D	41.2	57.7	0.5	D	44.6	62.4	5.2	D	44.6	62.9	5.7
15. Laurel Street and Glenwood Avenue	4-way stop	C	AM	B	12.9	NA	B	13.0	NA	NA	B	13.7	NA	NA	B	13.4	NA	NA
			PM	B	10.3	NA	B	10.4	NA	NA	B	11.4	NA	NA	B	10.7	NA	NA
16. Alma Street and Ravenswood Avenue[e]	2-way stop	D	AM	B	12.4	NA	B	12.4	NA	NA	B	12.5	NA	NA	B	12.5	NA	NA
			PM	B	14.9	NA	B	14.9	NA	NA	B	14.9	NA	NA	B	14.9	NA	NA
17. Alma Street and Oak Grove Avenue	2-way stop	C	AM	C	22.6	NA	C	23.4	NA	NA	C	23.8	NA	NA	C	24.6	NA	NA
			PM	D	29.1	NA	**D**	**30.3**	**NA**	**NA**	**D**	**31.8**	**NA**	**NA**	**E**	**39.8**	**NA**	**NA**
18. Garwood Way and Glenwood Avenue	2-way stop	C	AM	B	13.5	NA	B	13.7	NA	NA	B	14.8	NA	NA	B	14.5	NA	NA
			PM	B	11.3	NA	B	11.4	NA	NA	B	12.5	NA	NA	B	11.8	NA	NA

City/Intersection	Type of Control	LOS Standard[a]	Peak Hour	Near-Term No Project			Near-Term with Auto Dealership				Near-Term Project without Garwood Way Extension				Near-Term Project with Garwood Way Extension			
				LOS[b]	Avg. Delay[c]	Critical Delay[d]	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay
19. Garwood Way/Merrill Street and Oak Grove Ave	2-way stop	C	AM	C	23.2	NA	C	22.6	NA	NA	C	24.6	NA	NA	**D**	**27.8**	**NA**	**NA**
			PM	D	26.9	NA	D	27.3	NA	NA	**D**	**28.5**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
23. University Drive (S) and Santa Cruz Avenue	Signal	D	AM	C	23.6	29.9	C	23.6	29.9	0.0	C	23.6	29.9	0.0	C	23.6	29.9	0.0
			PM	C	29.8	33.5	C	29.9	33.5	0.0	C	30.1	28.1	-5.4	C	30.1	26.4	-7.1
24. University Drive (N) and Santa Cruz Avenue	4-way stop	D	AM	B	14.5	NA	B	14.6	NA	NA	B	15.0	NA	NA	B	15.0	NA	NA
			PM	B	10.4	NA	B	10.6	NA	NA	B	11.4	NA	NA	B	11.4	NA	NA
25. Oak Grove Avenue and University Drive	4-way stop	C	AM	A	6.1	NA	A	6.2	NA	NA	A	6.4	NA	NA	A	6.4	NA	NA
			PM	A	6.4	NA	A	6.5	NA	NA	A	6.9	NA	NA	A	6.9	NA	NA
26. Encinal Avenue and Laurel Street	4-way stop	C	AM	A	5.8	NA	A	5.8	NA	NA	A	5.9	NA	NA	A	5.9	NA	NA
			PM	A	3.1	NA	A	3.1	NA	NA	A	3.1	NA	NA	A	3.1	NA	NA
Atherton																		
20. Middlefield Road and Oak Grove Avenue	Signal	D	AM	C	20.5	50.2	C	21.4	57.5	7.3	C	34.5	> 90	76.4	C	34.5	> 90	76.4
			PM	B	20.0	23.4	C	20.1	23.4	0.0	C	21.7	23.5	0.1	C	21.7	23.5	0.1
21. Middlefield Road and Marsh Road	Signal	D	AM	E	59.5	88.3	E	60.0	89.0	0.7	E	61.5	> 90	3.1	E	61.5	> 90	3.1
			PM	F	> 90	> 90	F	> 90	> 90	1.0	**F**	**> 90**	**> 90**	**7.7**	**F**	**> 90**	**> 90**	**7.8**
22. Middlefield Road and Glenwood Avenue	2-way stop	D	AM	F	> 90	NA	F	> 90	NA	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
			PM	F	> 90	NA	F	> 90	NA	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
27. Middlefield Road and Encinal Avenue	2-way stop	D	AM	F	> 90	NA	F	> 90	NA	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
			PM	F	> 90	NA	F	> 90	NA	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**

Table notes on next page.

Note: **Shading =** Vehicle delays that would be significantly adversely affected by the proposed project.

[a] Level of Service Standard. At intersections involving two collector streets, the City of Menlo Park's standard is LOS C. At intersections involving an arterial street, the City of Menlo Park's standard is LOS D. The City of Menlo Park's level of service standards were applied to intersections in the Town of Atherton, which has not designated a minimum acceptable level of service.

[b] Level of service (based on average delay).

[c] Average control delay (seconds per vehicle) including all movements for intersections controlled by a signal or four-way stop. At intersections under two-way stop control, average delay is reported for the worst controlled lane group.

[d] Average control delay (seconds per vehicle) for the critical movements only.

[e] During the PM peak hour, regulatory signage restricts Alma Street to right turns only. Level of service calculations reflect no illegal movements.

Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-11: Near-Term Levels of Service at State-Controlled Intersections

Approach		Peak Hour	Near-Term No Project			Near-Term With Auto Dealership				Near-Term Project Without Garwood Way Extension				Near-Term Project With Garwood Way Extension			
			LOS[a]	Average Delay[b]	Critical Delay[c]	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay
1.	**Encinal and El Camino Real**	**AM**	**B**	**15.6**	**11.7**	**B**	**15.6**	**11.7**	**0.0**	**B**	**15.6**	**11.6**	**-0.1**	**B**	**15.6**	**11.6**	**-0.1**
		PM	**B**	**18.1**	**18.8**	**B**	**18.1**	**18.8**	**0.0**	**B**	**18.1**	**18.8**	**0.0**	**B**	**18.1**	**18.8**	**0.0**
	Eastbound Encinal	AM	D	41.9	42.0	D	42.0	42.1	0.1	D	42.0	42.1	0.1	D	42.0	42.1	0.1
		PM	D	43.3	48.4	D	43.3	48.4	0.0	D	43.4	48.5	0.1	D	43.4	48.5	0.1
	Westbound Encinal	AM	D	36.4	49.1	D	36.4	49.1	0.0	D	36.6	49.3	0.2	D	36.6	49.3	0.2
		PM	E	58.5	66.8	E	58.6	66.9	0.1	E	59.1	67.5	0.7	E	59.1	67.5	0.7
2.	**Valparaiso/Glenwood and El Camino Real**	**AM**	**F**	**> 90**	**> 90**	**F**	**> 90**	**> 90**	**-0.1**	**F**	**> 90**	**> 90**	**25.7**	**F**	**> 90**	**> 90**	**10.9**
		PM	**D**	**42.6**	**48.5**	**D**	**42.9**	**49.0**	**0.5**	**D**	**51.1**	**59.7**	**11.2**	**D**	**46.6**	**49.7**	**1.2**
	Eastbound Valparaiso	AM	D	42.2	44.2	D	41.2	44.3	0.1	D	42.1	44.5	0.3	D	42.3	44.5	0.3
		PM	D	52.6	56.1	D	52.7	56.2	0.1	D	51.7	56.7	0.6	D	52.3	56.7	0.6
	Westbound Glenwood	AM	D	46.1	48.2	D	44.2	48.4	0.2	D	46.5	48.7	0.5	D	46.5	48.7	0.5
		PM	D	53.9	57.1	D	54.4	57.7	0.6	E	56.2	60.0	2.9	E	56.2	60.0	2.9
3.	**Oak Grove and El Camino Real[d]**	**AM**	**C**	**34.3**	**37.4**	**C**	**34.9**	**38.1**	**0.7**	**C**	**35.0**	**37.8**	**0.4**	**D**	**36.1**	**39.7**	**2.3**
		PM	**D**	**36.7**	**38.6**	**D**	**37.8**	**39.2**	**0.6**	**D**	**42.7**	**52.0**	**13.4**	**D**	**45.6**	**53.9**	**15.3**
	Eastbound Oak Grove	AM	D	48.2	43.2	D	46.1	43.2	0.0	D	52.6	43.2	0.0	D	50.6	43.3	0.1
		PM	D	53.0	82.2	D	54.8	83.4	1.2	E	60.5	> 90	20.1	E	62.9	> 90	19.7
	Westbound Oak Grove	AM	D	49.5	77.6	D	46.2	77.5	-0.1	D	48.3	80.6	3.0	D	50.8	78.8	1.2
		PM	E	66.2	52.7	E	71.2	53.3	0.6	E	62.2	52.7	0.0	E	69.8	50.4	-2.3
4.	**Santa Cruz and El Camino Real**	**AM**	**C**	**28.8**	**33.5**	**C**	**29.0**	**33.8**	**0.3**	**C**	**29.5**	**34.7**	**1.2**	**C**	**29.5**	**34.7**	**1.2**
		PM	**C**	**28.4**	**31.3**	**C**	**28.6**	**31.6**	**0.3**	**C**	**30.2**	**34.4**	**3.1**	**C**	**30.2**	**33.8**	**2.5**
	Eastbound Santa Cruz	AM	D	39.9	40.1	D	39.6	40.3	0.2	D	40.1	40.6	0.5	D	40.1	40.6	0.5
		PM	D	49.5	51.0	D	49.8	51.5	0.5	D	51.6	55.0	4.0	D	51.6	55.0	4.0
	Westbound Santa Cruz	AM	D	40.0	40.5	D	39.9	40.5	0.0	D	40.0	40.5	0.0	D	40.0	40.5	0.0
		PM	D	45.8	46.5	D	45.8	46.5	0.0	D	45.8	46.5	0.0	D	45.8	46.5	0.0
5.	**Menlo/Ravenswood and El Camino Real**	**AM**	**D**	**47.5**	**53.3**	**D**	**47.7**	**53.6**	**0.3**	**D**	**48.6**	**54.8**	**1.5**	**D**	**48.6**	**54.8**	**1.5**
		PM	**E**	**75.1**	**> 90**	**E**	**76.0**	**> 90**	**1.0**	**F**	**81.1**	**> 90**	**8.9**	**F**	**81.1**	**> 90**	**7.4**
	Eastbound Menlo	AM	D	46.2	46.2	D	45.2	46.5	0.3	D	46.9	46.9	0.7	D	46.9	46.9	0.7
		PM	E	55.2	55.2	E	55.5	55.5	0.3	**E**	**57.6**	**57.6**	**2.4**	**E**	**57.6**	**57.6**	**2.4**
	Westbound Ravenswood	AM	D	49.0	52.2	D	45.5	52.2	0.0	D	49.0	52.2	0.0	D	49.0	52.2	0.0
		PM	E	72.1	> 90	E	55.5	> 90	0.0	E	72.1	> 90	0.0	E	72.1	> 90	0.0

Approach		Peak Hour	Near-Term No Project			Near-Term With Auto Dealership				Near-Term Project |Without Garwood Way Extension				Near-Term Project With Garwood Way Extension			
			LOS[a]	Average Delay[b]	Critical Delay[c]	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay
6.	**Roble and El Camino Real**	**AM**	**B**	**14.8**	**14.1**	**B**	**14.8**	**14.1**	**0.0**	**B**	**14.8**	**14.1**	**0.0**	**B**	**14.8**	**14.1**	**0.0**
		PM	**B**	**19.7**	**17.8**	**B**	**19.8**	**17.8**	**0.0**	**B**	**19.8**	**18.0**	**0.2**	**B**	**19.8**	**18.0**	**0.2**
	Eastbound Roble	AM	D	47.1	47.1	D	46.9	47.1	0.0	D	47.1	47.1	0.0	D	47.1	47.1	0.0
		PM	D	46.0	46.0	D	46.0	46.0	0.0	D	46.0	46.0	0.0	D	46.0	46.0	0.0
7.	**Middle and El Camino Real**	**AM**	**C**	**20.9**	**26.1**	**C**	**21.0**	**26.2**	**0.1**	**C**	**21.0**	**26.3**	**0.2**	**C**	**21.0**	**26.3**	**0.2**
		PM	**C**	**23.1**	**38.0**	**C**	**23.2**	**38.0**	**0.0**	**C**	**23.6**	**38.6**	**0.6**	**C**	**23.6**	**38.6**	**0.6**
	Eastbound Middle	AM	D	41.9	53.7	D	40.5	54.3	0.6	D	42.8	55.4	1.7	D	42.8	55.4	1.7
		PM	D	35.5	55.4	D	35.8	55.9	0.5	D	37.9	58.8	3.4	D	37.9	58.8	3.4
8.	**Cambridge and El Camino Real**	**AM**	**C**	**22.8**	**27.5**	**C**	**22.8**	**27.6**	**0.1**	**C**	**22.8**	**27.7**	**0.2**	**C**	**22.8**	**27.7**	**0.2**
		PM	**C**	**20.4**	**15.3**	**C**	**20.4**	**15.3**	**0.0**	**C**	**20.6**	**15.6**	**0.3**	**C**	**20.6**	**15.5**	**0.2**
	Eastbound Cambridge	AM	D	44.7	44.7	D	44.2	44.7	0.0	D	44.7	44.7	0.0	D	44.7	44.7	0.0
		PM	D	44.7	44.7	D	44.7	44.7	0.0	D	44.7	44.7	0.0	D	44.7	44.7	0.0

Note: **Shading =** Vehicle delays that would be significantly adversely affected by the proposed project.

