4.13 TRANSPORTATION AND TRAFFIC

This chapter describes the existing traffic conditions of the EA Study Area and evaluates the potential environmental consequences of future development that could occur by adopting and implementing the proposed Housing Element Update, General Plan Consistency Update, and associated Zoning Ordinances amendments, together referred to as the "Plan Components" on transportation and traffic. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan Components and cumulative impacts.

The chapter is based on the traffic analysis prepared by TJKM Transportation Consultants dated March 8, 2013, herein referred to as "Traffic Study." The future baseline traffic volumes have been developed from output of the City/County Association of Governments of San Mateo County (C/CAG) travel demand model run by the Santa Clara Valley Transportation Authority (VTA). The travel demand associated with the Plan Components have been obtained from the C/CAG Model based upon the anticipated future land uses that have been developed resulting from the land use controls under Near-Term 2014 and 2035 conditions.

The complete Traffic Study and technical appendices are included in Appendix F of this EA.

A. Regulatory Framework

1. Federal Laws and Regulations

a. Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency of the United States (U.S.) Department of Transportation (DOT) responsible for the federally-funded roadway system, including the interstate highway network and portions of the primary State highway network, such as Interstate 280 (I-280).

b. Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for people with disabilities. To implement this goal, the US Access Board, an independent Federal agency created in 1973 to ensure accessibility for people with disabilities, has created accessibility guidelines for public rights-of-way. While these guidelines have not been formally adopted, they have been widely followed by jurisdictions and agencies nationwide in the last decade. The guidelines, last revised in July 2011, address various issues, including roadway design practices, slope and terrain issues, and pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian sig-

nals, parking, and other components of public rights-of-way. These guidelines would apply to proposed roadways in the EA Study Area.

2. State Laws and Regulations

a. California Department of Transportation

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. One of its duties is the construction and maintenance of the State highway system. Caltrans approves the planning, design, and construction of improvements for all State-controlled facilities including I-280, US 101, State Route (SR) 82 (El Camino Real), and the associated interchanges for these facilities located in the EA Study Area. Caltrans has established standards for roadway traffic flow and developed procedures to determine if State-controlled facilities require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects.

The following Caltrans procedures and directives are relevant to the Plan Components, particularly State roadway facilities:

- Level of Service Target. Caltrans maintains a minimum level of service (LOS) at the transition between LOS C and LOS D for all of its facilities.[1] Where an existing facility is operating at less than the LOS C/D threshold, the existing measure of effectiveness should be maintained.[2]
- Caltrans Project Development Procedures Manual. This manual outlines pertinent statutory requirements, planning policies, and implementing procedures regarding transportation facilities. It is continually and incrementally updated to reflect changes in policy and procedures. For example, the most recent revision incorporates the Complete Streets policy from Deputy Directive 64-R1, which is detailed below.
- Caltrans Deputy Directive 64. This directive requires Caltrans to consider the needs of non-motorized travelers, including pedestrians, bicyclists, and persons with disabilities, in all programming, planning, maintenance, construction, operations, and project development activities and products. This includes incorporation of the best available standards in all of the Caltran's practices.

[1] Level of service is explained further in Section B.2.a, Level of Service Methodology.

[2] California Department of Transportation, 2002. *Guide for the Preparation of Traffic Impact Studies.*

- Caltrans Deputy Directive 64-RI. This directive requires Caltrans to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans supports bicycle, pedestrian, and transit travel with a focus on "complete streets" that begins early in system planning and continues through project construction and maintenance and operations.
- Caltrans Director's Policy 22. This policy establishes support for balancing transportation needs with community goals. Caltrans seeks to involve and integrate community goals in the planning, design, construction, and maintenance and operations processes, including accommodating the needs of bicyclists and pedestrians.
- Environmental Assessment Review and Comment. Caltrans, as a responsible agency under the California Environmental Quality Act (CEQA), is available for early consultation on projects to provide guidance on applicable transportation analysis methodologies or other transportation related issues, and is responsible for reviewing traffic impact studies for errors and omissions pertaining to the State highway facilities. In relation to this role, Caltrans published the Guide for the Preparation of Traffic Impact Studies (December 2002), which establishes the Measures of Effectiveness as described under "Level of Service Target" above. The Measures of Effectiveness are used to determine significant impacts on State facilities. This Guide also mandates that traffic analyses include mitigation measures to lessen potential project impacts on State facilities and to meet each project's fair share responsibility for the impacts. However, the ultimate mitigation measures and their implementations are to be determined based on consultation between Caltrans, the City of Menlo Park, and the project applicants.

b. Complete Streets Act of 2008

The California Complete Streets Act (Assembly Bill 1358) requires cities and counties, when updating their general plans, to ensure that local streets meet the needs of all users.

c. California Transportation Commission

The California Transportation Commission (CTC) consists of nine members appointed by the Governor. The CTC is responsible for the programming and allocation of funds for the construction of highway, passenger rail, and transit improvements throughout the state, including in the EA Study Area. The CTC is also responsible for managing the State Transportation Improvement Program (STIP) and the State Highway Operation and Protection Program (SHOPP) funding programs.

3. Regional Agencies, Plans, and Policies

a. Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county Bay Area, including San Mateo County. It also functions as the federally mandated metropolitan planning organization (MPO) for the region. It is responsible for regularly updating the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The current RTP, Transportation 2035, was adopted on April 22, 2009. Transportation 2035 was prepared by MTC in partnership with the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC). MTC updates the RTP every four years. *Transportation 2035* specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system, specifying how anticipated federal, State, and local transportation funds will be spent.

MTC has established its policy on Complete Streets in the Bay Area. The policy states that projects funded all, or in part, with regional funds (e.g. federal, State Transportation Improvement Program, bridge tolls) must consider the accommodation of bicycle and pedestrian facilities, as described in Caltrans Deputy Directive 64. These recommendations do not replace locally-adopted policies regarding transportation planning, design, and construction. Instead, these recommendations facilitate the accommodation of pedestrians, including wheelchair users, and bicyclists into all projects where bicycle and pedestrian travel is consistent with current adopted regional and local plans.

b. San Mateo City/County Association of Governments

i. 2011 Congestion Management Plan

The C/CAG is designated as the Congestion Management Agency for the county. C/CAG's Congestion Management Plan (CMP) identifies strategies to respond to future transportation needs, identifies procedures to alleviate and control congestion, and promotes countywide solutions. Pursuant to the US EPA's transportation conformity regulations and the Bay Area Conformity State Implementation Plan (also known as the Bay Area Air Quality Conformity Protocol), the CMP is required to be consistent with the MTC planning process including regional goals, policies, and projects for the Regional Transportation Improvement Program (RTIP).[3] MTC cannot approve any transportation plan, program, or project unless these activities conform to the State Implementation Plan (SIP).

[3] City/County Association of Governments of San Mateo (C/CAG), 2011. Final San Mateo County Congestion Management Program (CMP) 2011. http://www.ccag.ca.gov/pdf/Studies/Final%202011%20CMP_Nov11.pdf.

The CMP roadway system is comprised of 53 roadway segments and 16 intersections, including all of the State highways within the County in addition to Mission Street, Geneva Avenue, and Bayshore Boulevard. The intersections are located mostly along El Camino Real.

ii. Countywide Transportation Plan

The Countywide Transportation Plan was adopted by C/CAG in 2001, to reduce traffic congestion, increase demand for transit, decrease demand for automobile travel, and increase capacity for all modes. The plan also targets to increase the safety, reliability, and convenience of all transportation systems.

iii. Comprehensive Bicycle and Pedestrian Plan 2011

The C/CAG, with support from the San Mateo County Transportation Authority (SMCTA) have developed the 2011 San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) to addresses the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance. Relevant goals and policies are listed as following:

- Goal 2: More People Riding and Walking for Transportation and Recreation
- Policy 2.4: Encourage local agencies and transit operators, such as SamTrans, Caltrain, and BART to work cooperatively to promote bicycling and walking to transit by improving access to and through stations and stops, installing bicycle parking, and maximizing opportunities for on-board bicycle access.
- Policy 2.5: Promote integration of bicycle-related and walking-related services and activities into broader countywide transportation demand management and commute alternatives programs.
- Policy 2.6: Serve as a resource to county employers on promotional information and resources related to bicycling and walking.
- Goal 4: Complete Streets and Routine Accommodation of Bicyclists and Pedestrians
- Policy 4.1: Comply with the complete streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.
- Policy 4.2: For local transportation projects funded by county or regional agencies, encourage that local implementing agencies incorporate complete streets principles as appropriate; that they provide at least equally safe and convenient alternatives if they result in the degradation of bicycle or pedestrian access; and that they provide temporary accommodations for pedestrians and bicyclists during construction.

- Policy 4.5: Encourage local agencies to adopt policies, guidelines, standards, and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area.
- Policy 4.6: Discourage local agencies from removing, degrading, or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative.

c. Bay Area Air Quality Management District

The air quality district that addresses air pollution in the EA Study Area is the BAAQMD. Since a primary source of air pollution in the Menlo Park region is from motor vehicles, air district regulations affect transportation planning in the EA Study Area. The BAAQMD is a public agency tasked with regulating air pollution in the nine-county Bay Area, including San Mateo County. The BAAQMD's goals include reducing health disparities due to air pollution, achieving and maintaining air quality standards, and implementing exemplary regulatory programs and compliance of federal, State, and regional regulations. Air quality impacts are discussed in detail in Chapter 4.2, Air Quality, of this EA.

4. Local Regulations and Policies

a. Menlo Park General Plan

The City of Menlo Park General Plan Land Use and Circulation (adopted 1994, with amendments through 2012) includes goals, policies, and actions relevant to transportation and traffic that would apply to the Plan Components. These include the following:

- Goal II-A: To maintain a circulation system using the Roadway Classification System that will provide for the safe and efficient movement of people and goods throughout Menlo Park for residential and commercial purposes.
- Policy II-A-1: Level of Service D (40 seconds average stopped delay per vehicle) or better shall be maintained at all City-controlled signalized intersections during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and at intersections along Willow Road from Middlefield Road to US 101.
- Policy II-A-2: The City should attempt to achieve and maintain average travel speeds of 14 miles per hour (Level of Service D) or better on El Camino Real and other arterial roadways controlled by the State and at 46 miles per hour (Level of Service D) or better on US 101. The City shall work with Caltrans to achieve and maintain average travel speeds and intersection level of service consistent with standards established by the San Mateo County Congestion Management Plan.

- Policy II-A-3: The City shall work with Caltrans to ensure that average stopped delay on local approaches to State-controlled signalized intersections does not exceed Level of Service E (60 seconds per vehicle).
- Policy II-A-4: New development shall be restricted or required to implement mitigation measures in order to maintain the levels of service and travel speeds specified in Policies II-A-1 through II-A-3.
- Policy II-A-8: New development shall be reviewed for its potential to generate significant traffic volumes on local streets in residential areas and shall be required to mitigate potential significant traffic problems.
- Policy II-A-14: The City staff shall work and consult actively with other agencies that have transportation impacts on the City of Menlo Park.

b. Menlo Park Municipal Code

Other than the existing General Plan, the City of Menlo Park Municipal Code is the primary tool that shapes the form and character of physical development in the City. Standards and regulations established in the Municipal Code are used to implement the goals, objectives, and policies of the General Plan and to regulate all land use within the City.

Title 13, Street, Sidewalks, and Utilities establishes the Transportation Impact Fee (TIF) structure in Chapter 13.26.[4] As described in Section 13.26.020, TIFs are charged as a requirement of development approval to defray the cost of certain transportation improvements required to serve development within the City of Menlo Park. The City levies a TIF, by establishing the nexus among the trips associated with development, their impacts on the transportation system, and the cost to improve the City's impacted transportation system. The detailed TIF study, the current version of which was developed in 2009, establishes the required nexus between anticipated future development in the City of Menlo Park and the need for certain improvements to the local transportation facilities.

The TIF study reviewed the improvement measures on a preliminary level. The adoption of the TIF ordinance does not require the City to construct all of the improvements in the plan. The mix of projects and the details related to each individual project can be modified and prioritized by the Council over time. A more detailed design would need to be developed for each improvement measure prior to implementation.

[4] The City of Menlo Park Transportation Impact Fee was enacted pursuant to the Mitigation Fee Act contained in Government Code Section 66000 et seq. (Ordinance 964 Section 2 (part), 2009).

Not every mitigation measure may ultimately be feasible, depending on variables such as right-of-way acquisition.

c. City's Public Works Department

The City of Menlo Park maintains several environmental programs under the City's Public Works Department. The City's Public Works Department is responsible for developing a more functional and efficient roadway network for the effective movement of people and goods. The division promotes the use of public transit, ride sharing, bicycles, and walking as commuting alternatives to single-occupant automobiles. The City operates a trip reduction program and was the first City on the Peninsula to establish a shuttle program. Transit programs are discussed below under Section B.1.c, Existing Roadway Network.

d. City of Menlo Park Comprehensive Bicycle Development Plan

The 2005 Comprehensive Bicycle Development Plan (Bike Plan) provides a broad vision, strategies, and actions for the improvement of bicycling in the City. The Bike Plan recommends the enhancement of the existing network with the addition of approximately 0.3 miles of new Class I Bike Paths, 3.6 miles of new Class II Bike Lanes, and 16.8 miles of new Class III Bike Routes[5] (see Section B.4 below for a description of bike classifications). Several long-term projects are also identified; including two short Class I connector segments near the Bayfront Expressway and two new bicycle/pedestrian undercrossings, including the Caltrain crossing near Middle Avenue.