[a] Level of service (based on average delay for the subject intersection/approach).

[b] Average control delay (seconds per vehicle) including all movements on the subject intersection/approach.

[c] Average control delay (seconds per vehicle) for the critical movement on the subject intersection/approach.

[d] Subsequent to the certification of the Derry Lane Mixed-Use Project EIR, the City of Menlo Park conducted a further review of the City's Transportation Impact Analysis Guidelines and determined that the 0.8 second impact threshold at local approaches of State-controlled intersections applies only to intersections that operate at substandard levels of service based on the overall average delay. Because the intersection of Oak Grove Avenue and El Camino Real is expected to operate at an acceptable level of service based on the overall average delay, the project's impact on this intersection is considered to be insignificant.

Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-12: Near-Term Roadway Segment Analysis Results

Roadway	Segment	Street Classification	Existing ADT Volume	Near-Term No Project ADT Volume	Near-Term Project					
					Without Garwood Way Extension			With Garwood Way Extension		
					Project Trips	Percentage Increase	Significant Traffic Impact?	Project Trips	Percentage Increase	Significant Traffic Impact?
Middlefield Road	North of Glenwood Ave.	Minor Arterial	18,287	21,359	155	0.7%	**yes**	155	0.7%	**yes**
	South of Oak Grove Ave.	Minor Arterial	14,579	16,992	740	4.4%	no	740	4.4%	no
Ravenswood Avenue	East of Laurel St.	Minor Arterial	17,305	19,568	175	0.9%	**yes**	175	0.9%	**yes**
Valparaiso Avenue	West of El Camino Real	Minor Arterial	12,865	13,829	230	1.7%	no	230	1.7%	no
Oak Grove Avenue	West of Laurel St.	Collector	10,251	11,211	525	4.7%	**yes**	965	8.6%	**yes**
	East of Laurel St.	Collector	9,087	9,960	785	7.9%	**yes**	785	7.9%	**yes**
Glenwood Avenue	West of Laurel St.	Collector	5,502	6,052	820	13.5%	**yes**	365	6.0%	no
	East of Laurel St.	Collector	4,567	5,070	210	4.1%	no	210	4.1%	no
Encinal Avenue	East of Laurel St.	Collector	1,193	1,459	155	10.6%	no	155	10.6%	no
Laurel Street	South of Oak Grove Ave.	Collector	3,784	3,986	180	4.5%	no	180	4.5%	no
	North of Glenwood Ave.	Local	439	452	155	34.3%	**yes**	155	34.3%	**yes**
Alma Street	South of Oak Grove Ave.	Local	1,563	1,626	50	3.1%	**yes**	50	3.1%	**yes**
Merrill Street	South of Oak Grove Ave.	Local	2,794	3,006	0	0.0%	no	0	0.0%	no
Garwood Way	South of Glenwood Ave.	Local	96	220	1,050	477.6%	**yes**	595	270.7%	**yes**

Source: Hexagon Transportation Consultants, Inc., 2009

(2) Long-Range Traffic Conditions. Traffic volumes under long-range project conditions were developed by adding the trips generated by the project without and with the Garwood Way extension, shown on Figures IV.E-7 and IV.E-8 respectively, to the long-range no-project traffic volumes shown on Figure IV.E-6. Figure IV.E-12 and Figure IV.E-13 illustrate the traffic volumes estimated under long-range project conditions without the Garwood Way extension and long-range project conditions with the Garwood Way extension, respectively.

Intersection Level of Service Analysis. The results of the level of service analysis for the project under long-range conditions are summarized in Table IV.E-13 and Table IV.E-14. The level of service calculation sheets are included in Appendix D.

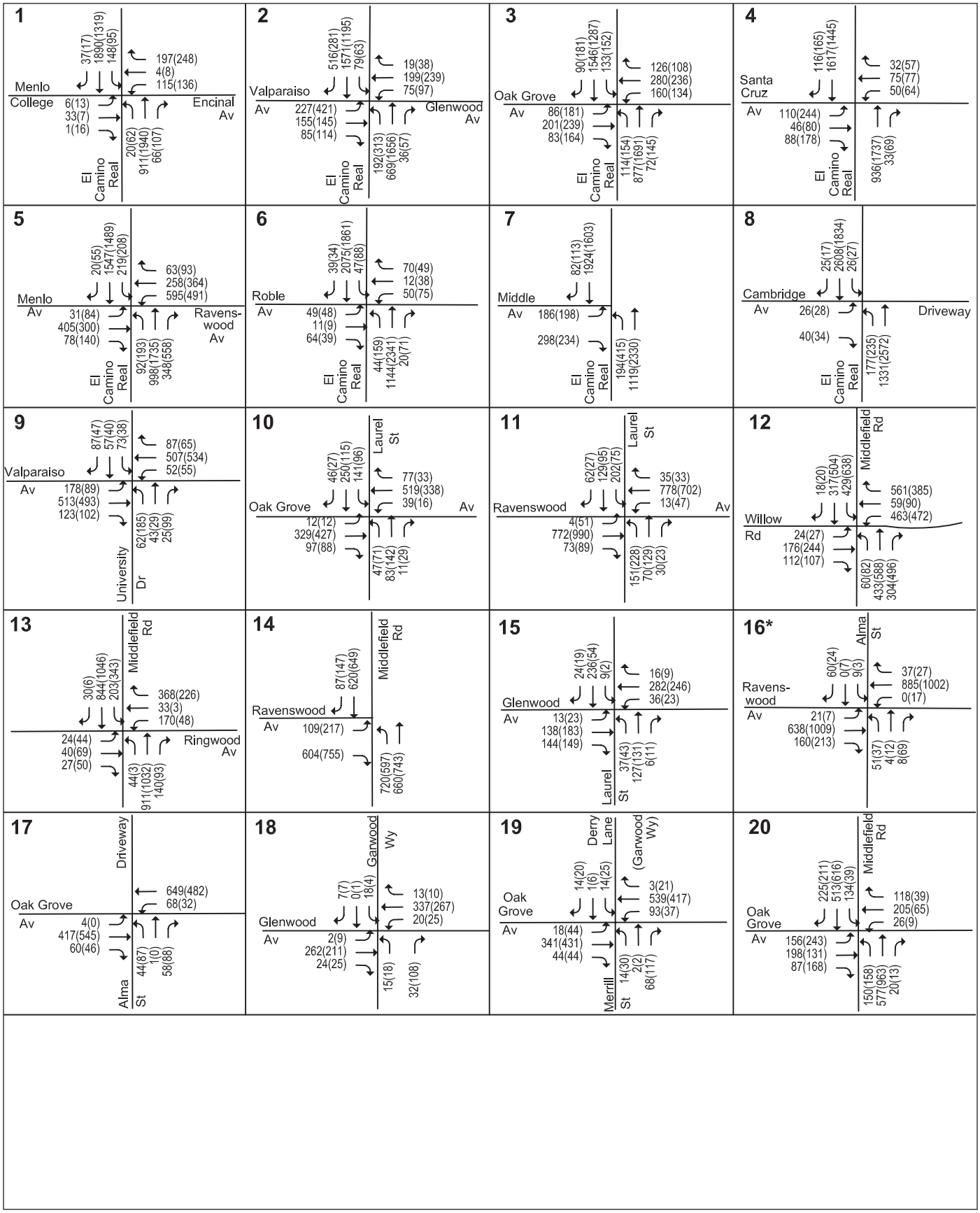
The results show that one City-controlled signalized intersection in the City of Menlo Park, Middlefield Road and Ravenswood Avenue, would be significantly adversely affected during the AM and PM peak hours under long-range conditions both with and without the Garwood Way extension. Two signalized intersections in the Town of Atherton, Middlefield Road and Oak Grove Avenue and Middlefield Road and Marsh Road, would be significantly affected during at least one peak hour for both long-range scenarios.

Two unsignalized study intersections in the City of Menlo Park, Alma Street and Oak Grove Avenue, and Garwood Way/Merrill Street and Oak Grove Avenue, and two in the Town of Atherton, Middlefield Road and Glenwood Avenue, and Middlefield Road and Encinal Avenue, would continue to operate at substandard levels of service. The project would cause the average delay for the worst stop-controlled approach to increase by more than 0.8 seconds (4 seconds for Town of Atherton intersections) at all of these locations.

An analysis of State-controlled intersections determined that the following two intersections would operate at a sub-standard level (LOS E or F) based on the overall average delay: Menlo Avenue/ Ravenswood Avenue and El Camino Real, and Valparaiso Avenue/Glenwood Avenue and El Camino Real. Measured against the City of Menlo Park's standards of significance, both of these intersections would be significantly affected by the project without the Garwood Way extension. With the Garwood Way extension, the proposed project would significantly affect only one State-controlled intersection, Menlo Avenue/Ravenswood Avenue and El Camino Real. The remaining State-controlled intersections are expected to operate at LOS D or better during the peak commute periods.

Roadway Segment Analysis. Table IV.E-15 summarizes the long-range roadway segment analysis with and without the project. Based on the standards of significance for roadway segments, the project without the Garwood Way extension would result in a significant traffic impact on nine roadway segments under long range conditions. With the Garwood Way extension, the project would result in a significant long range traffic impact on eight roadway segments.

(3) Summary of Impacts and Mitigation Measures. Based on the detailed significance criteria described in this section, the project would have a significant adverse impact on six study intersections under near-term conditions both without and with the Garwood Way extension. Under long-range conditions, the project would have a significant adverse impact on nine study intersections without the Garwood Way extension and eight study intersections with the Garwood Way extension.



LSA

FIGURE IV.E-12a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range Project Conditions Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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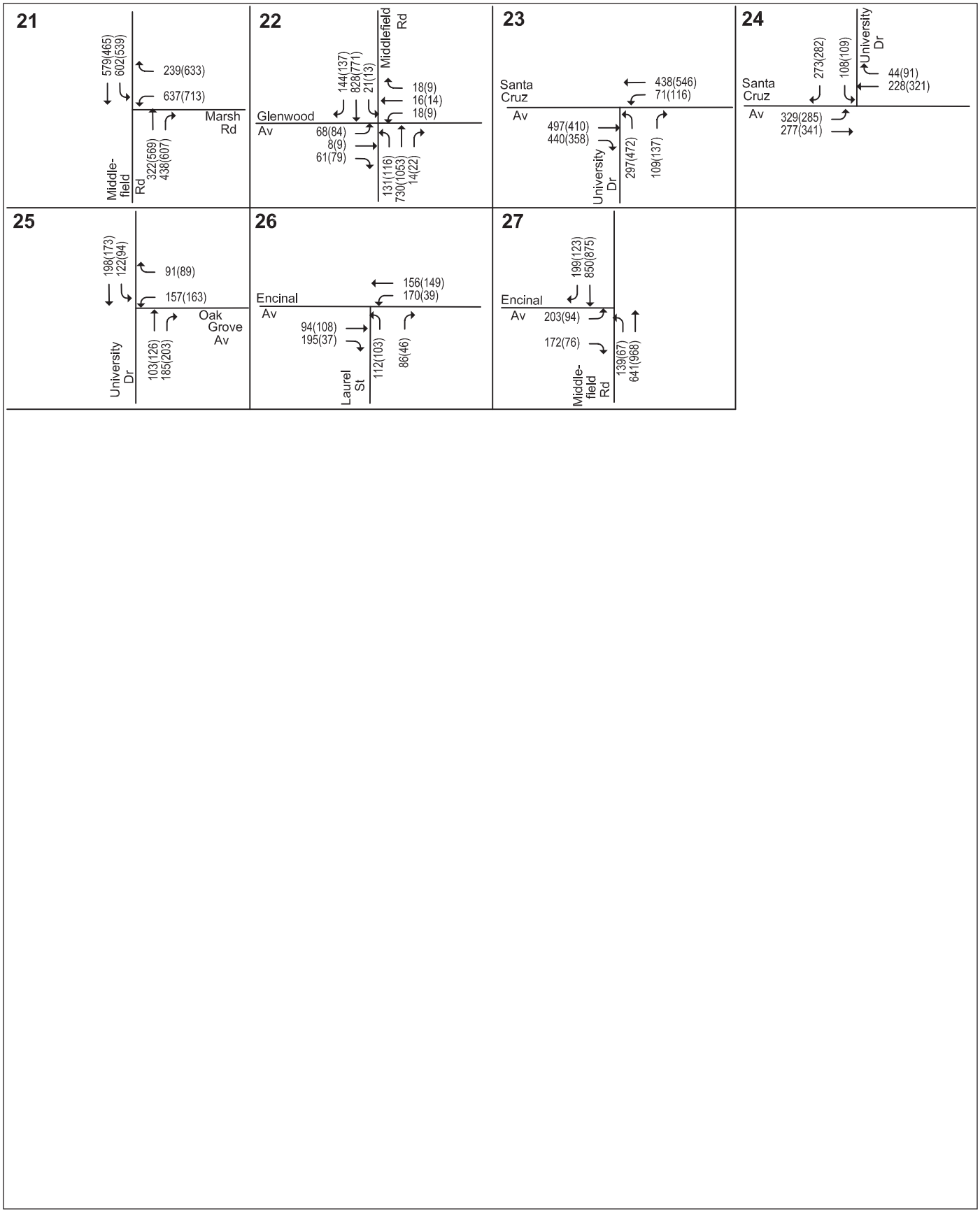

LSA

FIGURE IV.E-12b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range Project Conditions Without Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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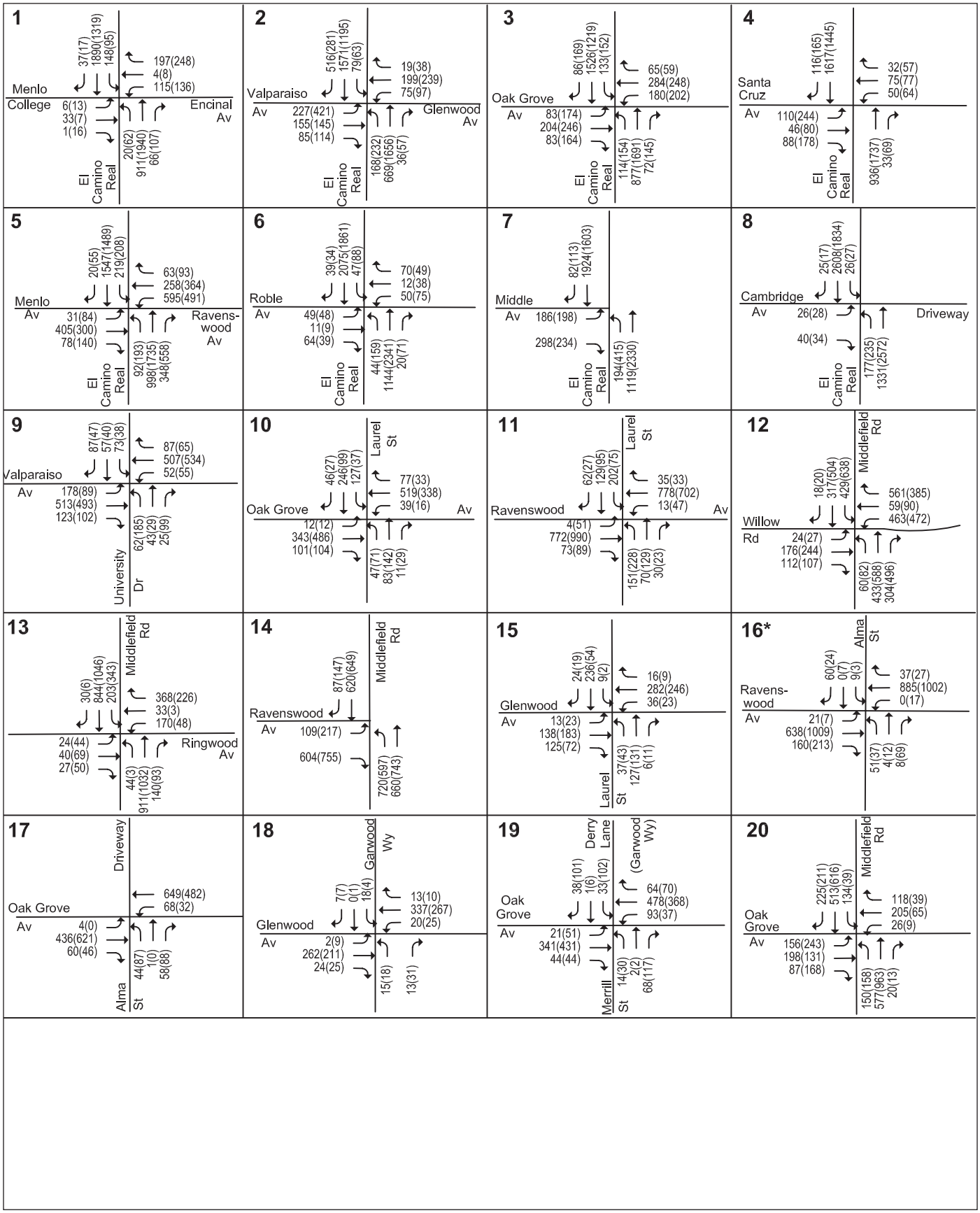

LSA

FIGURE IV.E-13a

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range Project Conditions
With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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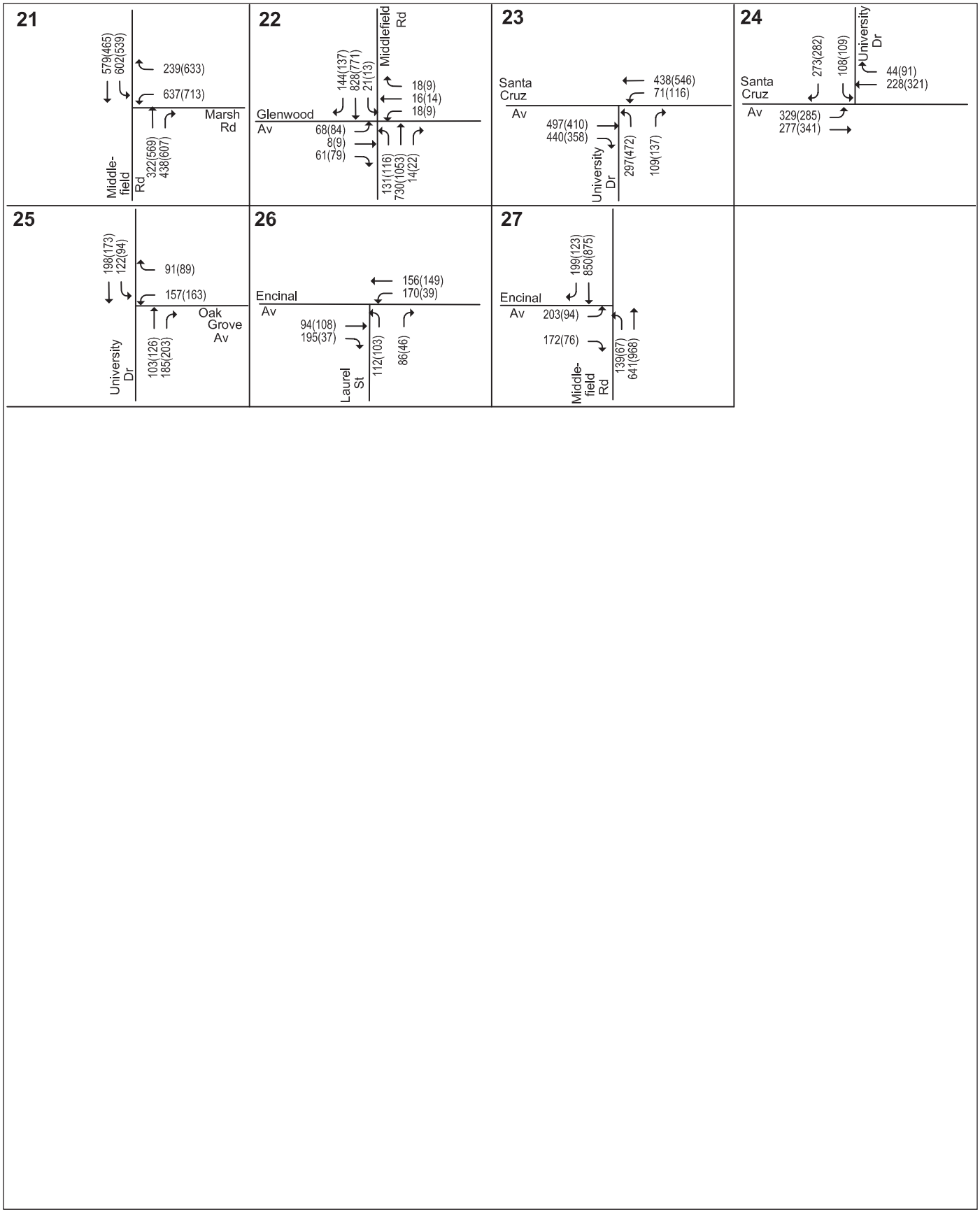

LSA

FIGURE IV.E-13b

LEGEND

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

1300 El Camino Real Project EIR

Long-Range Project Conditions With Garwood Extension

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

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Table IV.E-13: Long-Range Levels of Service at City-Controlled Intersections

				Long-Range No Project			Long-Range Project							
							without Garwood Extension				with Garwood Extension			
City/Intersection	Type of Control	LOS Standard[a]	Peak Hour	LOS[b]	Avg. Delay[c]	Critical Delay[d]	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay	LOS[b]	Avg. Delay[c]	Critical Delay[d]	Increase in Critical Delay
Menlo Park														
9. University Drive and Valparaiso Avenue	Signal	D	AM	C	24.3	28.7	C	24.4	28.8	0.1	C	24.4	28.8	0.1
			PM	C	28.5	31.1	C	28.7	31.5	0.4	C	28.7	31.5	0.4
10. Laurel Street and Oak Grove Avenue	Signal	C	AM	B	17.3	20.4	C	20.1	24.5	4.1	B	18.6	22.5	2.1
			PM	B	10.4	10.8	B	10.5	11.2	0.4	B	11.2	11.2	0.4
11. Laurel Street and Ravenswood Avenue	Signal	D	AM	C	25.9	31.3	C	26.7	32.0	0.7	C	26.7	32.0	0.7
			PM	C	28.6	36.2	C	30.4	42.0	5.8	C	30.4	42.0	5.8
12. Middlefield Road and Willow Road	Signal	D	AM	C	31.7	34.5	C	32.2	35.7	1.2	C	32.2	35.7	1.2
			PM	D	46.2	52.2	D	47.2	53.2	1.0	D	47.2	53.2	1.0
13. Middlefield Road and Ringwood Avenue	Signal	D	AM	C	24.5	29.8	C	24.5	30.1	0.3	C	24.5	30.1	0.3
			PM	C	23.6	32.2	C	23.7	32.7	0.5	C	23.7	32.7	0.5
14. Middlefield Road and Ravenswood Avenue	Signal	D	AM	E	64.3	89.5	**E**	**67.0**	**> 90**	**5.3**	**E**	**67.0**	**> 90**	**5.3**
			PM	D	49.4	69.9	**E**	**55.5**	**79.0**	**9.1**	**E**	**55.5**	**79.0**	**9.1**
15. Laurel Street and Glenwood Avenue	4-way stop	C	AM	B	14.2	NA	B	15.3	NA	NA	B	14.8	NA	NA
			PM	B	10.7	NA	B	11.2	NA	NA	B	12.0	NA	NA
16. Alma Street and Ravenswood Avenue [e]	2-way stop	D	AM	B	12.9	NA	B	12.9	NA	NA	B	12.9	NA	NA
			PM	C	15.8	NA	C	15.8	NA	NA	C	15.8	NA	NA
17. Alma Street and Oak Grove Avenue	2-way stop	C	AM	D	27.5	NA	**D**	**27.7**	**NA**	**NA**	**D**	**28.9**	**NA**	**NA**
			PM	E	37.3	NA	**E**	**40.4**	**NA**	**NA**	**F**	**52.8**	**NA**	**NA**
18. Garwood Way and Glenwood Avenue	2-way stop	C	AM	B	14.0	NA	C	15.4	NA	NA	B	15.0	NA	NA
			PM	B	11.5	NA	B	12.6	NA	NA	B	12.0	NA	NA