The plan outlines new educational and promotional programs aimed at bicyclists and motorists. These programs include bicycle parking improvements, multi-modal (transit) support facilities, bicycle safety and education programs for cyclists and motorists, safe routes to schools programs, community and employer outreach programs, continued development of bikeway network maps, and bike-to-work and school day events, among others. The prioritization and budgeting of individual bicycle improvements takes place through City Council approval of the five-year Capital Improvement Program (CIP). This process incorporates public comment.

The goals of the Bike Plan provide the context for the specific policies and actions discussed in the Bike Plan. The goals provide the long-term vision and serve as the foundation of the Bike Plan, while the policies of the Bike Plan provide more specific descriptions of actions to undertake to implement the Bike Plan.

[5] City of Menlo Park, 2005. *Menlo Park Comprehensive Bicycle Development Plan*.

The following are the relevant bicycle-related goals and policies:

- Goal 1: Expand and Enhance Menlo Park's Bikeway Network.
- Policy 1.1: Complete a network of bike lanes, bike routes, and shared use paths that serve all bicycle user groups, including commuting, recreation, and utilitarian trips.
- Goal 2: Plan for the Needs of Bicyclists.
- Policy 2.1: Accommodate bicyclists and other non-motorized users when planning, designing, and developing transportation improvements.
- Policy 2.2: Review capital improvement projects to ensure that needs of bicyclists and other non-motorized users are considered in programming, planning, maintenance, construction, operations, and project development activities.
- Policy 2.3: Encourage traffic calming, intersection improvements, or other similar actions that improve safety for bicyclists and other non-motorized users.
- Policy 2.4: Require developers to adhere to the design standards identified in this Comprehensive Bicycle Development Plan.
- Goal 3: Provide for Regular Maintenance of the Bikeway Network.
- Policy 3.3: Develop a program to ensure that bicycle loop detectors are installed at all signalized intersections on the bike network and are tested regularly to ensure they remain functional.
- Goal 4: Encourage and Educate Residents, Businesses, and Employers in Menlo Park on Bicycling.
- Policy 4.6: Encourage major Menlo Park employers and retailers to provide incentives and support facilities for existing and potential employees and customers that commute by bicycle.
- Policy 4.9: Promote bicycling as a healthy transportation alternative.

e. Sidewalk Master Plan

The Sidewalk Master Plan[6] identifies segments with no standard walkway or discontinuous walkway facilities; identifies opportunities and constraints for future walkway facilities; recommends changes and additions to existing programs, policies, and municipal codes; and develops prioritization criteria and procedures for installing standard sidewalks.[7] The Sidewalk Master Plan identified priority streets as those roadways

[6] City of Menlo Park, 2009. *Sidewalk Master Plan.*

[7] City of Menlo Park, 2009. *Sidewalk Master Plan.*

that provide network connectivity and access to important pedestrian destinations, such as schools, parks, and downtown. The priority streets make up over a third of the roadways under Menlo Park's jurisdiction. As with bicycle improvements, the prioritization and budgeting of individual sidewalk improvements takes place through City Council approval of the five-year CIP which incorporates public comment.

f. Menlo Park Complete Streets Policy

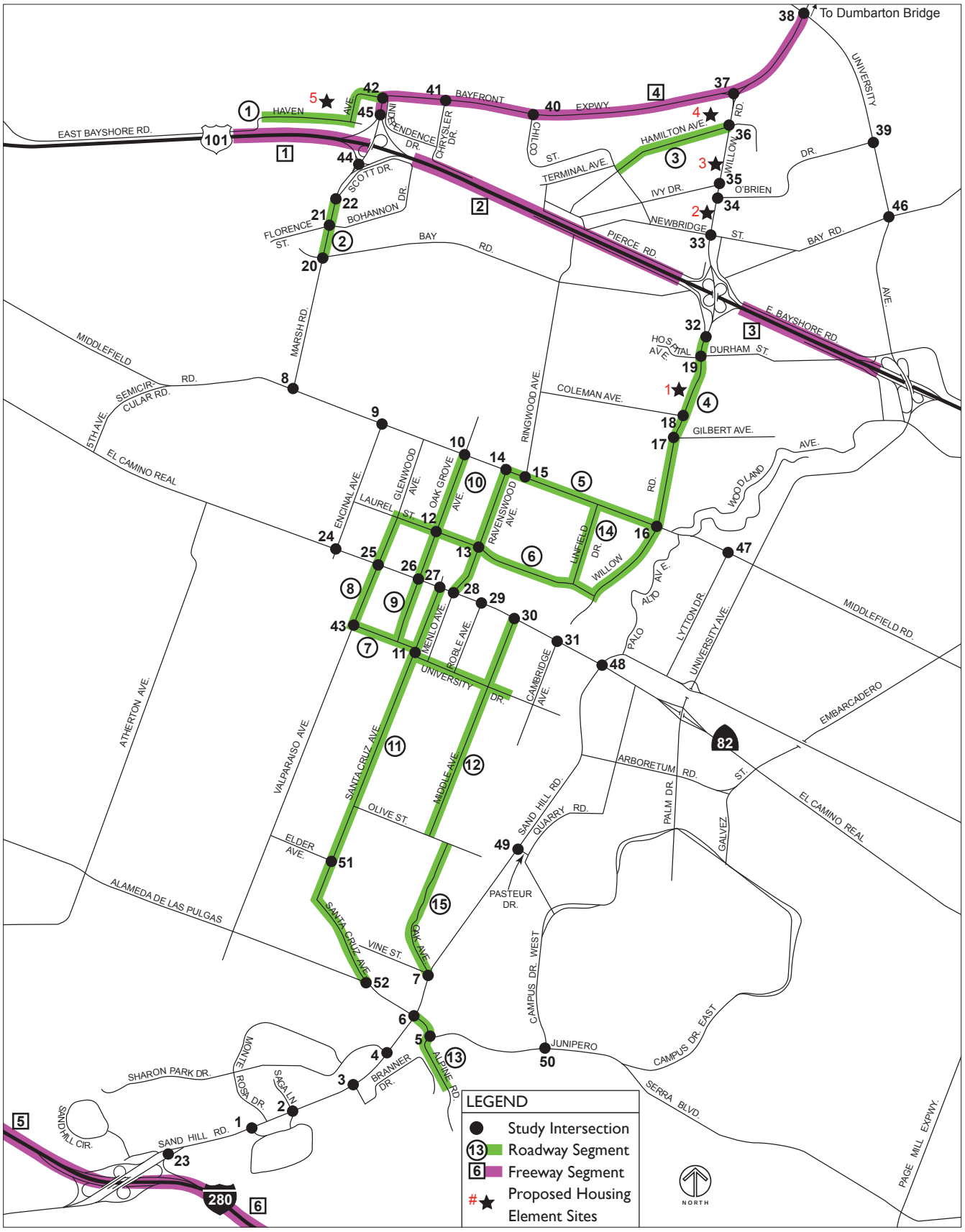
The City's Complete Streets policy was adopted by Resolution No. 6123 by the City Council on March 22, 2013 consistent with AB 1358 to ensure that local streets meet the needs of all users. As described in the Complete Streets Policy, the City of Menlo Park is committed to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel along and across streets (including streets, roads, highways, bridges, and other portions of the transportation system) through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, and families, emergency vehicles and freight.

B. Existing Conditions

This section describes the existing transportation environment in the EA Study Area including roadway network, routes of regional significance, City street system, transit facilities, and bicycle facilities. Figure 4.13-1 shows the existing street network serving Menlo Park. The City of Menlo Park General Plan designates a roadway classification system for the existing roadway network within the City of Menlo Park. Such roadway classification system includes Freeway/Expressway, Primary Arterial, Minor Arterial, Collector, and Local.

1. Routes of Regional Significance Roadway Network

The San Mateo County CMP Land Use Analysis Program guidelines require that Routes of Regional Significance be evaluated in land use impact analysis to identify potential candidates for the capital improvement program. Within the City of Menlo Park, the following freeways/expressways/state highways are designated as Routes of Regional Significance:



Source: TJKM Transportation Consultants.

FIGURE 4.13-1

VICINITY MAP

- US 101 (Bayshore Freeway) is an eight-lane north-south freeway that runs between Los Angeles, California and Olympia, Washington and is a major regional freeway on the San Francisco Peninsula. It connects Menlo Park with the other cities in the San Francisco Peninsula from San Jose to San Francisco. There is one high occupancy vehicle (HOV) lane on both directions within the City of Menlo Park. Two interchanges serve Menlo Park at Willow Road and Marsh Road.
- I-280 (Junipero Serra Freeway) is an eight-lane north-south freeway that connects San Jose with San Francisco. There is one high occupancy vehicle (HOV) lane on both directions within the City of Menlo Park. One interchange serves Menlo Park at Sand Hill Road.
- SR 84 (Bayfront Expressway) is a six-lane east-west expressway that connects the San Francisco Peninsula to the cities on the east side of San Francisco Bay via Dumbarton Bridge. Within the City of Menlo Park, it connects Marsh Road with the Dumbarton Bridge.
- SR 82 (El Camino Real) is a primary north-south arterial that connects San Jose with San Francisco. It enters the City of Menlo Park north of Sand Hill Road as a six-lane arterial, becomes a four-lane arterial near downtown Menlo Park, and exits the City as a five-lane arterial (three southbound lanes and two northbound lanes) north of Encinal Avenue.
- SR 114 (Willow Road) is a primary four-lane east-west arterial that extends from Bayfront Expressway, becomes a minor two-lane arterial at the US 101 interchange, and ends as a two-lane collector at Alma Street.
- SR 109 (University Avenue) is a four-lane east-west street east of US 101 and a two-lane arterial west of US 101 that connects the Bayfront Expressway and the Stanford University. Within the City of Menlo Park, it is a primary four-lane east-west arterial between the City limits and the Bayfront Expressway.

2. City of Menlo Park Street System

a. Freeways and Expressways

As designated in the current City of Menlo Park General Plan, freeways/expressways are access-controlled or limited-access-controlled facilities that carry regional and/or sub-regional traffic. Within the EA Study Area, the following facilities are designated as freeways/expressways:

- US 101
- I-280
- Bayfront Expressway (SR 84)

b. Primary Arterial Streets

Primary Arterial Streets serve major centers of activity and high volume traffic corridors within the urbanized area and accommodate a high proportion of through trips. Within the City, the following streets are designated as primary arterial streets:

- El Camino Real (SR 82)
- Marsh Road between Bohannon Drive and Bayfront Expressway
- Sand Hill Road between I-280 and Santa Cruz Avenue
- University Avenue (SR 109)
- Willow Road (SR 114)

c. Minor Arterial Streets

Minor Arterial Streets interconnect with and augment the freeway and primary arterial street network. Minor Arterial Streets provide greater access to abutting property and carry more locally-oriented traffic than do the Primary Arterial Streets. Within the City, the following streets are designated as minor arterial streets:

- Alameda de las Pulgas
- Alpine Road
- Junipero Serra Boulevard
- Marsh Road between Bay Road and Bohannon Drive
- Middlefield Road
- Newbridge Street between Willow Road and South City Limit
- Ravenswood Avenue
- Sand Hill Road between Santa Cruz Avenue and East City Limit
- Santa Cruz Avenue
- Valparaiso Avenue
- Willow Road between Middlefield Road and Bayshore Expressway

d. Collector Streets

Collector Streets serve to channel the traffic from local streets within residential, commercial, and industrial areas into the arterial system. Within the City, the following streets are designated as collector streets:

- Alma Street
- Avy Road
- Bay Road
- Bohannon Drive

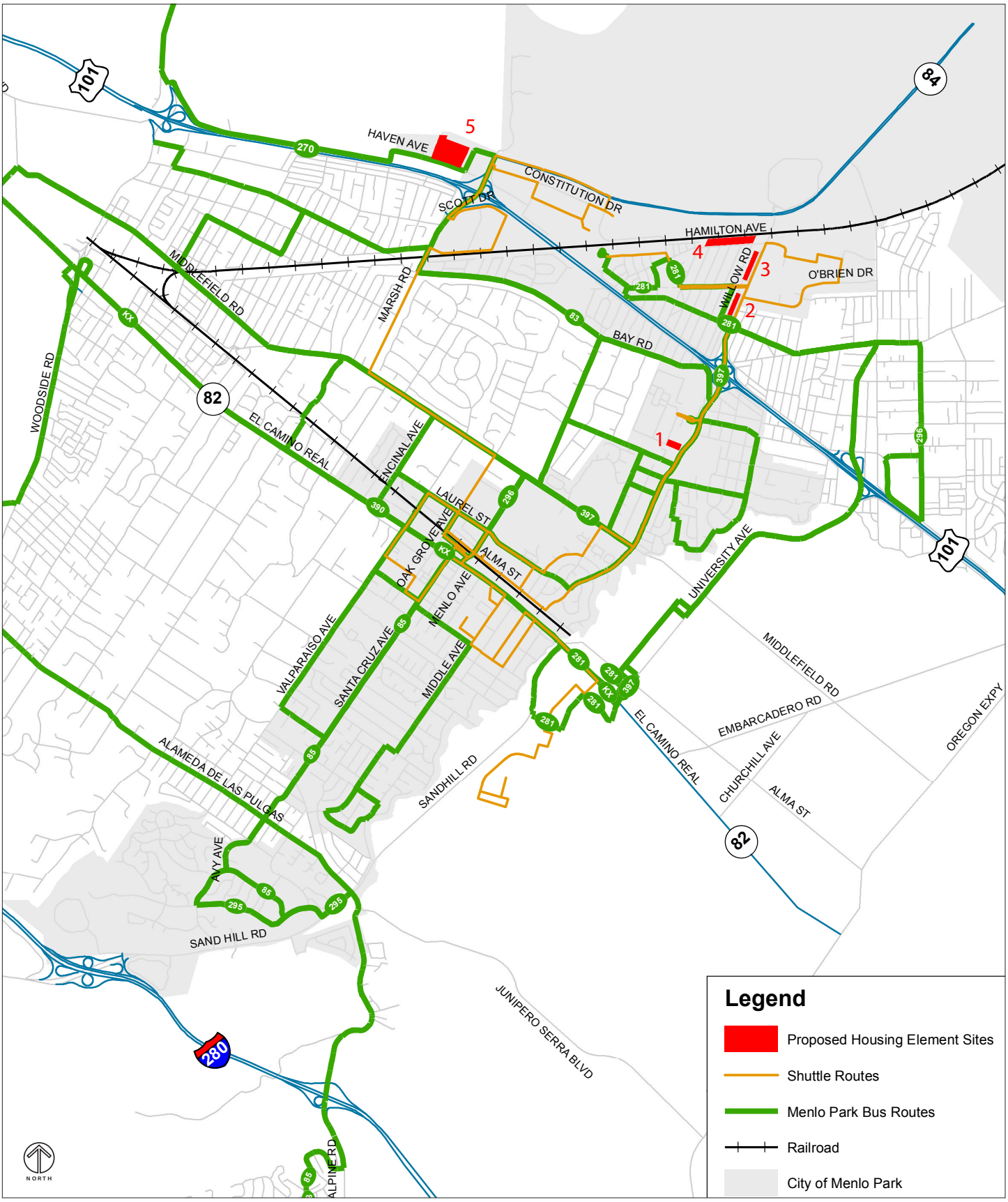
- Chilco Street
- Chrysler Drive
- Constitution Drive
- Crane Street
- Encinal Avenue
- Glenwood Avenue
- Hamilton Avenue
- Haven Avenue
- Laurel Street
- Menlo Avenue
- Middle Avenue
- Newbridge Street between Willow Road and Chilco Street
- O'Brien Drive
- Oak Grove Avenue
- Ringwood Avenue
- Scott Drive
- Sharon Park Drive
- Sharon Road
- University Drive
- Willow Road between Alma Street and Middlefield Road

e. Local Streets

Local Streets primarily carry traffic from the immediate land use and typically serve relatively low volumes of short trips. Within Menlo Park, all streets not otherwise classified are designated local streets.

3. Existing Transit Facilities

The EA Study Area is served by two major transit providers as well as some free shuttles services. San Mateo County Transit District (SamTrans) provides local and regional bus service, and Caltrain provides commuter rail service. Local shuttles are also provided in Menlo Park during commute hours by Caltrain and during midday hours by the City. Both shuttles operate on weekdays (Monday through Friday) only. Transit service and facilities, including bus routes, major bus stops, Caltrain tracks, and the Caltrain station are shown in Figure 4.13-2.



Source: TJKM Transportation Consultants.

FIGURE 4.13-2

EXISTING SHUTTLE AND TRANSIT ROUTES

For fiscal year 2011-2012, Caltrain has proposed a service reduction that could eliminate weekend and off-peak service, among other changes. However, Menlo Park would retain commute-hour service on a par with current service, which would help limit the potential immediate impact on the City. Caltrain and associated transit agencies are currently investigating both short and long-term solutions to restore service to current levels.

a. SamTrans

SamTrans operates bus service in San Mateo County. There are 54 routes in the county that can be categorized as community, express, BART connection, Caltrain connection, and BART and Caltrain connection routes. These routes serve approximately 14,630,000 annual riders. Most bus routes typically operate along major arterial corridors and operate from early morning into the late evening.

- Route KX provides Express and local service to Palo Alto, Menlo Park, Atherton, Redwood City, San Carlos, Belmont, SFO, and San Francisco. In Menlo Park, the route travels through El Camino Real. The mixed-service buses operate approximately every hour through the day.
- Route 83 serves public schools in Menlo Park via various roadways. The route operates on school days only, approximately every 3 to 10 minutes during the school peak periods.
- Route 85 serves Portola Valley, Woodside and Skylonda, via Alameda de Las Pulgas, Alpine Road, and Sharon Park Drive. The route operates on Mondays, Tuesday, Thursdays, and Fridays only, with two buses on both directions during the morning peak period and one southbound bus and four northbound buses in the afternoon.
- Route 281 serves Stanford Shopping Center, Palo Alto Caltrain Station, East Palo Alto, and Onetta Harris Community Center, via Newbridge Street, Bay Road, and University Avenue in Menlo Park. The route operates approximately every 30 minutes through the day.
- Route 295 serves Downtown San Mateo, Hillsdale Shopping Center, Sequoia Hospital, Redwood City, and Menlo Park. In Menlo Park, the route travels through Marsh Road, Bay Road, Willow Road, Middlefield Road, Ravenswood Avenue, Oak Grove Avenue, and Santa Cruz Avenue. The route operates on weekdays only, every 30 to 70 minutes.
- Route 296 serves Redwood City, Atherton, Menlo Park, and East Palo Alto. In Menlo Park, the route travels through Middlefield Road and Willow Road, and connects to the Caltrain Menlo Park station. The route operates about every 5 to10 minutes during the weekday peak hours, and every hour for the rest of operating hours on weekdays and over the weekend.

- Route 390 serves Daly City BART, Colma, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, and Palo Alto, via El Camino Real. The route operates on the weekdays only, with an approximately 30 minutes' headway.
- Route 397 serves San Francisco, South San Francisco, San Francisco International Airport, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, and Palo Alto. In Menlo Park, the route travels through Middlefield Road and Willow Road. The route provides late-night service only, every 60 minutes.
- Route ECR serves Daly City BART, Colma BART, South San Francisco, San Bruno, Millbrae Transit Center, Burlingame, San Mateo, Belmont, San Carlos, Redwood City Caltrain, Menlo Park, and Palo Alto Transit Center, via El Camino Real. The route operates only on weekends, with a 20 to 30 minutes' headway.
- Route 270 mainly provides local service and serves as Caltrain connection in Redwood City. In Menlo Park, the route travels through Havens Avenue and Marsh Road. The route operates every 60 minutes through the day.

i. SamTrans Short Range Transit Plan

Planned short-range improvements to SamTrans service focus on optimizing the current system's condition and performance.[8] These planned improvements include vehicle replacement, vehicle expansion, adding Clipper (formerly TransLink) and other fare collection equipment, installing information technology, and planning for transit oriented development (TOD), defined as being within a reasonable walking distance of a transit station. SamTrans planning efforts are being curtailed by their current financial constraints.

b. Caltrain

Caltrain operates 50 miles of commuter rail between San Francisco and San José, and limited service trains to Morgan Hill and Gilroy during weekday commute periods. Caltrain is owned by the Peninsula Corridor Joint Powers Board, operated under contract with Amtrak, and managed under contract with SamTrans.

On weekdays, Caltrain operates approximately 100 trains per day including local, limited stop, and express services in both directions. Travel time between Menlo Park and San Francisco is approximately 60 minutes and travel time between Menlo Park and San Jose is approximately 40 minutes for local and limited stop services. Caltrain's express service travels between Menlo Park and San Francisco or San Jose in less

[8] San Mateo County Transit District (SamTrans), 2008. *Short Range Transit Plan 2008-2017.*

than 45 minutes or 25 minutes, respectively. Caltrain offers 22 weekday commute-hour express trains, some of which serve Menlo Park southbound in the AM peak period and northbound in the PM peak period.

The Menlo Park Caltrain Station is located east of El Camino Real between Ravenswood Avenue and Santa Cruz Avenue. Lockable, sheltered bike parking is provided adjacent to the station platform, and bus and shuttle access is provided at the nearby bus transfer facility. On weekends, Caltrain operates approximately 30 trains per day with local stops only. Currently, approximately 1,400 passengers board and alight daily at the Menlo Park Caltrain station, including approximately 100 daily passengers with bikes.[9]

i. Caltrain Short-Range Transit Plan

Planned short-range improvements to Caltrain focus on a strategy called the State of Good Repair which will concentrate on a systematic approach in optimizing the current system's condition and performance.[10] These planned improvements include upgrading signaling and communications systems, replacing old bridges, enhancing approach speeds and flexibility at the San Francisco terminus, and eliminating all of the remaining hold-out stations. Hold-out stations are areas where trains are required to wait while another train is in the main station and therefore increase service delays. Planned long-range improvements to Caltrain include electrification of the entire line to improve operating efficiency and provide environmental benefits. Caltrain planning efforts are being curtailed by their current financial constraints.

c. Free Shuttles

Two employee shuttles are provided between the Menlo Park Caltrain station and Marsh Road/Willow Road office buildings during the commute hours. These shuttles, which operate during the AM and PM peak hours, take passengers from Caltrain to their workplaces, schools, shopping, or appointments. The Willow and Marsh bus routes carried 51,000 passengers in 2010. These two shuttles are funded jointly by the BAAQMD Transportation Fund for Clean Air, Peninsula Corridor Joint Powers Board, and the City of Menlo Park and local employers. The shuttles operate based on the Caltrain schedule.

The City also provides a free community midday shuttle service during weekdays approximately every hour. The free shuttle is a community service route open to the general public but focusing on the senior community. The major stops include Menlo Park Library, Belle Haven library, Menlo Park Senior Center, downtown Menlo Park, Caltrain, Menlo Medical Clinic, Safeway, Little House, Stanford Shopping Center,

[9] Peninsula Corridor Joint Powers Board (Caltrain), 2008. *Short Range Transit Plan 2008-2017*.

[10] Peninsula Corridor Joint Powers Board (Caltrain), 2008. *Short Range Transit Plan 2008-2017*.

and Stanford Medical Center. The shuttle stops at all SamTrans stops. It is also a flag down service for the convenience of the passengers. For residents who do not live within an easy walking distance of a SamTrans stop or the Midday shuttle service stop, Menlo Park offers a shuttle service that picks up passengers at their homes and provides rides to specific shopping areas.[11]

d. Other Transit Services

In addition, *Dumbarton Express Bus Service line DB*, administered and governed by the Alameda-Contra Costa Transit District, serves commuters between Stanford University and the East Bay, via SR 84, Willow Road, and University Avenue. The bus line operates on weekdays only every 30 to 45 minutes.

4. Existing Bicycle Facilities

Bikeway planning and design in California typically relies on the guidelines and design standards established by Caltrans in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design).[12,13] Chapter 1000 follows standards developed by the American Association of State Highway and Transportation Officials and the FHWA, and identifies specific design standards for various conditions and bikeway-to-roadway relationships. Under California Law, bicyclists are allowed to use all roadways in California unless posted as closed. Therefore, even for the roadways that have no designated (or planned) bikeways identified, a majority are open for cycling.

The three types of bikeways identified by Caltrans are described below:

- Class I Bikeway. Typically called a "bike path," a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway.
- Class II Bikeway. Often referred to as a "bike lane," a Class II bikeway provides a striped and stenciled lane for one-way travel on a street or highway.
- Class III Bikeway. Generally referred to as a "bike route," a Class III bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing.

[11] City/County Association of Governments of San Mateo (C/CAG), 2011. Final San Mateo County Congestion Management Program (CMP) 2011. http://www.ccag.ca.gov/pdf/Studies/Final%202011%20CMP_Nov11.pdf.

[12] California Department of Transportation, 2002. Guide for the Preparation of Traffic Impact Studies.

[13] California Department of Transportation, 2006. Highway Design Manual, 6th Edition.

The existing and proposed bicycle facilities in the EA Study Area identified in the Bike Plan are illustrated in Figure 4.13-3. Currently, there are a total of 2.83 miles of bike path in Menlo Park, including Dumbarton Bridge and Bayfront Expressway Bike Path, Bayfront Park Bike Paths, and Alpine Road Class I. In addition, there are a total of 16.44 miles of bike lane and 0.2 miles of bike route along various arterials and collectors in the City.