							Long-Range Project							
				Long-Range No Project			**without Garwood Extension**				**with Garwood Extension**			
City/Intersection	**Type of Control**	**LOS Standard[a]**	**Peak Hour**	**LOS[b]**	**Avg. Delay[c]**	**Critical Delay[d]**	**LOS[b]**	**Avg. Delay[c]**	**Critical Delay[d]**	**Increase in Critical Delay**	**LOS[b]**	**Avg. Delay[c]**	**Critical Delay[d]**	**Increase in Critical Delay**
Menlo Park														
19. Garwood Way/Merrill Street and Oak Grove Ave	2-way stop	C	AM	D	26.6	NA	D	27.4	NA	NA	**D**	**32.0**	**NA**	**NA**
			PM	D	31.3	NA	**D**	**32.7**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
23. University Drive (S) and Santa Cruz Avenue	Signal	D	AM	C	24.3	31.0	C	24.3	31.0	0.0	C	24.3	31.0	0.0
			PM	C	30.9	34.8	C	31.3	34.8	0.0	C	31.3	34.8	0.0
24. University Drive (N) and Santa Cruz Avenue	4-way stop	D	AM	B	15.8	NA	B	16.4	NA	NA	B	16.4	NA	NA
			PM	B	12.1	NA	B	13.3	NA	NA	B	13.3	NA	NA
25. Oak Grove Avenue and University Drive	4-way stop	C	AM	A	6.9	NA	A	7.2	NA	NA	A	7.2	NA	NA
			PM	A	7.4	NA	A	7.9	NA	NA	A	7.9	NA	NA
26. Encinal Avenue and Laurel Street	4-way stop	C	AM	A	6.6	NA	A	6.7	NA	NA	A	6.7	NA	NA
			PM	A	3.3	NA	A	3.4	NA	NA	A	3.4	NA	NA
Atherton														
20. Middlefield Road and Oak Grove Avenue	Signal	D	AM	C	31.0	> 90	**E**	**69.2**	**> 90**	**> 90**	**E**	**> 90**	**> 90**	**> 90**
			PM	C	26.2	31.5	C	28.5	32.9	1.4	C	28.5	32.9	1.4
21. Middlefield Road and Marsh Road	Signal	D	AM	E	72.4	> 90	E	74.6	> 90	3.5	E	74.6	> 90	3.5
			PM	F	> 90	> 90	**F**	**> 90**	**> 90**	**7.9**	**F**	**> 90**	**> 90**	**7.9**
22. Middlefield Road and Glenwood Avenue	2-way stop	D	AM	F	> 90	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
			PM	F	> 90	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
27. Middlefield Road and Encinal Avenue	2-way stop	D	AM	F	> 90	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**
			PM	F	> 90	NA	**F**	**> 90**	**NA**	**NA**	**F**	**> 90**	**NA**	**NA**

Table notes on next page.

Note: **Shading** = Vehicle delays that would be significantly adversely affected by the proposed project.

[a] Level of Service Standard. At intersections involving two collector streets, the City of Menlo Park's standard is LOS C. At intersections involving an arterial street, the City of Menlo Park's standard is LOS D. The City of Menlo Park's level of service standards were applied to intersections in the Town of Atherton, which has not designated a minimum acceptable level of service.

[b] Level of service (based on average delay).

[c] Average control delay (seconds per vehicle) including all movements for intersections controlled by a signal or four-way stop. At intersections under two-way stop control, average delay is reported for the worst controlled lane group.

[d] Average control delay (seconds per vehicle) for the critical movements only.

[e] During the PM peak hour, regulatory signage restricts Alma Street to right turns only. Level of service calculations reflect no illegal movements.

Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-14 Long-Range Levels of Service at State-Controlled Intersections

Approach	Peak Hour	Long-Range No Project			Long-Range Project Without Garwood Way Extension				Long-Range Project With Garwood Way Extension			
		LOS[a]	Average Delay[b]	Critical Delay[c]	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay	LOS[a]	Average Delay[b]	Critical Delay[c]	Incr. In Critical Delay
1. Encinal and El Camino Real	**AM**	**B**	**16.1**	**12.2**	**B**	**16.1**	**12.2**	**0.0**	**B**	**16.1**	**12.2**	**0.0**
	PM	**B**	**19.3**	**20.6**	**B**	**19.3**	**20.7**	**0.1**	**B**	**19.3**	**20.7**	**0.1**
Eastbound Encinal	AM	D	42.1	42.2	D	42.2	42.3	0.1	D	42.2	42.3	0.1
	PM	D	43.3	48.5	D	43.9	48.6	0.1	D	43.9	48.6	0.1
Westbound Encinal	AM	D	37.4	50.9	D	37.6	51.1	0.2	D	37.6	51.1	0.2
	PM	D	43.3	72.4	E	63.3	73.2	0.8	E	63.3	73.2	0.8
2. Valparaiso/Glenwood and El Camino Real	**AM**	**F**	**> 90**	**> 90**	**F**	**> 90**	**> 90**	**25.8**	**F**	**> 90**	**> 90**	**10.9**
	PM	**D**	**49.7**	**59.0**	**E**	**61.2**	**71.5**	**12.5**	**D**	**54.8**	**60.2**	**1.2**
Eastbound Valparaiso	AM	D	42.2	45.0	D	42.8	45.3	0.3	D	43.0	45.3	0.3
	PM	D	52.7	59.6	**E**	**55.0**	**60.5**	**0.9**	E	55.5	60.5	0.9
Westbound Glenwood	AM	D	46.1	50.4	D	48.1	50.9	0.5	D	48.1	50.9	0.5
	PM	D	52.7	60.5	**E**	**59.5**	**64.5**	**4.0**	E	59.5	64.5	4.0
3. Oak Grove and El Camino Real[d]	**AM**	**D**	**37.0**	**41.4**	**D**	**37.7**	**42.2**	**0.8**	**D**	**39.0**	**44.4**	**3.0**
	PM	**D**	**39.5**	**42.9**	**D**	**48.4**	**60.2**	**17.3**	**D**	**52.0**	**65.1**	**22.2**
Eastbound Oak Grove	AM	D	48.2	44.0	D	53.0	44.0	0.0	D	51.1	44.2	0.2
	PM	D	54.8	> 90	E	66.2	> 90	25.1	E	65.5	> 90	14.4
Westbound Oak Grove	AM	D	49.5	87.5	D	52.3	> 90	3.8	E	55.3	89.7	2.2
	PM	D	54.8	54.9	E	64.1	54.9	0.0	E	77.3	53.5	-1.4
4. Santa Cruz and El Camino Real	**AM**	**C**	**32.6**	**39.5**	**C**	**33.9**	**41.7**	**2.2**	**C**	**33.9**	**41.7**	**2.2**
	PM	**C**	**30.5**	**34.2**	**C**	**33.1**	**37.9**	**3.7**	**C**	**33.1**	**37.9**	**3.7**
Eastbound Santa Cruz	AM	D	39.9	40.2	D	40.3	40.8	0.6	D	40.3	40.8	0.6
	PM	D	50.7	52.6	D	53.2	57.4	4.8	D	53.2	57.4	4.8
Westbound Santa Cruz	AM	D	40.0	40.7	D	40.2	40.7	0.0	D	40.2	40.7	0.0
	PM	D	46.0	46.8	D	46.0	46.8	0.0	D	46.0	46.8	0.0
5. Menlo/Ravenswood and El Camino Real	**AM**	**E**	**55.1**	**64.4**	**E**	**56.6**	**66.4**	**2.0**	**E**	**56.6**	**66.4**	**2.0**
	PM	**F**	**> 90**	**> 90**	**F**	**> 90**	**> 90**	**8.0**	**F**	**> 90**	**> 90**	**8.0**
Eastbound Menlo	AM	D	46.2	47.7	**D**	**48.6**	**48.6**	**0.9**	**D**	**48.6**	**48.6**	**0.9**
	PM	E	55.5	58.0	**E**	**61.5**	**61.5**	**3.5**	**E**	**61.5**	**61.5**	**3.5**
Westbound Ravenswood	AM	D	49.0	56.2	D	52.1	56.2	0.0	D	52.1	56.2	0.0
	PM	E	55.5	> 90	E	79.0	> 90	0.0	E	79.0	> 90	0.0
6. Roble and El Camino Real	**AM**	**B**	**15.2**	**14.7**	**B**	**15.2**	**14.7**	**0.0**	**B**	**15.2**	**14.7**	**0.0**
	PM	**C**	**20.8**	**18.9**	**C**	**20.9**	**19.2**	**0.3**	**C**	**20.9**	**19.2**	**0.3**
Eastbound Roble	AM	D	47.1	47.6	D	47.6	47.6	0.0	D	47.6	47.6	0.0
	PM	D	46.0	46.4	D	46.4	46.4	0.0	D	46.4	46.4	0.0
7. Middle and El Camino Real	**AM**	**C**	**21.9**	**27.5**	**C**	**22.1**	**27.8**	**0.3**	**C**	**22.1**	**27.8**	**0.3**
	PM	**C**	**24.5**	**40.3**	**C**	**25.2**	**41.2**	**0.9**	**C**	**25.2**	**41.2**	**0.9**
Eastbound Middle	AM	D	41.9	56.1	D	44.4	58.2	2.1	D	44.4	58.2	2.1
	PM	D	35.8	57.7	D	39.2	61.6	3.9	D	39.2	61.6	3.9
8. Cambridge and El Camino Real	**AM**	**C**	**25.6**	**31.7**	**C**	**25.7**	**31.9**	**0.2**	**C**	**25.7**	**31.9**	**0.2**
	PM	**C**	**21.8**	**16.5**	**C**	**22.1**	**16.9**	**0.4**	**C**	**22.1**	**16.9**	**0.4**
Eastbound Cambridge	AM	D	44.7	44.9	D	44.9	44.9	0.0	D	44.9	44.9	0.0
	PM	D	44.7	44.8	D	44.8	44.8	0.0	D	44.8	44.8	0.0

Table notes on following page.

Note: Bold/shading = Vehicle delays that would be significantly adversely affected by the proposed project.
[a] Level of service (based on average delay for the subject intersection/approach).
[b] Average control delay (seconds per vehicle) including all movements on the subject intersection/approach.
[c] Average control delay (seconds per vehicle) for the critical movement on the subject intersection/approach.
Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-15: Long-Range Roadway Segment Analysis Results

Roadway	Segment	Street Classification	Existing ADT Volume	Long-Range No Project ADT Volume	Long-Range Project					
					without Garwood Way Ext.			with Garwood Way Ext.		
					Project Trips	Percentage Increase	Significant Traffic Impact?	Project Trips	Percentage Increase	Significant Traffic Impact?
Middlefield Road	North of Glenwood Ave.	Minor Arterial	18,287	23,089	155	0.7%	**yes**	155	0.7%	**yes**
	South of Oak Grove Ave.	Minor Arterial	14,579	18,462	740	4.0%	**yes**	740	4.0%	**yes**
Ravenswood Avenue	East of Laurel St.	Minor Arterial	17,305	20,779	175	0.8%	**yes**	175	0.8%	**yes**
Valparaiso Avenue	West of El Camino Real	Minor Arterial	12,865	14,730	230	1.6%	no	230	1.6%	no
Oak Grove Avenue	West of Laurel St.	Collector	10,251	11,929	525	4.4%	**yes**	965	8.1%	**yes**
	East of Laurel St.	Collector	9,087	10,597	785	7.4%	**yes**	785	7.4%	**yes**
Glenwood Avenue	West of Laurel St.	Collector	5,502	6,437	820	12.7%	**yes**	365	5.7%	no
	East of Laurel St.	Collector	4,567	5,390	210	3.9%	no	210	3.9%	no
Encinal Avenue	East of Laurel St.	Collector	1,193	1,542	155	10.0%	no	155	10.0%	no
Laurel Street	South of Oak Grove Ave.	Collector	3,784	4,251	180	4.2%	no	180	4.2%	no
	North of Glenwood Ave.	Local	439	483	155	32.1%	**yes**	155	32.1%	**yes**
Alma Street	South of Oak Grove Ave.	Local	1,563	1,735	50	2.9%	**yes**	50	2.9%	**yes**
Merrill Street	South of Oak Grove Ave.	Local	2,794	3,202	0	0.0%	no	0	0.0%	no
Garwood Way	South of Glenwood Ave.	Local	96	227	1,050	463.5%	**yes**	595	262.6%	**yes**

ADT = Average Daily Trips
Source: Hexagon Transportation Consultants, Inc., 2009.

In addition, under near-term conditions, the project would result in a significant traffic impact on eight roadway segments without the Garwood Way extension and seven roadway segments with the Garwood Way extension. Under long-range conditions, the project would result in a significant traffic impact on nine roadway segments without the Garwood Way extension and eight roadway segments with the Garwood Way extension. Each of the identified impacts under near-term and long-term conditions is discussed below.

The adversely affected intersections and roadways and recommended mitigation measures are described below. It should be noted that the potential widening of the curb-to-curb distances as part of mitigation measures would likely result in increased pedestrian crossing distances and may require revisions to the current signal timing plans.

Impact TRANS-1: Under long-range conditions, both with and without the Garwood Way extension, the project would cause the average critical delay at the *Middlefield Road and Ravenswood Avenue* intersection to increase by more than 0.8 seconds. (S)

Under long-range no project conditions, the intersection of Middlefield Road and Ravenswood Avenue would operate at LOS E during the AM peak hour. The proposed project, both with and without the Garwood Way extension, would cause the average critical delay at this intersection to increase by 5.3 seconds per vehicle. During the PM peak hour, the addition of project trips both with and without the Garwood Way extension would cause the average critical delay at this intersection to degrade from an acceptable level (LOS D) to an unacceptable level (LOS E).

The construction of either an exclusive southbound right-turn lane or one additional northbound left-turn lane on Middlefield Road at Ravenswood Avenue would satisfactorily mitigate the project's impact at this intersection. Constructing either improvement would require acquiring additional right of way, widening the roadway, relocating utilities, and removing trees. Because the additional right of way necessary to complete either improvement is located within the Town of Atherton, the City of Menlo Park cannot ensure the construction of this improvement. The City of Menlo Park has notified the Town of Atherton of potential improvements. Without either improvement, the impact would be significant and unavoidable.

The implementation of adaptive signal timing could also reduce vehicle delay at this intersection. Adaptive signal timing systems allow the signal controllers to utilize varying signal timing patterns in response to real-time traffic data inputs. The reduction in vehicle delay that could be achieved through the use of adaptive signal timing is difficult to predict since it depends upon the change in traffic volumes since the existing signal timing parameters were last implemented and the level of fluctuations in traffic volumes hour-by-hour and from one day to the next. An analysis of this intersection under long-range project conditions with the optimal (rather than existing) cycle length indicates that average vehicle delay would be reduced by 1.7 seconds (3 percent). However, even with optimal signal timing, the average critical delay at this intersection would still be 3.1 seconds greater than under long-range no project conditions. Thus, the implementation of adaptive signal timing would only partially mitigate the project's impact at this intersection.

Implementation of the following mitigation measures would reduce this impact, but not to a less-than-significant level:

Mitigation Measure TRANS-1: The following three-part measure (TRANS-1a, TRANS-1b, and TRANS-1c) shall be implemented:

Mitigation Measure TRANS-1a (TDM): Prior to the issuance of a certificate of occupancy, the applicant shall submit an adequate Transportation Demand Management (TDM) program accepted and approved by the City of Menlo Park and the City/County Association of Governments (C/CAG) of San Mateo County based on C/CAG standards. The Land Use Component of the Congestion Management Program established by C/CAG requires that new developments that are projected to generate 100 or more net peak-hour trips implement a TDM program that has the capacity to fully reduce the demand for the new peak-hour trips. The applicant is working with City staff to develop a TDM program that complies with these requirements. It is anticipated that the TDM program could include the following measures:

- Provide preferential carpool parking.
- Provide bicycle parking areas for visitors and employees. All bicycle parking shall be located in convenient, safe, and well-lit areas with maximum space for ingress and egress of bicycles.
- Provide an on-site transportation coordinator.
- Provide employee transportation flyers.
- Conduct annual mode-use surveys to determine and better focus transportation coordination efforts.
- Promote Caltrain and SamTrans ridership through an on-site transportation kiosk and project website.
- Contribute to the Menlo Park Shuttle Service.
- Provide project-specific SamTrans maps at an on-site transportation kiosk and project website.
- Provide ride-matching information at an onsite transportation kiosk and project website.
- Provide bicycle maps and resources at an onsite transportation kiosk and project website.

While the effectiveness of particular TDM measures varies from development to development, depending upon location and the features of the surrounding transportation network, it is very unlikely that the proposed TDM program would result in project trip reductions substantial enough to fully mitigate the listed project impacts.

Table IV.E-16 shows the amount of trips that can be credited for each TDM measure based on the guidelines established by the City of Menlo Park. To ensure that worst-case project impacts are identified, the analysis of potential project impacts at study intersections and roadway segments does not take into account any trip reductions for the proposed TDM measures.

Mitigation Measure TRANS-1b (Fee): Concurrent with the building permit submittal, the City shall ensure that the required traffic impact mitigation fee has been submitted. Based on the type and size of the proposed land uses and the existing land uses to be replaced, the project applicant shall contribute the appropriate traffic impact mitigation fees at building permit issuance to be used for various traffic improvement projects throughout the City.

Table IV.E-16: TDM Measure Trip Credits

TDM Measure	Credited Trips
Carpool parking	2 peak hour trips will be credited for each parking spot reserved.
Bicycle-parking areas (60 spaces)	20 peak hour trips (1 peak hour trip will be credited for every 3 new bike lockers/racks installed and maintained).
On-site transportation coordinator	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.
Employee transportation flyers	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.
Annual mode-use surveys	5 peak hour trips will be credited.
Promote Caltrain and SamTrans ridership through on-site transportation kiosk and project website	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trips will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.
Menlo Park Shuttle Service	1 peak hour trip will be credited for each peak-hour round trip seat on the shuttle. Increases to 2 trips if a Guaranteed Ride Home Program is also in place.
Provide project-specific SamTrans maps	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.
Provide ride-matching information	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.
Bicycle maps and resources	1 peak hour trip will be credited for each feature added to the information center; an additional 1 peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants.

Source: Hexagon Transportation Consultants, Inc., 2009.

Based on the current rates, the fee would be approximately $128,104, based on final square footage and land use composition.[3] While the fees paid would help improve traffic conditions by funding needed transportation projects, they would not reduce the identified project impacts to a less-than-significant level.

Mitigation Measure TRANS-1c (Alternative Construction Plans): Prior to building permit issuance, the applicant shall submit a study of construction alternatives for safety and vehicle capacity improvements to the intersection of Middlefield Road and Ravenswood Avenue. The applicant shall work with City of Menlo Park staff, which in turn shall coordinate with Town of Atherton staff, to determine the alternatives to design for the intersection and submit up to four alternative preliminary construction plans for the intersection. Each alternative preliminary construction plan shall include all necessary requirements to construct the improvements, including but not limited to grading and drainage improvements, utility relocations, signal relocations/ modifications, tree protection requirements, sidewalk relocation, curb relocation, median island modifications, right-of-way information (including any necessary additional right of way required), and detailed cost estimates. The applicant shall complete a detailed survey of the area, including right-of-way information, and include this information on each set of plans.

[3] $1.60 per s.f. of net added commercial space • 80,065 s.f. (110,065 s.f. proposed building area less 30,000 s.f. existing building area)

The preliminary construction plans for each alternative shall be designed to City of Menlo Park and Town of Atherton standards and shall be approved by the Director of Public Works for Menlo Park after coordinating with the Town of Atherton. The applicant shall diligently pursue City of Menlo Park approval and shall submit revised plans and documents reasonably required by the City of Menlo Park promptly after receipt of written comments from the City of Menlo Park. (SU)

Impact TRANS-2: Under both near-term and long-range conditions, both with and without the Garwood Way extension, the proposed project would cause the average delay for all movements on the northbound stop-controlled approach to increase by more than 0.8 seconds at the *Alma Street and Oak Grove Avenue* intersection. (S)

Unacceptable levels of service are projected under near-term no project conditions in the PM peak hour and under long-range no project conditions in both the AM and PM peak hours. Under near-term conditions during the PM peak hour, the proposed project would cause the average delay on this approach to increase by 2.7 and 10.7 seconds per vehicle without and with the Garwood Way extension, respectively. Under long-range conditions, without the Garwood Way extension, the proposed project would cause the delay on this approach to increase by 3.1 seconds per vehicle in the PM peak hour. With the Garwood Way extension, the proposed project would cause the delay on this approach to increase by 1.4 seconds per vehicle in the AM peak hour and by 15.5 seconds per vehicle in the PM peak hour. It is likely that the excessive delays projected for the Alma Street approach with the proposed project may cause some drivers to choose to divert to other routes, such as Laurel Street.

The project's impact at this intersection could be fully mitigated through signalization. However, the intersection's proximity to the railroad tracks and to the adjacent intersection at Merrill Street/ Garwood Way would constrain the signal's operation and efficiency. Therefore, signalization is not recommended.

The addition of a northbound left-turn lane would partially mitigate the significant adverse impact on the Alma Street/Oak Grove Avenue intersection. This improvement would allow right-turn traffic to proceed unimpeded by vehicles waiting to turn left. However, the added lane would not reduce the delay experienced by left-turn traffic; furthermore, it would not reduce the average approach delay sufficiently to fully mitigate the project's impact. This improvement would reduce the delay under near-term conditions without the Garwood Way extension to 22.4 and 23.3 seconds during the AM and PM peak hours, respectively. With the Garwood Way extension, the addition of a northbound left-turn lane would reduce the delay to 23.1 seconds and 27.5 seconds during the AM and PM peak hours, respectively. Under long-range conditions, the partial mitigation would reduce the delay to 26.6 seconds during the AM peak hour and 27.2 seconds during the PM peak hour without the Garwood Way extension and 27.6 seconds during the AM peak hour and 33.0 seconds during the PM peak hour with the Garwood Way extension. This improvement could be accomplished within the existing curb-to-curb width by replacing the existing on-street angle parking spaces along the west side of the street with parallel parking spaces. This modification would reduce the existing on-street parking adjacent to the Caltrain station by approximately five spaces. Recent surveys indicate that the on-street parking spaces at this location are heavily utilized. Therefore, this potential improvement is not recommended.