5. Existing Pedestrian Facilities

A survey of the existing pedestrian facilities was prepared as part of the City of Menlo Park's 2009 Sidewalk Master Plan. The existing pedestrian facilities within the EA Study Area include off-street paths, sidewalks along roadways, pedestrian signals, and crosswalks. Two main types of crosswalks exist: marked (striped) crosswalks and unmarked (no striping) crosswalks. Controlled, marked crosswalks include those striped and controlled by traffic/pedestrian signals or stop signs. Uncontrolled, marked crosswalks can exist mid-block or at intersections with side-street stop control only (or all-way yield control intersection with low volumes).

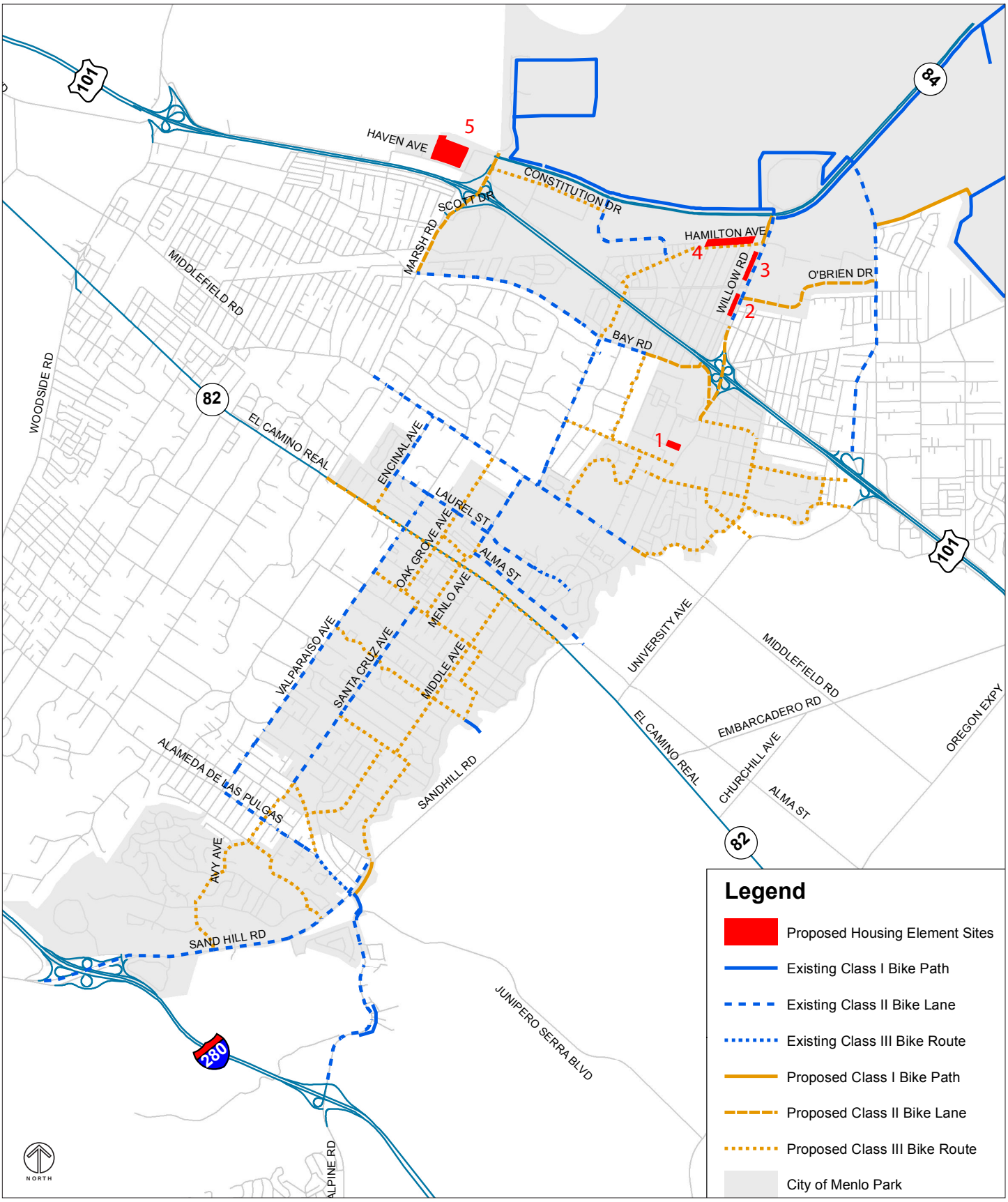
C. Existing Traffic Operations

1. Intersection Peak Hour Traffic Volumes

Intersection operations are evaluated for the weekday AM and PM peak hours. These conditions represent the regularly occurring peak time for the potential land uses under the Plan Components. Under the existing conditions scenario the current 2012 traffic volumes and roadway conditions are based on existing counts provided by City staff, including AM and PM peak hour turning movement counts for the study intersections.

2. Intersection Level of Service

The operational performance of a roadway network is commonly described with the term level of service. The level of service describes the operating conditions experienced by persons on a transportation system. For motorized vehicles, level of service is a qualitative measure of the effects of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. The level of service are designated LOS A through F, from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity (free flow conditions), while LOS F represents conditions where traffic demands exceed capacity and the flow of traffic breaks down, resulting in stop-and-go conditions and long queues of vehicles. The level of service methodology is detailed in Appendix A of the Traffic Report (see Appendix F of this EA).



Source: TJKM Transportation Consultants.

FIGURE 4.13-3

EXISTING AND PROPOSED BICYCLE FACILITIES

a. Signalized Intersections

Operating conditions at the EA Study Area intersections were evaluated using the methodology outlined in the 2000 Highway Capacity Manual (HCM 2000) Operations. A signalized intersection's delay measured in seconds-per-vehicle. Control delay includes initial deceleration based on the weighted average control delay measured in seconds-per-vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration.

Table 4.13-1 summarizes the relationship between the control delay and level of service for signalized intersections.

3. Intersection Levels of Service Standards

a. Caltrans

As previously stated, Caltrans endeavors to maintain a target service level at the transition between LOS C and LOS D on State highway facilities; however, the agency acknowledges that this may not always be feasible, particularly in urban environments where right-of-way is constrained. Where maintaining LOS C/D is not feasible, Caltrans attempts to maintain the existing level of service when assessing the impact of new development. A volume-to-capacity ratio of 0.80 corresponds to the C/D threshold.

b. C/CAG 2011 CMP Intersection Standards

The C/CAG level of service standards for the CMP roadway system are described as below:

- LOS D: Bayfront Expressway (SR 84) between US 101 and Willow Road
- LOS E: Bayfront Expressway (SR 84) between Willow Road and University Avenue
- LOS F: US 101
- LOS D: I-280
- LOS F: Intersection of Bayfront Expressway (SR 84) and University Avenue (SR 109)
- LOS F: Intersection of Bayfront Expressway (SR 84) and Willow Road (SR 114)
- LOS F: Intersection of Bayfront Expressway (SR 84) and Marsh Road

c. Menlo Park Standards for Intersections on Arterial Streets

The addition of project traffic causes an intersection operating at LOS D or better degrade to LOS E or F; or have an increase of 23 seconds or greater in average vehicle delay; or causes an increase of more than 0.8 seconds of average delay to vehicles on the most critical movements for intersections operating at LOS E or F prior to the addition of project traffic.

TABLE 4.13-1 **SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0

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

d. Menlo Park Standards for State Controlled Intersections

The addition of project traffic causes an intersection operating at LOS D or better degrade to LOS E or F; or have an increase of 23 seconds or greater in average vehicle delay; or causes an increase of more than 0.8 seconds of average delay to vehicles on the most critical movements for intersections operating at LOS E or F prior to the addition of project traffic.

e. Menlo Park Standards for Intersections on Collector Streets

The addition of project traffic causes an intersection operating at LOS C or better degrade to LOS D, E, or F; or have an increase of 23 seconds or greater in average vehicle delay; or causes an increase of more than 0.8 seconds of average delay to vehicles on the most critical movements for intersections operating at LOS D, E, or F prior to the addition of project traffic.

f. Palo Alto Intersection Standards

The addition of project traffic causes an intersection operating at LOS E or better degrade to LOS F; or for intersections currently operating at LOS F causes an increase of more than 4 seconds of average delay to vehicles on the most critical movements, and an increase of more than 0.01 of volume-to-capacity (v/c) ratio.

g. Town of Atherton Intersections Standards

The addition of project traffic causes an intersection operating at LOS D or better degrade to LOS E or F; or causes an intersection operating at LOS E to LOS F; or have an increase of 4 seconds or greater in average vehicle delay for intersections currently operating at LOS F.

h. County of San Mateo Intersection Standards

San Mateo County does not have specific level of service standards for intersections under the County's jurisdiction. Therefore, the Traffic Report prepared for the Plan Components applied the City of Menlo Park standards for intersections under the County's jurisdiction.

i. County of Santa Clara Intersection Standards

The addition of project traffic causes an intersection operating at LOS F an increase of more than 4 seconds of average delay to vehicles on the most critical movements, and an increase of more than 0.01 of volume-to-capacity (v/c) ratio.

4. Existing Levels of Service

The level of service was evaluated for the 52 intersections in the EA Study Area under existing 2012 conditions. Detailed level of service calculations are contained in Appendix C of the Traffic Report (see Appendix F of this EA). Figures 4.13-4a and 4.13-4b illustrates the existing peak hour turning movement volumes at the study intersections, as well as existing lane geometry and traffic controls.

As shown in Table 4.13-2 under existing 2012 conditions, three of the 52 study intersections operate at unacceptable levels of service at the PM peak hour as described below:

- Middlefield Road and Willow Road (Menlo Park) operates at LOS E
- Bayfront Expressway and University Avenue (Caltrans) operates at LOS F
- Bayfront Expressway and Marsh Road (Caltrans) operates at LOS E

5. Roadway and Freeway Volumes

The Average Daily Traffic Volume (ADT) and level of service was analyzed for 15 local roadway and six freeway segments. Appendix B of the Traffic Report (see Appendix F of this EA) includes the data sheets for the roadway segment ADT counts. The selected study roadway and freeway segments are shown on Figure 4.13-1.

6. Roadway and Freeway Standards

a. Menlo Park Standards for Minor Arterial Streets

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

b. Menlo Park Standards for Collector Streets

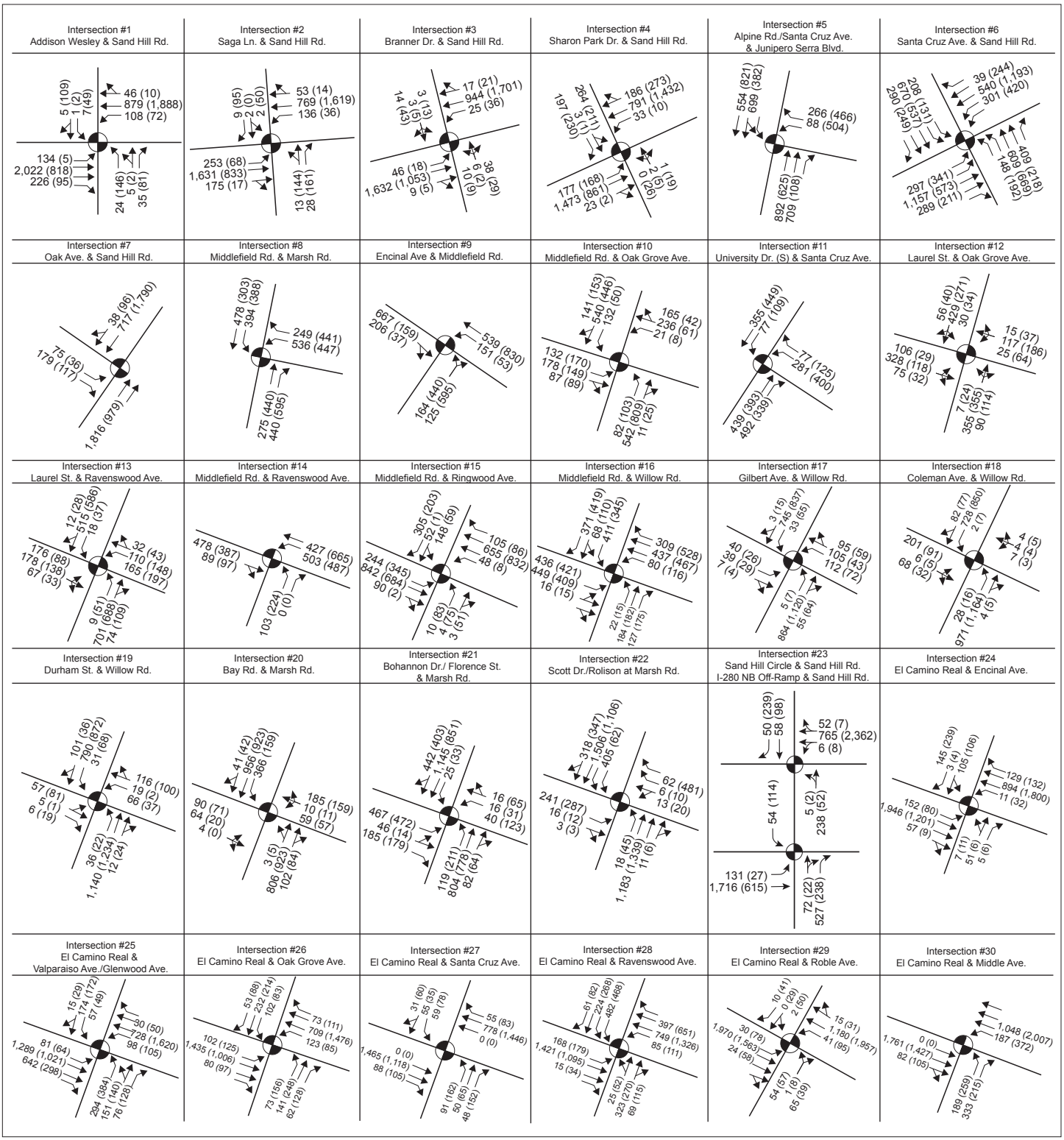
If the existing ADT is: (1) greater than 9,000 (90 percent of capacity), and there is a net increase of 50 trips or more in ADT due to project related traffic; (2) the ADT is greater than 5,000 (50 percent of capacity) but less than 9,000, and the project related traffic increases the ADT by 12.5 percent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

c. Menlo Park Standards for Local Streets

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 the project related traffic increases the ADT by 12.5 percent or the ADT becomes 1,350; or (3) the ADT is less than 750, and the project related traffic increases the ADT by 25 percent.

d. San Mateo County Standards for Freeway Segments

If the addition of project traffic causes a freeway segment to operate at a level of service that violates the standard adopted in the current San Mateo County CMP; or increases traffic demand by an amount equal to one percent or more of the segment's capacity for a segment violating the CMP level of service prior to the addition of project traffic.