The use of regulatory signage to prohibit left turns on northbound Alma Street at Oak Grove Avenue during the AM and PM peak commute hours is another option that would fully mitigate the project's significant impact at this intersection. A similar turn restriction is currently in place on southbound Alma Street at Ravenswood Avenue from 4:00 to 6:00 p.m. The implementation of a left-turn prohibition on northbound Alma Street at Oak Grove Avenue would affect up to 88 vehicles per hour, causing some traffic to reroute to southbound Alma Street and turn right onto westbound Ravenswood Avenue, and other vehicles to divert from Alma Street to Laurel Street. The diverted traffic caused by this turn restriction would exacerbate the project's significant impact at the El Camino Real/Ravenswood Avenue intersection. Therefore, this potential mitigation measure is not recommended. Implementation of the following mitigation measure would reduce the project's impact to the intersection of Alma Street and Oak Grove Avenue, but not to a less-than-significant level:

> Mitigation Measure TRANS-2: Implement Mitigation Measures TRANS-1a and TRANS-1b. (SU)

Impact TRANS-3: Under both near-term and long-range conditions with the Garwood Way extension, the proposed project would cause the average delay for all movements on the southbound stop-controlled approach to increase by more than 0.8 seconds at the *Garwood Way (Derry Lane)/Merrill Street and Oak Grove Avenue* intersection. (S)

Under near-term conditions during the AM peak hour, the addition of project trips with the Garwood Way extension would cause the stop-controlled southbound Garwood Way (Derry Lane) approach to Oak Grove Avenue to degrade from an acceptable level (LOS C) to an unacceptable level (LOS D). Unacceptable levels of service also are projected under near-term no-project conditions in the PM peak hour and under long-range no-project conditions in both the AM and PM peak hours. Under near-term conditions without the Garwood Way extension, the proposed project would cause the average delay on this approach to increase by 1.6 seconds per vehicle during the PM peak hour. With the Garwood Way extension, the proposed project would cause the average delay on this approach to increase by 4.6 and 80.2 seconds per vehicle during the AM and PM peak hour, respectively. Under long-range conditions without the Garwood Way extension, the proposed project would cause the average delay on this approach to increase by 1.4 seconds per vehicle during the PM peak hour. With the Garwood Way extension, the proposed project would cause the average delay on this approach to increase by 5.4 seconds and by more than 90 seconds per vehicle during the AM and PM peak hour, respectively. As the delays increase, motorists on this approach may accept shorter than normal gaps in which to complete a left turn onto eastbound Oak Grove Avenue, or ultimately reroute their trip to avoid the excessive delay associated with turning left at this location. Implementation of the mitigation measures described in the following paragraphs would reduce this impact, but not to a less-than-significant level.

The project's impact at this intersection could be fully mitigated through signalization. However, the intersection's proximity to the railroad tracks and to the adjacent intersection at Alma Street and Oak Grove Avenue would constrain the signal's operation and efficiency. Therefore, signalization is not recommended. Furthermore, a potential future railroad grade separation would eliminate this intersection entirely.

The use of regulatory signage to restrict northbound Merrill Street and southbound Garwood Way to right turns only at Oak Grove Avenue during the AM and PM peak commute hours is another option that would fully mitigate the project's significant impact at this intersection. A similar turn restriction is currently in force on southbound Alma Street at Ravenswood Avenue from 4:00 to 6:00 p.m. A turn restriction would affect up to 105 vehicles per hour on Garwood Way and 32 vehicles per hour on Merrill Street. As a result of the turn restriction, traffic volumes would increase on Glenwood Avenue west of Laurel Street, on Laurel Street north and south of Oak Grove Avenue, on Alma Street south of Oak Grove Avenue, and on Laurel Street south of Oak Grove Avenue. The diverted traffic caused by this turn restriction would exacerbate the project's significant impact on several key roadway segments and at the Oak Grove Avenue/Alma Street intersection. Therefore, this potential mitigation measure is not recommended. Implementation of the following two-part mitigation measure could reduce the impacts to the Garwood Way/Merrill Street/Oak Grove Avenue intersection, but not to a less-than-significant level.

> Mitigation Measure TRANS-3a: The significant adverse impact on the Garwood Way/Merrill Street/Oak Grove Avenue intersection shall be partially mitigated by adding a southbound right-turn lane. This improvement would allow right-turn traffic to proceed unimpeded by vehicles waiting to turn left or go straight. However, the added lane would not reduce the delay experienced by through or left-turn traffic; furthermore, it would not reduce the average approach delay sufficiently to fully mitigate the project's impact. Under near-term conditions without the Garwood Way extension, the partial mitigation would reduce the delay to 28.2 seconds during the PM peak hour. With the Garwood Way extension, the partial mitigation would reduce the delay to 26.3 and 62.8 seconds during the AM and PM peak hours, respectively. Under long-range conditions without the Garwood Way extension, the delay would be reduced to 33.1 seconds during the PM peak hour. With the Garwood Way extension, the delay would be reduced to 31.6 and 90.6 seconds during the AM and PM peak hour, respectively. This improvement does not require additional right-of-way.
>
> Mitigation Measure TRANS-3b: Implement Mitigation Measures TRANS-1a and TRANS-1b. (SU)

Impact TRANS-4: Under long-range conditions, both with and without the Garwood Way extension, the proposed project would cause the *Middlefield Road and Oak Grove Avenue* intersection to degrade to an unacceptable level of service (LOS E). (S)

Under long-range no project conditions, the intersection of Middlefield Road and Oak Grove Avenue would operate at LOS C during the AM peak hour. The proposed project, both with and without the Garwood Way extension, would cause operation of this intersection to degrade to LOS E.

Physical improvements that would mitigate the project's impact at this intersection entail adding a protected left-turn phase on the north and south approaches and extending the northbound and southbound left-turn pockets by 100 feet to accommodate the anticipated queue length. Constructing this improvement would require installing additional pavement, relocating utilities, and modifying the traffic signal equipment. Because the intersection is located in the Town of Atherton, the City of Menlo Park cannot ensure the implementation of this improvement. Therefore, the impact is considered significant and unavoidable. The City of Menlo Park has notified the Town of Atherton of potential improvements.

Implementation of the following mitigation measure would reduce this impact, but not to a less-than-significant level:

Mitigation Measure TRANS-4: Implement Mitigation Measure TRANS-1a. (SU)

Impact TRANS-5: Under both near-term and long-range conditions the proposed project would cause the average critical delay at the *Middlefield Road and Marsh Road* intersection to increase by more than 4 seconds. (S)

Under both near-term and long-range no-project conditions, the intersection of Middlefield Road and Marsh Road would operate at LOS F during the PM peak hour. Under near-term conditions, both with and without the Garwood Way extension, the project would cause the average critical delay at this intersection to increase by 7.7 and 7.8 seconds per vehicle, respectively. The project would also cause the average critical delay at this intersection to increase by 7.9 seconds per vehicle under long-range conditions, both with and without the Garwood Way extension.

Physical improvements that would mitigate the project's impact at this intersection would entail the addition of a second southbound left-turn lane on Middlefield Road. In order to maintain the proper alignment for through traffic, this improvement would require widening Middlefield Road both north and south of Marsh Road. In addition, it would also be necessary to add a second lane on eastbound Marsh Road to accept a dual left turn from Middlefield Road. Because the intersection is located in the Town of Atherton, the City of Menlo Park can not ensure the construction of the improvement. Therefore, the impact is considered significant and unavoidable. The City of Menlo Park has notified the Town of Atherton of potential improvements.

Implementation of the following mitigation measure would reduce this impact, but not to a less-than-significant level:

Mitigation Measure TRANS-5: Implement Mitigation Measure TRANS-1a. (SU)

Impact TRANS-6: Under both near-term and long-range conditions the proposed project would cause the average delay for all movements on the eastbound stop-controlled approach to increase by more than 4 seconds at the *Middlefield Road and Glenwood Avenue* intersection. (S)

Under both near-term and long-range no-project conditions, the eastbound Glenwood Avenue approach to Middlefield Road would operate at LOS F during the AM and PM peak hours. In the AM peak hour, the proposed project would cause the average delay on this approach to increase by more than 90 seconds per vehicle under near-term conditions and long-range conditions, with and without the Garwood Way extension. Implementation of TRANS-1a would reduce this impact, but not to a less-than-significant level.

Physical improvements that would mitigate the project's impact at this intersection entail signalization. The Town of Atherton is considering installing a traffic signal at the intersection of Middlefield Road and Encinal Avenue. The installation of a new traffic signal would likely attract project traffic that would otherwise have used the Middlefield Road/Glenwood Avenue intersection. Thus, signalization of the intersection would fully offset the significant project impact at the Middlefield Road/Glenwood Avenue intersection.

Although signalization at the intersection would mitigate the significant impact at the Middlefield Road/Glenwood Avenue intersection, a new signal at the Middlefield Road/Encinal Avenue intersection would result in shifts in the existing traffic patterns that would exacerbate the significant project impact on the segment of Laurel Street between Glenwood Avenue and Encinal Avenue and cause a new significant impact on the segment of Encinal Avenue east of Laurel Street. Implementation of the following mitigation measure would reduce this impact, but not to a less-than-significant level:

> Mitigation Measure TRANS-6: Prior to building permit issuance, the applicant shall pay $126,667 to the City as a partial contribution for the installation of a traffic signal and associated roadway improvements at the intersection of Encinal Avenue and Middlefield Road. If the traffic signal is not approved and constructed by the Town of Atherton, or another party, within 3 years of building permit issuance, the City may use such funds for other transportation improvements elsewhere in the City. (SU)

Impact TRANS-7: Under both near-term and long-range conditions the proposed project would cause the average delay for all movements on the eastbound stop-controlled approach to increase by more than 4 seconds at the *Middlefield Road and Encinal Avenue* intersection. (S)

Under both near-term and long-range no-project conditions, the eastbound Encinal Avenue approach to Middlefield Road would operate at LOS F during the AM and PM peak hours. Under near-term conditions, the proposed project would cause the average delay on this approach to increase by more than 90 seconds per vehicle during the AM and PM peak hours, with and without the Garwood Way extension. Under long-range conditions, the proposed project would cause the average delay on this approach in increase by more than 90 seconds per vehicle during the AM and PM peak hours, with and without the Garwood Way extension. Implementation of TRANS-1a would reduce this impact, but not to a less-than-significant level.

The significant impact at the Middlefield Road/Encinal Avenue intersection could be fully mitigated by installation of a new traffic signal at this intersection. Although signalization of the Middlefield Road/Encinal Avenue intersection would fully mitigate the significant impact at this intersection, it would result in shifts in existing traffic patterns that would exacerbate the significant project impact on the segment of Laurel Street between Glenwood Avenue and Encinal Avenue and cause a new significant impact on the segment of Encinal Avenue east of Laurel Street.

> Mitigation Measure TRANS-7: Implement Mitigation Measure TRANS-6. (SU)

Impact TRANS-8: If the Garwood Way extension is not constructed, the proposed project would cause the critical delay on the *westbound Glenwood Avenue approach to El Camino Real* to increase by more than 0.8 seconds per vehicle under long-range project conditions. The proposed project would also cause the critical delay on the *eastbound Valparaiso Avenue approach to El Camino Real* to increase by more than 0.8 seconds per vehicle under long-range project conditions without the Garwood Way extension. (S)

Under long-range no-project conditions, the intersection of Valparaiso Avenue/Glenwood Avenue and El Camino Real would operate at LOS D during the PM peak hour. Without the Garwood Way extension, the proposed project would cause the intersection to degrade to an overall unacceptable level of service (LOS E). Furthermore, the critical delay would increase by 0.9 and 4.0 seconds per

vehicle on the locally-controlled eastbound and westbound approaches, respectively, as a result of the trips generated by the proposed project.

The significant impact at this intersection would occur only if the planned Garwood Way extension is not constructed. Extending Garwood Way southward to connect with Oak Grove Avenue as planned would change project traffic patterns substantially, eliminating the significant project impact at the Valparaiso Avenue/Glenwood Avenue/El Camino Real intersection. The extension of Garwood Way is expected to be constructed as part of the approved Derry Lane Mixed-Use Development as it entails dedication of a portion of the Derry Lane site. If the Derry Lane site is not developed prior to the 1300 El Camino Real site, the construction of the Garwood Way extension cannot be guaranteed due to the need to acquire right of way.

Intersection operations could be improved by the addition of an exclusive right-turn lane on the westbound approach. The improvement would require Caltrans approval and the acquisition of additional right of way. This potential mitigation measure would reduce the delay on the westbound approach to levels that are better than under no project conditions; however, it would not alleviate traffic congestion on the eastbound approach. Thus, this improvement would only partially mitigate the significant project impact at this intersection.

Intersection modifications to replace the split-phase signal control on the east and west approaches with protected left-turn control and simultaneous through movements would improve the overall intersection delay to an acceptable level (LOS D). This improvement would entail signal modifications, restriping, and would result in shifted traffic. Additionally, since this improvement would require Caltrans approval, the City of Menlo Park cannot ensure the construction of this improvement. Thus, this improvement is not recommended at this time.