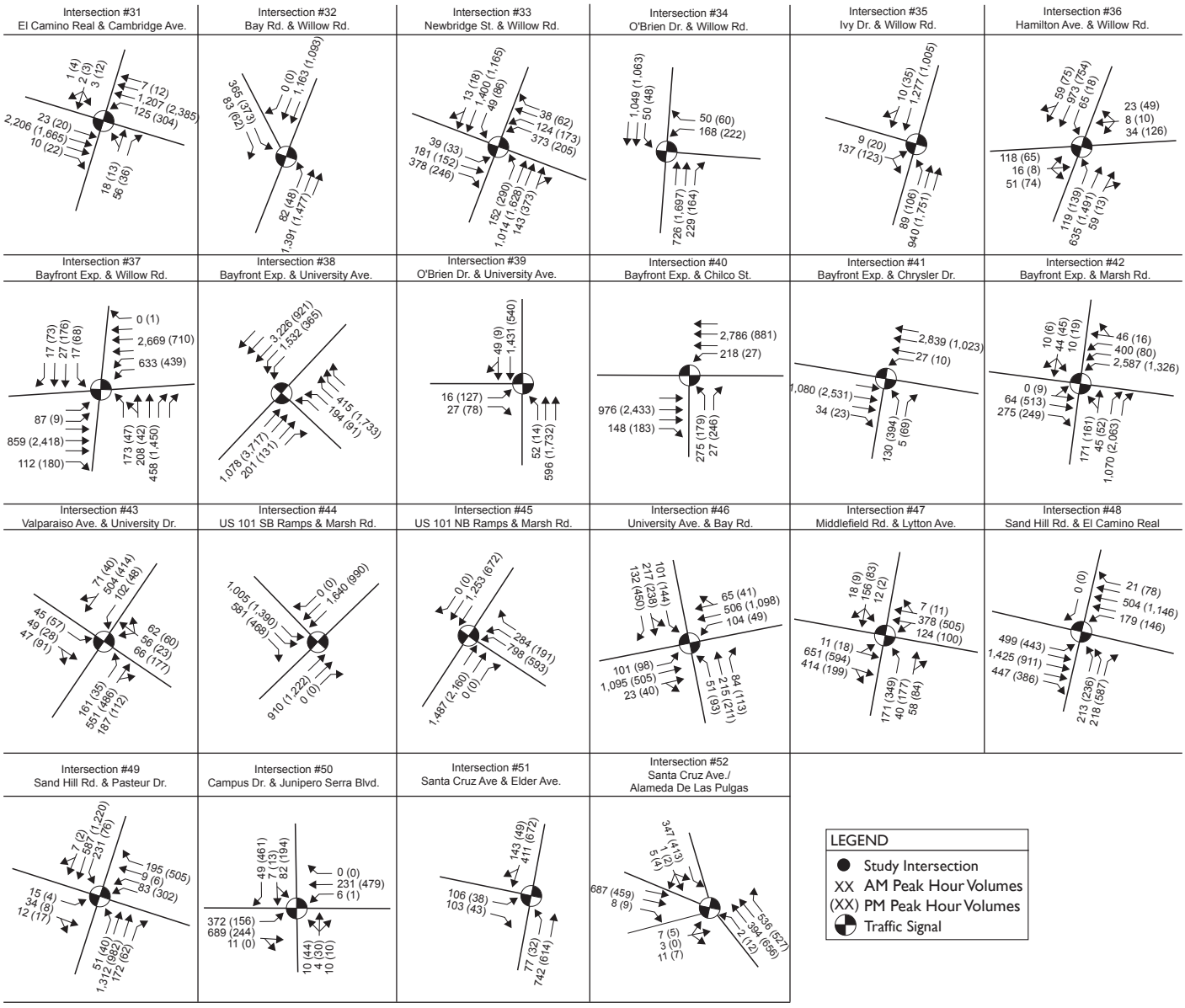
Source: TJKM Transportation Consultants.

LEGEND

- ● Study Intersection
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Traffic Signal

FIGURE 4.13-4A

EXISTING CONDITIONS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS



Source: TJKM Transportation Consultants.

FIGURE 4.13-4B

EXISTING CONDITIONS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS

TABLE 4.13-2 **INTERSECTION LEVELS OF SERVICE – 2012 EXISTING CONDITIONS**

					AM Peak Hour		PM Peak Hour	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)
1	Addison Wesley and Sand Hill Rd.	Signal	Menlo Park	D	B	11.4	B	17.5
2	Saga Ln. and Sand Hill Rd.	Signal	Menlo Park	D	A	8.4	B	11.8
3	Branner Dr. and Sand Hill Rd.	Signal	Menlo Park	D	A	4.5	A	5.4
4	Sharon Park Dr. and Sand Hill Rd.	Signal	Menlo Park	D	C	21.9	C	25.2
5	Alpine Rd./Santa Cruz Ave. and Junipero Serra Blvd.	Signal	Menlo Park	D	D	52.4	D	48.3
6	Santa Cruz Ave. and Sand Hill Rd.	Signal	Menlo Park	D	D	45.0	D	45.3
7	Oak Ave. and Sand Hill Rd.	Signal	Menlo Park	D	B	10.6	A	6.2
8	Middlefield Rd. and Marsh Rd.	Signal	Atherton	D	C	25.7	C	26.7
9	Encinal Ave. and Middlefield Rd.	Signal	Atherton	D	B	19.8	A	9.8
10	Middlefield Rd. and Oak Grove Ave.	Signal	Atherton	D	B	13.7	B	10.5
11	University Dr. (S) and Santa Cruz Ave.	Signal	Menlo Park	D	B	12.2	B	15.6
12	Laurel St. and Oak Grove Ave.	Signal	Menlo Park	C	B	14.8	B	11.6
13	Laurel St. and Ravenswood Ave.	Signal	Menlo Park	D	B	16.3	B	12.7
14	Middlefield Rd. and Ravenswood Ave.	Signal	Menlo Park	D	C	23.9	D	35.5
15	Middlefield Rd. and Ringwood Ave.	Signal	Menlo Park	D	C	27.4	C	26.3
16	Middlefield Rd. and Willow Rd.	Signal	Menlo Park	D	D	47.6	E	62.2
17	Gilbert Ave. and Willow Rd.	Signal	Menlo Park	D	B	12.9	A	9.4
18	Coleman Ave. and Willow Rd.	Signal	Menlo Park	D	B	17.1	A	9.5
19	Durham St. and Willow Rd.	Signal	Menlo Park	D	B	12.1	B	11.8

TABLE 4.13-2 **INTERSECTION LEVELS OF SERVICE – 2012 EXISTING CONDITIONS**

					AM Peak Hour		PM Peak Hour	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)
20	Bay Rd. and Marsh Rd.	Signal	Menlo Park	D	B	17.6	B	13.1
21	Bohannon Dr./Florence St. and Marsh Rd.	Signal	Menlo Park	D	C	33.6	D	39.5
22	Scott Dr./Rolison Rd. and Marsh Rd.	Signal	Menlo Park	D	C	25.3	D	40.1
23	Sand Hill Circle and Sand Hill Rd.	Signal	Menlo Park	D	C	25.8	C	32.5
	I-280 NB Off-Ramp and Sand Hill Rd.	Signal	Caltrans	D	C	22.1	C	21.2
24	El Camino Real and Encinal Ave.	Signal	Caltrans	D	B	15.8	B	18.9
25	El Camino Real and Valparaiso Ave./Glenwood Ave.	Signal	Caltrans	D	C	32.3	C	34.1
26	El Camino Real and Oak Grove Ave.	Signal	Caltrans	D	C	30.3	C	32.6
27	El Camino Real and Santa Cruz Ave.	Signal	Caltrans	D	B	12.6	B	18.3
28	El Camino Real and Ravenswood Ave./Menlo Ave.	Signal	Caltrans	D	D	39.4	D	41.7
29	El Camino Real and Roble Ave.	Signal	Caltrans	D	B	11.9	B	16.7
30	El Camino Real and Middle Ave.	Signal	Caltrans	D	C	29.3	D	45.0
31	El Camino Real and Cambridge Ave.	Signal	Caltrans	D	B	11.4	B	15.2
32	Bay Rd. and Willow Rd.	Signal	Caltrans	D	C	20.0	B	19.5
33	Newbridge St. and Willow Rd.	Signal	Caltrans	D	D	50.2	D	40.7
34	O'Brien Dr. and Willow Rd.	Signal	Caltrans	D	B	15.3	D	37.9
35	Ivy Dr. and Willow Rd.	Signal	Caltrans	D	B	13.7	B	12.6
36	Hamilton Ave. and Willow Rd.	Signal	Caltrans	D	C	24.2	C	22.7

TABLE 4.13-2 **INTERSECTION LEVELS OF SERVICE – 2012 EXISTING CONDITIONS**

					AM Peak Hour		PM Peak Hour	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)
37	Bayfront Exp. and Willow Rd.	Signal	Caltrans	D	C	22.1	D	42.0
38	**Bayfront Exp. and University Ave.**	**Signal**	**Caltrans**	**D**	**C**	**22.0**	**F**	**124.6**
39	O'Brien Dr. and University Ave.	Signal	Caltrans	D	A	5.5	A	9.5
40	Bayfront Exp. and Chilco St.	Signal	Caltrans	D	B	19.4	B	16.3
41	Bayfront Exp. and Chrysler Dr.	Signal	Caltrans	D	A	8.0	C	21.4
42	**Bayfront Exp. and Marsh Rd.**	**Signal**	**Caltrans**	**D**	**C**	**34.1**	**E**	**67.7**
43	Valparaiso Ave. and University Dr.	Signal	Menlo Park	D	B	13.0	B	15.6
44	US 101 SB Ramps and Marsh Rd.	Signal	Caltrans	D	C	23.9	C	21.0
45	US 101 NB Ramps and Marsh Rd.	Signal	Caltrans	D	B	15.8	B	16.3
46	University Ave. and Bay Rd.	Signal	Caltrans	E	C	25.6	C	32.7
47	Middlefield Rd. and Lytton Ave.	Signal	Palo Alto	E	D	35.2	D	36.8
48	Sand Hill Rd. and El Camino Real	Signal	Caltrans	D	C	21.3	C	24.2
49	Sand Hill Rd. and Pasteur Dr.	Signal	Palo Alto	E	C	22.9	C	26.9
50	Campus Dr. and Junipero Serra Blvd.	Signal	Santa Clara Co.	E	B	17.7	C	33.7
51	Santa Cruz Ave. and Elder Ave.	Signal	Menlo Park	D	B	13.2	A	6.0
52	Santa Cruz Ave./ Alameda De Las Pulgas	Signal	San Mateo Co.	D	B	11.9	B	12.2

Notes: 1. LOS = Level of Service, Delay = Average control delay per vehicle
2. Delay/LOS are for overall intersection
3. **Bold** indicates unacceptable operational conditions based on applicable City/Caltrans standards.

Source: TJKM Transportation Consultants, March 2013.