Converting the northbound right-turn lane to a shared through/right-turn lane, would reduce the project's impact to a less-than-significant level if implemented. However, the City recognizes that the timing and implementation of this measure is outside the jurisdiction and responsibility of the City. Construction of this improvement would require Caltrans approval, and result in the loss of up to 25 on-street parking spaces. Thus, the proposed improvement is not considered feasible.

Implementation of the following mitigation measure would reduce this impact, but not to a less-than-significant level:

> Mitigation Measure TRANS-8: Implement Mitigation Measures TRANS-1a and TRANS-1b. (SU)

Impact TRANS-9: Under both near-term and long-range conditions, the proposed project would cause the critical delay on the *eastbound Menlo Avenue approach to El Camino Real* to increase by more than 0.8 seconds per vehicle. (S)

Under near-term no project conditions, the intersection of Menlo Avenue/Ravenswood Avenue and El Camino Real would operate at an unacceptable level of service (LOS E) during the PM peak hour. Under long-range no-project conditions, the intersection of Menlo Avenue/Ravenswood Avenue and El Camino Real would operate at an unacceptable level of service (LOS E or F) during both the AM and PM peak hours. During the AM peak hour, with or without the Garwood Way extension, the proposed project would cause the critical delay on the locally-controlled eastbound approach to

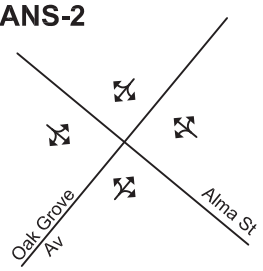
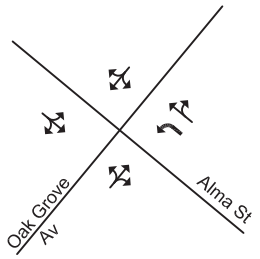
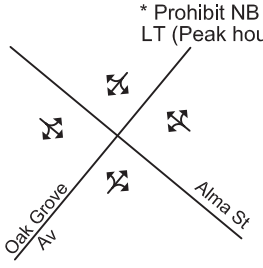
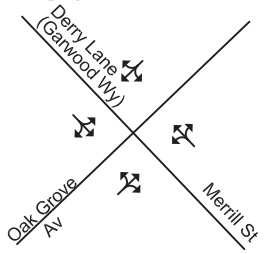
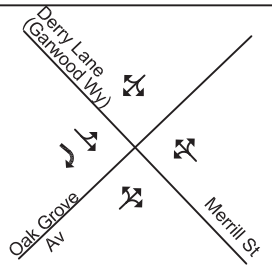
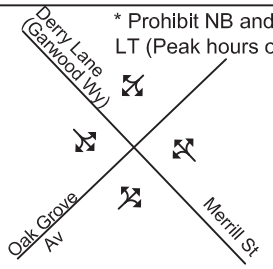
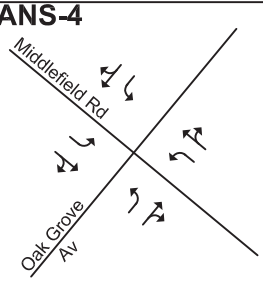
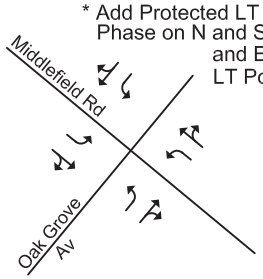
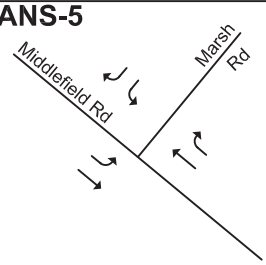
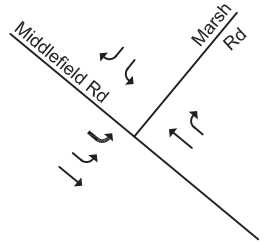
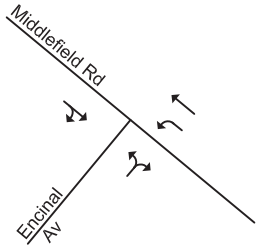
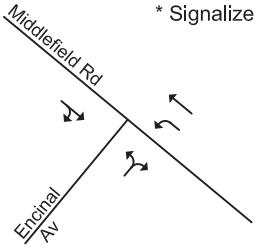
increase by 0.9 seconds under long-range conditions. During the PM peak hour, with or without the Garwood Way extension, the proposed project would cause the critical delay on the locally-controlled eastbound approach to increase by 2.4 seconds under near-term conditions and by 3.5 seconds under long-range conditions. The following mitigation measure, which entails converting the northbound right-turn lane to a through lane and adding a northbound right-turn lane, would reduce the project's impact to a less-than-significant level if implemented. However, because this improvement would require Caltrans approval and the acquisition of additional right of way, the City of Menlo Park cannot ensure the construction of this improvement. Without implementation of the proposed mitigation, the impact would be significant and unavoidable.

The significant adverse impact at this intersection could also be fully mitigated by adding an exclusive right-turn lane on eastbound Menlo Avenue. Constructing this improvement would require the acquisition of additional right-of-way along the south side of Menlo Avenue approximately 8 feet in width for a distance of approximately 130 feet. The necessary right-of-way acquisition would reduce the size of the adjacent surface parking lot, eliminating approximately four parking spaces. Due to the possible impacts that a reduction in parking may cause to the adjacent commercial uses, this potential improvement is not recommended. Implementation of the following mitigation measure would reduce the impact to the intersection, but not to a less-than-significant level:

> Mitigation Measure TRANS-9: Prior to building permit issuance, the applicant shall submit detailed construction plans prepared in accordance with the requirements of both Caltrans and the City of Menlo Park for the construction of an additional dedicated northbound right turn lane and conversion of the existing northbound right turn lane into a through lane at the intersection of El Camino Real and Ravenswood Avenue. The plans shall include all necessary requirements to construct the improvements, including but not limited to, grading and drainage improvements, utility relocations, signal relocations/modifications, tree protection requirements, sidewalk relocation, curb relocation, pedestrian and vehicular entrance improvements/modifications for the adjacent building, median island modifications, striping modifications further north on El Camino Real to merge the lanes into two lanes, and a detailed cost estimate. The plans shall be reviewed and approved by the Director of Public Works prior to submittal to Caltrans.
>
> Within 30 days of approval of the plans by the City of Menlo Park, the applicant shall submit a copy of the Caltrans encroachment permit application. The applicant shall diligently pursue Caltrans approval prior to occupancy of the first building and shall submit revised plans and documents reasonably required by Caltrans promptly after receipt of written comments from Caltrans. If Caltrans has not approved the plans prior to occupancy of the first building, the Director of Public Works shall have the authority to grant an extension to the deadline based on a determination that the applicant has made a good faith effort to obtain the necessary approvals. (SU)

A summary of the significantly affected study intersections and the potential intersection mitigation measures identified above is provided in Table IV.E-17. Figure IV.E-14 presents the identified intersection mitigation measures graphically.

> **Impact TRANS-10: The proposed project would cause increases in daily traffic volumes on selected segments of Middlefield Road, Ravenswood Avenue, Oak Grove Avenue, Glenwood**

	EXISTING PLUS MITIGATION		
EXISTING	OPTION 1	OPTION 2	OPTION 3
TRANS-2 		* Prohibit NB and SB LT (Peak hours only) 	
TRANS-3 		* Prohibit NB and SB LT (Peak hours only) 	
TRANS-4 	* Add Protected LT Phase on N and S Legs and Extend LT Pockets 		
TRANS-5 			
TRANS-6 	* Signalize 		

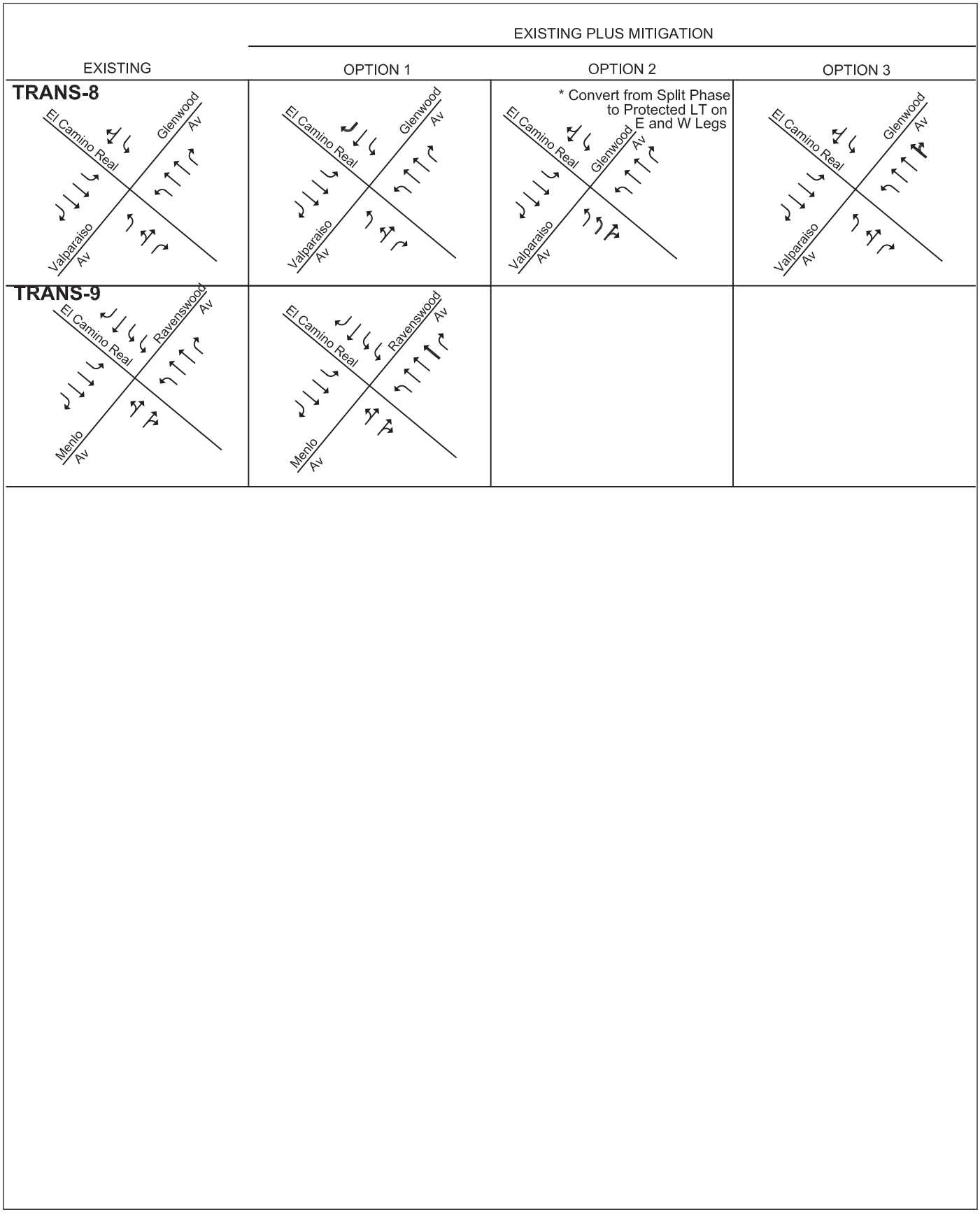
LSA

FIGURE IV.E-14a

1300 El Camino Real Project EIR
Potential Intersection Mitigation Measures

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE14a.ai (2/12/09)



LSA

FIGURE IV.E-14b

NOTE: BOLD ARROWS INDICATE NEW LANES

1300 El Camino Real Project EIR
Potential Intersection Mitigation Measures

SOURCE: HEXAGON TRANSPORTATION CONSULTANTS, INC., 2009.