7. Existing Roadway and Freeway Volumes

a. 2012 Roadway Volumes

For the roadway segments, the ADTs are over 32,000 vehicles per day for the primary arterial segments. As shown in Table 4.13-3, one primary and 14 minor arterial segments exceed 90 percent capacity with ADTs over 18,000 vehicles per day, and the remaining four minor arterial segments are at less than 50 percent capacity with ADTs less than 10,000 vehicles per day. Three collector street segments exceed 90 percent capacity with ADTs over 9,000 vehicles per day, and nine collector streets exceed 50 percent capacity with ADTs over 5,000 vehicles per day. The remaining three collector streets have ADTs less than 5,000 vehicles per day. The two local street segments both exceed 90 percent capacity with ADTs over 1,350 vehicles per day.

b. 2012 Freeway Volumes

Per the 2011 CMP Monitoring Report, the freeway segments operate under existing conditions as follows:

- US 101 currently operate at LOS F
- SR 84 segment between Marsh Road and Willow operates at LOS B
- SR 84 segment between Willow Road and University Avenue operates at LOS F
- I-280 segments operate at LOS E

All the study freeway segments currently meet the CMP level of service standards except for the SR 84 segment between Willow Road and University Avenue.

D. Impact Analysis Methodology

This section describes the key elements of the transportation impact analysis methodology, including:

- Scenarios Analyzed
- Traffic Operations and Capacity Analysis
- Project Trip Generation, Distribution and Assignment

1. Scenarios Analyzed

The traffic generated from the Plan Components was estimated through a process that involved vehicle trip generation, trip distribution, and assignment of the trips to the roadway network using the C/CAG travel demand model run by the Santa Clara VTA the various study scenarios. This analysis takes a conservative

TABLE 4.13-3 **ROADWAY TRAFFIC VOLUMES – EXISTING 2012 CONDITIONS**

No.	Roadway	Segment	Classification	Existing ADT
1	Haven Ave	City Limits-Bayfront Expwy/Marsh Rd	Collector	5,751
2-1	Marsh Rd	Bay Rd-Bohannon Dr/Florence St	Minor Arterial	27,013
2-2		Bohannon Dr/Florence St-Scott Dr	Primary Arterial	32,768
3	Hamilton Ave	Chilco St-Willow Rd	Collector	3,010
4-1	Willow Rd	Laurel St-Middlefield Rd	Collector	5,181
4-2		Middlefield Rd-Gilbert Ave	Minor Arterial	26,213
4-3		Gilbert Ave-Coleman Ave	Minor Arterial	26,336
4-4		Coleman Ave-Durham St/Hospital Ave	Minor Arterial	28,038
4-5		Durham St/Hospital Ave-Bay Rd	Minor Arterial	32,148
5	Middlefield Rd	Ravenswood Ave-Willow Rd	Minor Arterial	20,668
6-1	Laurel St	Glenwood Ave-Oak Grove Ave	Collector	3,916
6-2		Oak Grove Ave-Ravenswood Ave	Collector	4,404
6-3		Ravenswood Ave-Willow Rd	Collector	4,917
7-1	University Dr	Middle Ave-Menlo Ave	Collector	5,666
7-2		Menlo Ave-Santa Cruz Ave	Collector	17,641
7-3		Santa Cruz Ave-Oak Grove Ave	Collector	7,052
7-4		Oak Grove Ave-Valparaiso Ave	Collector	5,376
8-1	Valparaiso Ave/ Glenwood Ave	University Dr-El Camino Real	Minor Arterial	13,238
8-2		El Camino Real-Laurel St	Collector	5,899
9-1	Oak Grove Ave	University Dr -El Camino Real	Collector	10,038
9-2		El Camino Real-Laurel St	Collector	9,677
9-3		Laurel St-Middlefield Rd	Collector	8,556
10-1	Ravenswood Ave	El Camino Real-Alma St	Minor Arterial	24,076
10-2		Alma St-Laurel St	Minor Arterial	19,912
10-3		Laurel St-Middlefield Rd	Minor Arterial	17,977

No.	Roadway	Segment	Classification	Existing ADT
11-1	Santa Cruz Ave	Alameda de las Pulgas- Avy Ave/Orange Ave	Minor Arterial	9,238
11-2		Avy Ave/Orange Ave-Olive St	Minor Arterial	16,097
11-3		Olive St-University Dr	Minor Arterial	17,179
11-4		University Dr-Crane St	Minor Arterial	8,895
11-5		Crane St-El Camino Real	Minor Arterial	8,074
12-1	Middle Ave	Olive St-University Dr	Collector	7,222
12-2		University Dr-El Camino Real	Collector	7,519
13-1	Alpine Rd/ Santa Cruz Ave	Junipero Serra Blvd-City Limits	Minor Arterial	23,406
13-2		Sand Hill Rd-Junipero Serra Blvd	Minor Arterial	30,187
14	Linfield Dr	Middlefield Rd - Laurel St	Local	1,583
15	Oak Ave	Sand Hill Rd - Olive St	Local	2,518

Source: TJKM Transportation Consultants, March 2013.

approach by applying both a one percent compound growth per year and the traffic generated by the pending/approved projects within the City of Menlo Park shown on Table 4.13-4. The following four scenarios were modeled with and without the future trips that could be generated Plan Components:

- *Near-Term 2014 without Plan Components Condition.* Under this scenario a one percent compound growth per year is assumed for the increase in traffic volume within two years plus the traffic generated by the pending/approved projects within the City of Menlo Park.
- *Near-Term 2014 plus Plan Components Conditions.* This scenario adds traffic generated by the future development to the one percent compound growth per year assumed for the increase in traffic volume within two years plus traffic generated by the pending/approved projects within Menlo.
- *2035 Without Plan Components Conditions.* Under this scenario a one percent compound growth per year is assumed for the increase in traffic volume within 23 years plus traffic generated by the pending/approved projects within Menlo Park.

TABLE 4.13-4 **LIST OF APPROVED/PENDING PROJECTS IN THE EA STUDY AREA**

Project Address	Type of Use	Size	Units of Measure	Status
1283 Willow Road (Police/City Service Center)	Office	3.8	ksf	Under Construction
	Retail	5.1	ksf	Under Construction
1460 El Camino Real	Residential	16	Du	Approved New Construction
	Office	26.8	ksf	Approved New Construction
	Commercial	-12.0	ksf	Replace
1300 El Camino Real	Commercial	110.1	ksf	Approved New Construction
	Commercial	-28.6	ksf	Demolished
1906 El Camino Real	Medical Office	9.8	ksf	Shell Complete; No Tenant Improvements
	Restaurant	-5.7	ksf	Demolished
1706 El Camino Real	Medical Office	10.2	ksf	Approved New Construction
	Restaurant	-6.9	ksf	Demolished
100-155 Constitution Drive and 100-190 Independence Drive (Menlo Gateway)	Office	694.7	ksf	Approved New Construction
	Health Club	69.0	ksf	Approved New Construction
	Restaurant	4.3	ksf	Approved New Construction
	Hotel	230	rooms	Approved New Construction
	Office	-133.7	ksf	Replace on Constitution Site
	Office	-63.4	ksf	Replace on Independence Site
100 Middlefield Road	Office	9.0	ksf	Shell Complete; No Tenant Improvements

Project Address	Type of Use	Size	Units of Measure	Status
2484 Sand Hill Road (Quadrus Bldg. 9)	Office	11.3	ksf	Approved New Construction
		-1.8	ksf	Replace (Demolition at Building #1)
		-0.7	ksf	Replace (Demolition at Building #4)
389 El Camino Real	Residential	26	du	Approved New Construction
	Residential	-4	du	Replace
Facebook East	Office	n/a	n/a	Employee increase from 3,600 to 6,600
1601 Willow Road				
Facebook West 312-314 Constitution Drive	Office	433.7	ksf	Proposed Construction
Commonwealth Corp. Center 151 Commonwealth – Sobrato	Office	260.0	ksf	Proposed Construction
	Office	-19.2	ksf	Proposed Demolition
	Warehouse	-55.6	ksf	Proposed Demolition
	Manufacturing	-163.1	ksf	Proposed Demolition
VA/Core	Residential	60	du	Proposed Construction

Notes: du = dwelling unit
ksf = thousand square feet
Source: City of Menlo Park, August 2012.

- *2035 Plus Plan Components Conditions.* This scenario adds traffic generated by the future development to the one percent compound growth per year assumed for the increase in traffic volume within 23 years plus traffic generated by the pending/approved projects within Menlo Park and the El Camino Real/Downtown Specific Plan project, plus the Stanford University Medical Center (SUMC), a City of Palo Alto project, which consists of a net increase of 854,970 square feet of hospital space and 24,330 square feet of medical office. For the SUMC project, it is only the trips that go through Menlo Park that were considered under this scenario.

2. Traffic Operations and Capacity Evaluation

a. Near-Term 2014 without Plan Components Conditions

Figures 4.13-5a and 4.13-5b illustrates the peak hour turning movement traffic volumes at the study intersections under Near-Term 2014 without Plan Components conditions. Anticipated traffic controls and lane geometries for the 52 study intersections are also included in this figure. Detailed level of service calculations are contained in Appendix D of the Traffic Report (see Appendix F of this EA).

i. Intersection Levels of Service

Under Near-Term 2014 without Plan Components conditions, ten intersections operate at unacceptable levels as described below:

- Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard operates at LOS E during AM peak hour.
- Middlefield Road and Marsh Road (Atherton) operates at LOS E during AM peak hour.
- Middlefield Road and Willow Road operates at LOS E during AM peak hour and operates at LOS F during PM peak hour.
- Scott Drive/Rolison Road and Marsh Road operates at LOS E during PM peak hour.
- Newbridge Street and Willow Road (Caltrans) operates at LOS F during both AM and PM peak hours.
- Bayfront Expressway and Willow Road (Caltrans) operates at LOS F during both AM and P.M peak hours.
- Bayfront Expressway and University Avenue (Caltrans) operates at LOS F during PM peak hour.
- Bayfront Expressway and Marsh Road (Caltrans) operates at LOS F during AM and PM peak hours.

- Bohannon Drive/Florence Street and Marsh Road: LOS E during PM peak hour
- US 101 NB Ramps & Marsh Road (Caltrans): LOS E during AM peak hour

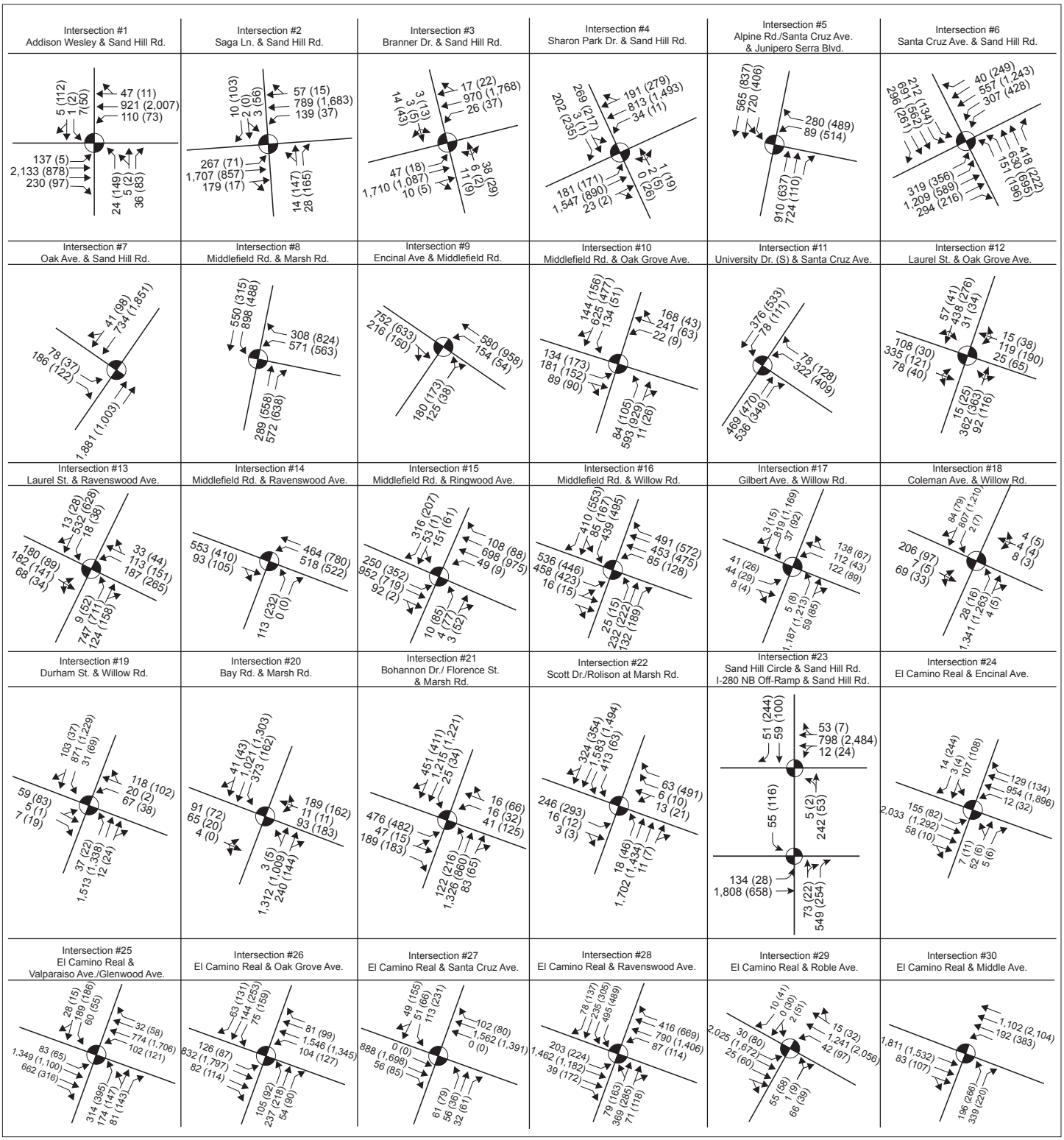
The Near-Term 2014 without Plan Components conditions for the study intersections are identified and compared to Near-Term 2014 plus Plan Components are shown in Table 4.13-7. See Section F, Impacts Discussion, below.

ii. Roadway Traffic Volumes

a) Arterial Streets

The following arterial segments (primary and minor) exceed 90 percent capacity with ADTs over 18,000 vehicles per day and under Near-Term 2014 conditions more than 100 trips would be added to each of these segments, which would exceed the City's threshold of significance for arterial streets.

- Marsh Road from Bohannon Drive/Florence St to Scott Drive
- Marsh Road from Bay Road to Bohannon Drive/Florence Street
- Willow Road from Middlefield Road to Bay Road
- Willow Road from Gilbert Ave-Coleman Ave
- Willow Road from Coleman Ave-Durham St/Hospital Ave
- Willow Road from Durham St/Hospital Ave to Bay Road
- Middlefield Road from Ravenswood Avenue to Willow Road
- Ravenswood Avenue from El Camino Real to Alma Street
- Ravenswood Avenue from Alma Street to Laurel Street
- Ravenswood Avenue from Laurel Street to Middlefield Road
- Santa Cruz Avenue from Olive Street to University Drive
- Alpine Road/Santa Cruz Avenue from Junipero Serra Boulevard to City Limits
- Alpine Road/Santa Cruz Avenue from Sand Hill Road to Junipero Serra Boulevard



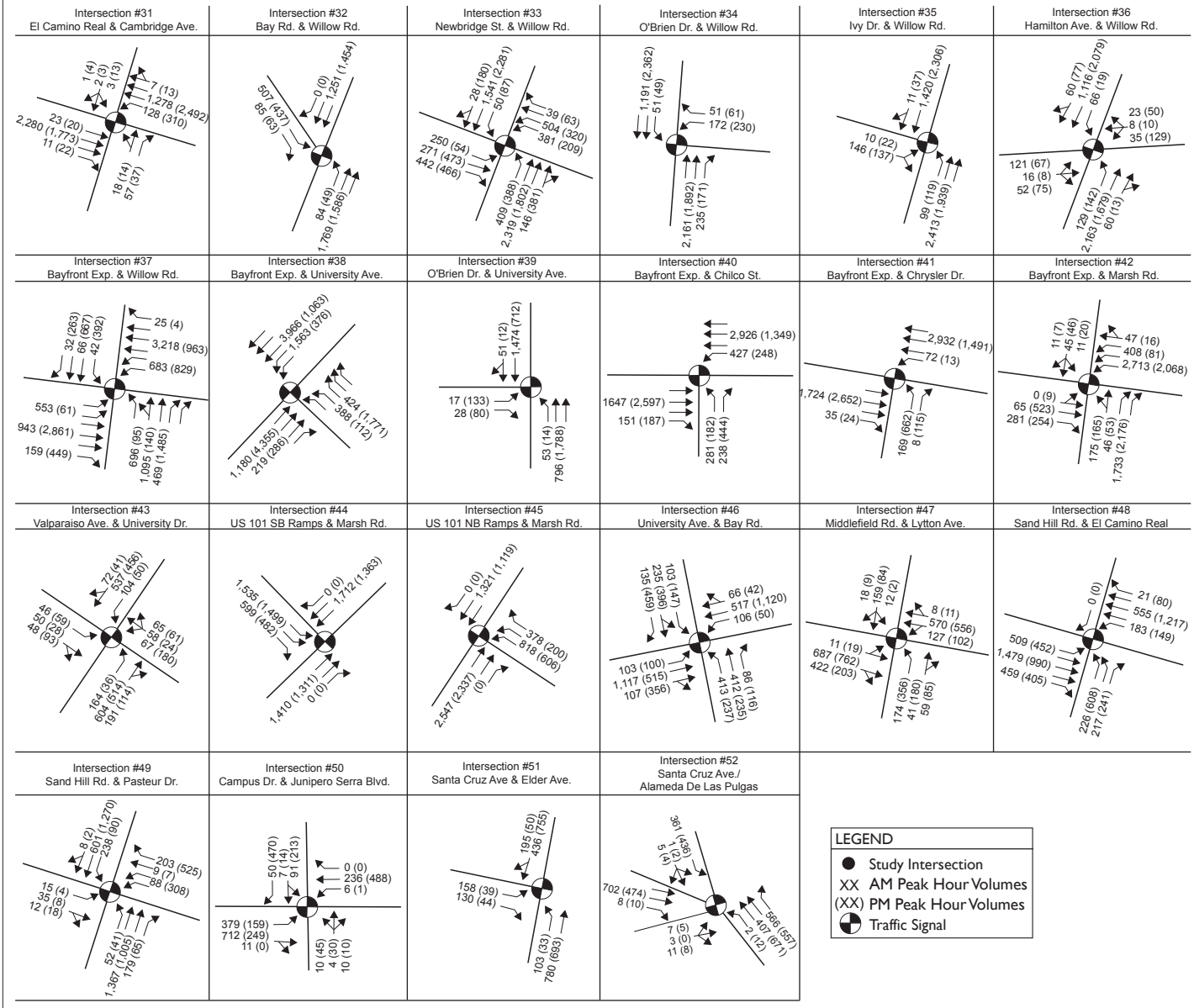
Source: TJKM Transportation Consultants.

LEGEND

- Study Intersection
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Traffic Signal

FIGURE 4.13-5A

NEAR-TERM 2014 WITHOUT PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS



Source: TJKM Transportation Consultants.

FIGURE 4.13-5B

NEAR-TERM 2014 WITHOUT PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS

b) Collector Streets

Under Near-Term 2014 without Plan Components conditions more than a net total of 50 trips would be added to the following collector streets that are currently at 90 percent capacity with ADTs over 9,000 vehicles per day:

- University Drive from Menlo Avenue to Santa Cruz Avenue
- Oak Grove Avenue from University Drive to El Camino Real
- Oak Grove Avenue from El Camino Real to Laurel Street

c) Local Streets

Under Near-Term 2014 without Plan Components conditions future trips more than a net total of 25 trips would be added to the following local streets that are currently at 90 percent capacity with ADTs over 1,350 vehicles per day:

- Linfield Drive from Middlefield Road to Laurel Street
- Oak Avenue from Sand Hill Road to Olive Street

iii. Freeway Traffic Volumes

The freeway segments would continue to operate the same as under the existing 2012 conditions as follows:

- US 101 currently operate at LOS F
- SR 84 segment between Marsh Road and Willow operates at LOS B
- SR 84 segment between Willow Road and University Avenue operates at LOS F
- I-280 segments operate at LOS E

All the study freeway segments would continue to meet the CMP level of service standards except for the SR 84 segment between Willow Road and University Avenue, which would remain at LOS F.

The Near-Term 2014 without Plan Components conditions for roadway and freeway segments are identified and compared to Near-Term 2014 plus Plan Components conditions in Table 4.13-8 and 4.13-9, respectively. See Section F, Impacts Discussion, below.

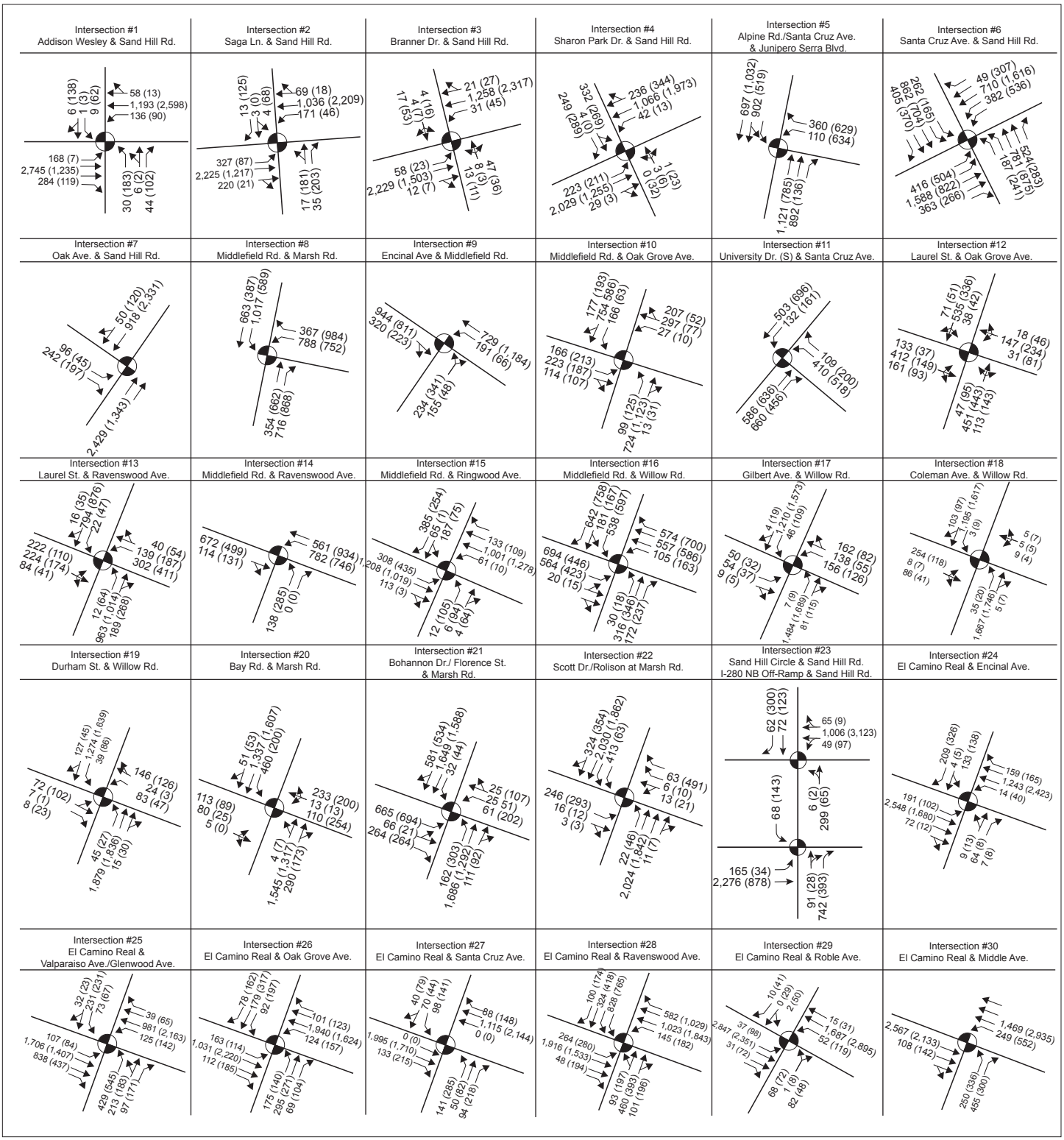
b. 2035 Without Plan Components Conditions

Figures 4.13-6a and 4.13-6b illustrates the peak hour turning movement volumes at the study intersections, as well as lane geometry and traffic controls under 2035 without Plan Components conditions. Anticipated traffic controls and lane geometries for the study intersections are also included in the figure. Detailed level of service calculations are contained in Appendix F of the Traffic Study (see Appendix F of this EA).

i. Intersection Levels of Service

Under 2035 without Plan Components conditions, 29 of the EA Study intersections are anticipated to operate at unacceptable levels as described below:

- Addison Wesley and Sand Hill Road operates at LOS E during AM peak hour.
- Sharon Park Drive and Sand Hill Road operates at LOS E during PM peak hour.
- Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard operates at LOS F during AM peak hour and operates at LOS E during PM peak hour.
- Santa Cruz Avenue and Sand Hill Road operates at LOS E during both AM and PM peak hours.
- Middlefield Road and Marsh Road (Atherton) operates at LOS F during both AM and PM peak hours.
- Middlefield Road and Ravenswood Avenue operates at LOS E during PM peak hour.
- Middlefield Road and Willow Road operates at LOS F during both AM and PM peak hours.
- Gilbert Avenue and Willow Road operates at LOS E during PM peak hour.
- Coleman Avenue and Willow Road operates at LOS F during both AM and PM peak hour.
- Durham Street and Willow Road operates at LOS E during PM peak hour.
- Bay Road and Marsh Road operates at LOS E during AM peak hour.
- Bohannon Drive/Florence Street and Marsh Road operates at LOS E during AM peak hour and operates at LOS F during PM peak hour.
- Scott Drive/Rolison Road and Marsh Road operates at LOS E during AM peak hour and LOS F during PM peak hour.
- Sand Hill Circle and Sand Hill Road (Caltrans) operates at LOS F during PM peak hour.
- El Camino Real and Valparaiso Avenue/Glenwood Avenue (Caltrans) operates at LOS E during PM peak hour.