I:/CMK0601 1300 el camino/figures/Fig_IVE14b.ai (2/12/09)

Table IV.E-17: Summary of Potential Intersection Mitigation Measures

Intersection		Significant Impact?							
#	Description	Near-Term	Long-Range	Potential Mitigation	Jurisdiction	Fully Mitigates Impact?	Feasible?	Additional Right of Way?	Loss of On-Street Parking?
2	Valparaiso Avenue/Glenwood Avenue and El Camino Real	No	No[a]	Implement WB right-turn lane **OR**	Caltrans	No	No	Yes	No
				Eliminate split phase control and add protected left-turn phase for E & W legs. Convert EB shared left/through lane to 2nd left-turn lane and convert EB right-turn lane to shared through/right-turn lane. **OR**	Caltrans	Yes	No	No	No
				Convert NB right-turn lane to 3rd through lane	Caltrans	Yes	No	No	Yes -25 spaces
5	Menlo Avenue/ Ravenswood Avenue and El Camino Real	Yes	Yes	Convert NB right-turn lane to 3rd through lane and add NB right-turn lane. EB right-turn lane not feasible.	Caltrans	**Yes**	Yes	Yes	No
14	Middlefield and Ravenswood	No	Yes	SB right-turn lane **OR**	Atherton	**Yes**	No	Yes	No
				NB left-turn lane **OR**	Atherton	**Yes**	No	Yes	No
				Implement adaptive signal timing	Menlo Park	**No**	No	No	No
17	Alma Street and Oak Grove Avenue	Yes	Yes	Implement NB left-turn lane (signalization is not feasible) **OR**	Menlo Park	**No**	No	No	Yes -5 spaces
				Prohibit NB left-turn (peak hours only)	Menlo Park	**Yes**	No	No	No
19	Garwood Way/Merrill Street and Oak Grove Avenue	Yes	Yes	Implement SB right-turn lane (signalization not feasible) **OR**	Menlo Park	**No**	Yes	No[b]	No
				Prohibit NB and SB left-turn (peak hours only)	Menlo Park	**Yes**	No	No	No
20	Middlefield Road and Oak Grove Avenue	No	Yes	Implement NB/SB protected left-turn phases & extend turn pocket length	Atherton	**Yes**	No	No	No
21	Middlefield Road and Marsh Road	Yes	Yes	Implement 2nd SB left-turn lane	Atherton	**Yes**	No	No	No
22	Middlefield Road and Glenwood Avenue	Yes	Yes	Signalize Middlefield Road/Encinal Avenue	Atherton	**Yes**	Yes	No	No
27	Middlefield Road and Encinal Avenue	Yes	Yes	Signalize Middlefield Road/Encinal Avenue	Atherton	**Yes**	Yes	No	No

[a] Significant impact would result if the Garwood Way extension is not constructed.
[b] To be constructed within planned ROW as part of Derry Lane Mixed-Use Project.
NB=Northbound; EB = Eastbound; SB=Southbound; WB=Westbound
Source: Hexagon Transportation Consultants, Inc., 2009

Avenue, Laurel Street, Alma Street and Garwood Way that exceed the City of Menlo Park's significance criteria. (S)

A summary of the significant adverse impacts of the proposed project on roadway segments is provided in Table IV.E-18. There are no feasible mitigation measures that would reduce the number of project trips on these roadways to a less-than-significant level other than reducing the size of the proposed project (by approximately 95 percent). Therefore, the impact would be significant and unavoidable.

Implementation of the following mitigation measure would reduce this impact, but not to a less-than-significant level:

Mitigation Measure TRANS-10: Implement Mitigation Measures TRANS-1a and TRANS-1b. (SU)

Table IV.E-18: Summary of Significant Adverse Impacts to Roadway Segments

Roadway	Segment	Significant Traffic Impact?	
		Near-Term	Long-Range
Middlefield Road	North of Glenwood Ave.	**yes**	**yes**
	South of Oak Grove Ave.	no	**yes**
Ravenswood Avenue	East of Laurel St.	**yes**	**yes**
Valparaiso Avenue	West of El Camino Real	no	no
Oak Grove Avenue	West of Laurel St.	**yes**	**yes**
	East of Laurel St.	**yes**	**yes**
Glenwood Avenue	West of Laurel St.	no [a]	no [a]
	East of Laurel St.	no	no
Encinal Avenue	East of Laurel St.	no	no
Laurel Street	South of Oak Grove Ave.	no	no
	North of Glenwood Ave.	**yes**	**yes**
Alma Street	South of Oak Grove Ave.	**yes**	**yes**
Merrill Street	South of Oak Grove Ave.	no	no
Garwood Way	South of Glenwood Ave.	**yes**	**yes**

[a] With Garwood Way extension.
Source: Hexagon Transportation Consultants, Inc., 2009

d. Parking Impacts and Mitigation Measures. Under the current parking plan, the proposed project would have a combination of surface parking (98 spaces) and underground garage parking (324 spaces). This parking count does not include on-street parking on Garwood Way or El Camino Real. The entire surface parking lot and the garage would be shared between all proposed uses. Table IV.E-19 shows a comparison of the proposed project parking supply versus the project parking requirements based on the City of Menlo Park's requirements and ITE average parking rates.

Table IV.E-19: Comparison of Parking Requirements for the Proposed Project

Source	Retail (51,365 square feet)	General Office (58,700 square feet)	Total
Menlo Park (by zoning district)	309	352	661
Menlo Park (by use)	257	196	453
ITE Average	244	167	411
Proposed Parking	Shared use		422

Source: Hexagon Transportation Consultants, Inc., 2009

The proposed Planned Development (PD) zoning is not subject to the parking requirements of the underlying zoning designation. Under PD zoning, distinct parking requirements may be approved by the City based on the anticipated parking demand of specific permitted and conditional uses listed in the PD zoning ordinance. In the general commercial (C-4) zoning district, six spaces per 1,000 square feet are required. Applying these rates to the size of the proposed project, the 58,700 square feet of office space would require 352 parking spaces and the 51,365 square feet of retail/market space would require 309 spaces. Based on the parking requirements expressed in the City's zoning ordinance, the project would require 661 parking spaces. The proposed parking supply falls short of the zoning district parking requirements by 180 spaces.

In addition, the proposed parking for the project was compared with the City of Menlo Park's parking rates based on use and the average parking rates published in the Institute of Transportation Engineers' (ITE) *Parking Generation, Third Edition*. The City of Menlo Park's parking rates based on use were established to allow reductions in the City's parking requirements by zoning district through an administrative permit. The parking rates based on use are 1 space per 300 square feet of gross floor area for general office uses and 1 space per 200 square feet of gross floor area for grocery stores (retail uses). Applying these rates, 257 parking spaces would be needed for the proposed retail/market uses and 196 spaces would be needed for the proposed general office space. In total, the project would require 453 spaces based on this method. The proposed on-site parking would fall 30 spaces short.

The ITE *Parking Generation, Third Edition* has the following average parking rates: 4.75 spaces per 1,000 square feet of grocery store uses (Land Use Code 850) and 2.84 spaces per 1,000 square feet of office uses (Land Use Code 701). Utilizing these rates, the project would need 244 spaces for the proposed retail/market uses and 167 spaces for the proposed office space, or 411 parking spaces in total. The project would have adequate parking according to this reference document.

For comparison, the project's parking requirements were also calculated based on the parking requirements in other jurisdictions. The minimum parking ratios expressed in the Zoning Ordinance of other cities are listed in Appendix D. Table IV.E-20 presents the number of parking spaces that would be required of the proposed project in other nearby cities. The comparison shows that Menlo Park's Zoning Ordinance parking requirements for commercial space in the C-4 district are greater than those in any other city surveyed. In contrast, the parking requirement calculated using the City of Menlo Park's parking requirements by use are slightly less than six of the seven other cities surveyed.

The proposed project would benefit from the shared parking arrangement. On Saturdays when the retail/market space parking demand would be at its peak, the office parking demand would likely be low, leaving most of the shared parking spaces available for retail/market patrons and employees. Likewise, on weekdays, when the office parking demand is the greatest, the proposed retail/market space would require approximately 14 percent fewer parking spaces than during its peak period on a Saturday. Table IV.E-21 presents a summary of the parking requirements for each use on weekdays and Saturdays. With shared parking, the proposed parking supply would be adequate to meet the City of Menlo Park's parking requirements based on use.

The project would provide sufficient parking for all users of the proposed project. As a result, no significant impacts related to parking would occur.

Table IV.E-20: Parking Requirements in Other Jurisdictions [a]

City	Grocery Store 51,365 s.f.	General Office 58,700 s.f.	Total	Notes
Palo Alto	257	235	492	"Intensive" retail, outside of California Avenue Parking Assessment (PAA); general business outside of LM district and PAA
San Jose	257	235	492	
San Carlos	172	196	368	
Redwood City	257	196	453	General office w/in 1500 ft. of Caltrain station
Sunnyvale	229	327	556	General Office: in a shopping center"
Mountain View	286	196	482	
Los Altos	257	294	551	
Menlo Park (by zoning district)	309	352	661	Commercial in C-4 district
Menlo Park (by use)	257	196	453	
	Grocery Store	**General Office**	**Total**	
Range	172-309	196-352	**368-661**	
ITE Average	244	167	411	

[a] Note: The parking requirements listed above do not include reductions that may be allowed for shared parking.
Source: Hexagon Transportation Consultants, Inc., 2009.

Table IV.E-21: Parking Requirements with Shared Parking

Use	Size	Weekday	Saturday
Retail/Market	51,365 s.f.	222	257
Office	58,700 s.f.	196	12
	Subtotal Required Spaces	417	269
	Proposed Spaces	422	422
	Parking Surplus/Deficit	5	154
	Peak Hour	2:00pm	2:00pm
Based on the City of Menlo Park's parking requirements by use.			

Source: Hexagon Transportation Consultants, Inc., 2009.

e. Pedestrian/Bicycle Facilities. The proposed project would include sidewalks along the project site frontage on El Camino Real. The proposed project would not have an adverse impact on existing pedestrian or bicycle facilities in the project area.

f. Transit. The project site is within walking distance (¼-mile) of existing transit services, including Caltrain, Menlo Park's midday shuttle, and bus routes operated by the VTA and SamTrans. These transit services have capacity to accommodate the small number of transit riders that would be generated by the project. Thus, the project would not have a significant adverse impact on transit service and no mitigation would be required to reduce significant impacts.

g. Hazards. The intersection of Merrill Street/Oak Grove Avenue and Derry Lane/Oak Grove Avenue is offset, with the Derry Lane intersection located approximately 30 feet east of the Merrill

Street intersection. (Derry Lane at Oak Grove Avenue could be replaced by the southern terminus of an extended Garwood Way.) This offset leads to a situation in which simultaneous left turns into Merrill Street and Derry Lane could interfere with each other. Also, any left turn queues on Oak Grove Avenue waiting to turn onto Merrill Street could back up onto the nearby railroad tracks. These conditions represent possible traffic hazards that could be exacerbated by trips generated by the proposed project.

The average number of vehicles turning left into Derry Lane from Oak Grove Avenue is minimal under existing conditions: one during the AM peak hour and six during the PM peak hour. The proposed project would not add any trips to this movement in the absence of the Garwood Way extension. With the Garwood Way extension, the project would add three trips and eight trips to this movement during the AM and PM peak hours, respectively. The existing number of vehicles turning left from Oak Grove Avenue to Merrill Street is more substantial: 84 during the AM peak hour and 33 during the PM peak hour. The project would add no traffic to this movement with or without Garwood Way extension project scenario.

Queuing calculations were performed to determine the likelihood of simultaneous left turns and queues onto the railroad tracks. The queuing calculation sheets are included in Appendix D. The likelihood of a queue of even one car traveling westbound on Oak Grove Avenue turning south on Merrill Street is less than 9 percent during the AM peak hour and less than 4 percent during the PM peak hour. The likelihood of a queue of two or more cars is less than 1 percent for all scenarios. Even if one or more cars queue on westbound Oak Grove at Merrill Street, Oak Grove Avenue is wide enough for through vehicles to drive around them, precluding a queue that extends over the railroad tracks. The traffic volume is expected to be lower for eastbound left turns onto Garwood Way (proposed Derry Lane). The probability of one car in queue for this movement is approximately 4 percent during both the AM and PM peak hours. Therefore, the probability of simultaneous left turns at Merrill Street and Garwood Way (proposed Derry Lane) is very low, with a total expected duration of only 5 to 7 seconds during each peak hour. Therefore, the intersection offset would not result in a significant vehicle hazard, and would not need to be modified to reduce hazards associated with project-generated trips.