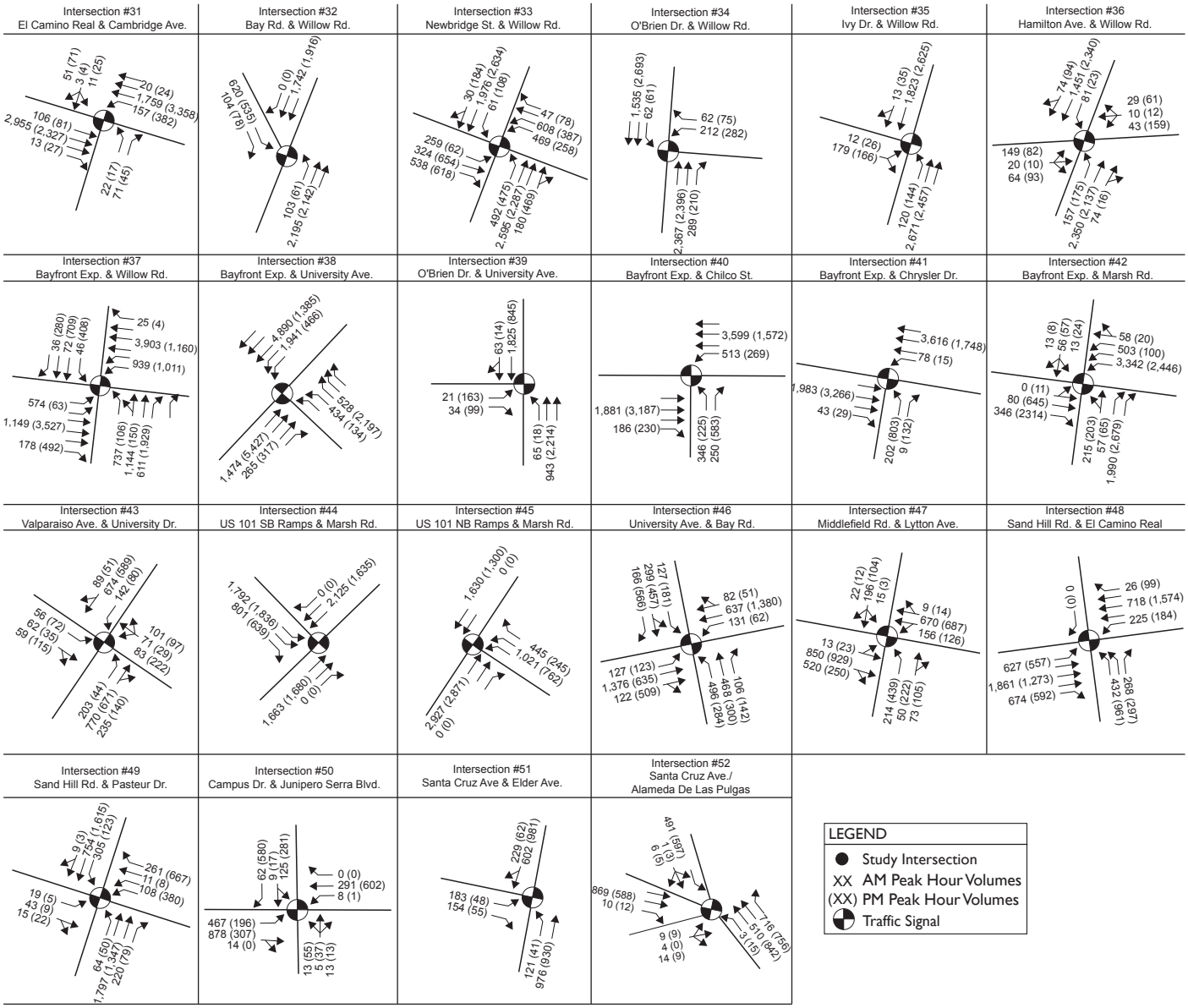
Source: TJKM Transportation Consultants.

LEGEND

- ● Study Intersection
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Traffic Signal

FIGURE 4.13-6A

2035 WITHOUT PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS



Source: TJKM Transportation Consultants.

FIGURE 4.13-6B

2035 WITHOUT PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS

- El Camino Real and Ravenswood Avenue/Menlo Avenue (Caltrans) operates at LOS F during both AM and PM peak hours.
- El Camino Real and Middle Avenue (Caltrans) operates at LOS F during PM peak hour.
- Bay Road and Willow Road (Caltrans) operates at LOS E during AM peak hour.
- Newbridge Street and Willow Road (Caltrans) operates at LOS F during both AM and PM peak hours.
- Hamilton Avenue and Willow Road (Caltrans) operates at LOS E during AM peak hour.
- Bayfront Expressway and Willow Road (Caltrans) operates at LOS F during both AM and PM peak hours.
- Bayfront Expressway and University Avenue (Caltrans) operates at LOS F during both AM and PM peak hours.
- Bayfront Expressway and Chilco Street (Caltrans) operates at LOS F during PM peak hour.
- Bayfront Expressway and Chrysler Drive (Caltrans) operates at LOS F during PM peak hour.
- Bayfront Expressway and Marsh Road (Caltrans) operates at LOS F during both AM and PM peak hour.
- US 101 SB Ramps and Marsh Road (Caltrans) operates at LOS F during AM peak hour and LOS E during PM peak hour.
- US 101 NB Ramps and Marsh Road (Caltrans) operates at LOS F during AM peak hour and LOS E during PM peak hour.
- University Avenue and Bay Road (Caltrans) operates at LOS E during both AM and PM peak hours.
- Middlefield Road and Lytton Avenue (Palo Alto) operates at LOS E during both AM and PM peak hours.

The 2035 without Plan Components for the study intersections are identified and compared to 2035 plus Plan Components Table 4.13-10. See Section F, Impacts Discussion, below.

ii. Roadway Traffic Volumes

a) Arterial Streets

The following arterial segments (primary and minor) exceed 90 percent capacity with ADTs over 18,000 vehicles per day and under 2035 without Plan Components conditions more than 100 trips would be added to each of these segments; therefor, City's threshold of significance for arterial streets would be exceeded.

- Marsh Road from Bohannon Drive/Florence Street to Scott Drive (primary arterial)
- Marsh Road from Bay Road to Bohannon Drive/Florence Street
- Willow Road from Middlefield Road to Gilbert Avenue
- Willow Road from Gilbert Avenue to Coleman Avenue
- Willow Road from Coleman Avenue to Durham Street/Hospital Avenue
- Willow Road from Durham Street/Hospital Ave to Bay Road
- Middlefield Road from Ravenswood Avenue to Willow Road
- Ravenswood Avenue from El Camino Real to Alma Street
- Ravenswood Avenue from Alma Street to Laurel Street
- Ravenswood Avenue from Laurel Street to Middlefield Road
- Alpine Road/Santa Cruz Avenue from Junipero Serra Boulevard to City Limits
- Alpine Road/Santa Cruz Avenue from Sand Hill Road to Serra Boulevard

Future trips would exceed the City's threshold by adding more than 12.5 percent additional trips or resulting in an ADT that would exceed 18,000 vehicles per day for the minor arterial segments which exceed 50 percent capacity with ADTs over 10,000 vehicles per day at the following segments:

- Valparaiso Ave/Glenwood Ave from University Drive to El Camino Real
- Santa Cruz Ave from Avy Avenue/Orange Ave to Olive Street
- Santa Cruz Ave from Olive Street to University Drive

b) Collector Streets

More than a net total of 50 trips would be added to the following collector streets that are currently at 90 percent capacity with ADTs over 9,000 vehicles per day:

- University Drive from Menlo Avenue to Santa Cruz Avenue
- Oak Grove Avenue from University Drive to El Camino Real
- Oak Grove Avenue from El Camino Real to Laurel Street

Future trips would exceed the City's threshold by adding more than 12.5 percent additional trips or resulting in an ADT that would exceed 9,000 vehicles per day for the collector streets which exceed 50 percent capacity with ADTs over 5,000 vehicles per day.

- Haven Avenue from City Limits to Bayfront Expressway/Marsh Road
- University Drive from Middle Avenue to Menlo Avenue
- Valparaiso Ave/Glenwood Ave from El Camino Real to Laurel Street
- Oak Grove Avenue from Laurel Street to Middlefield Road
- Middle Avenue from Olive Street to University Drive
- Middle Avenue from University Drive to El Camino Real

Future trips would exceed the City's threshold by adding more than 25 percent additional trips for the collector streets with ADTs of less than 5,000 vehicles per day at the following collector street segments:

- Hamilton Avenue from Chilco Street to Willow Road
- Willow Road from Laurel Street to Middlefield Rd
- Laurel Street from Glenwood Avenue to Oak Grove Avenue
- Laurel Street from Oak Grove Avenue to Ravenswood Avenue
- Laurel Street from Ravenswood Avenue to Willow Road

c) Local Streets

Future trips more than a net total of 25 trips would be added to the following local streets that are currently at 90 percent capacity with ADTs over 1,350 vehicles per day:

- Linfield Drive from Middlefield Road to Laurel Street
- Oak Avenue from Sand Hill Road to Olive Street

iii. Freeway Traffic Volumes

The freeway segments would continue to operate the same as under the existing 2012 and Near-Term 2014 conditions as follows:

- US 101 currently operate at LOS F
- SR 84 segment between Marsh Road and Willow operates at LOS B
- SR 84 segment between Willow Road and University Avenue operates at LOS F
- I-280 segments operate at LOS E

All the study freeway segments would continue to meet the CMP level of service standards except for the SR 84 segment between Willow Road and University Avenue, which would remain at LOS F.

The 2035 without Plan Components conditions for roadway and freeway segments are identified and compared to 2035 plus Plan Components conditions in Table 4.13-11 and 4.13-12, respectively. See Section F, Impacts Discussion, below.

3. Project Trip Generation, Distribution and Assignment

a. Plan Components Trip Generation

Table 4.13-5 summarizes the potential future residential development under the Plan Components. Also shown in Table 4.13-5, the traffic generated from the Plan Components was calculated based on ITE Trip Generation rates.

b. Plan Components Trip Distribution and Assignment

Trip distribution is a process that determines in what proportion vehicles would travel between a particular site and various destinations outside a study area. The process of trip assignment determines the various routes that vehicles would take from a site to each destination using the calculated trip distribution.

The City of Menlo Park has developed the origins and destinations of Menlo Park residential trips for four subareas within the City, based on the reported household travel diary and interview survey conducted in 1999. Table 4.13-6 shows the percentages of trips for each neighborhood for residential, employment and commercial trips. For the Plan Components, traffic generated by the housing planned for under the Plan Components was assigned to the roadway network based on different distribution patterns depending on the analysis subarea.

TABLE 4.13-5 **TRIP GENERATION ESTIMATES**

No.	Site Name	Net Potential Dwelling	Daily Trips[a]	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
1	I-280 and Sand Hill Road (Banana Site)	52	346	5	21	27	21	11	32
2	Hewlett Foundation	98	652	10	40	50	39	21	61
3	Corpus Christi	30	200	3	12	15	12	7	19
4	401-445 Burgess Drive	16	106	2	7	8	6	3	10
5	8 Homewood Place	25	166	3	10	13	10	5	16
6	St. Patrick's Seminary	25	166	3	10	13	10	5	16
7	125-135 Willow Road	10	67	1	4	5	4	2	6
8	555 Willow Road	8	53	1	3	4	3	2	5
9	Veterans Affairs Clinic	60	399	6	24	31	24	13	37
10	MidPen's Gateway Apts	42	279	4	17	21	17	9	26
11	MidPen's Gateway Apts	36	239	4	15	18	15	8	22
12	Hamilton Avenue East	216	1,436	22	88	110	87	47	134
13	Main Post Office	76	502	8	31	39	30	16	47
14	Haven Avenue	464	3,086	47	189	237	187	101	288
	Downtown Infill Units	118	785	12	48	60	48	26	73
	Second Units[b]	40	266	4	16	20	16	9	25
	Total	1,316	8,748	134	537	671	530	285	816

[a] ITE Land Use Code 220 (Apartment) is used for all project sites

[v] Second Units have been distributed throughout the City.

Source: Institute of Transportation Engineers (ITE), *Trip Generation, 8th Edition*, 2008. TJKM Transportation Consultants, March 2013.

TABLE 4.13-6 **TRIP DISTRIBUTION PATTERN**

	Residential				Employment				Commercial			
Gateway	SH	WM	w/o 101	e/o 101	SH	WM	w/o 101	e/o 101	SH	WM	w/o 101	e/o 101
1. I-280 North	10%	5%	2%	-	20%	12%	4%	-	13%	7%	2%	-
2. I-280 South	18	9	-	-	33	16	-	-	6	3	-	-
3. Sand Hill West	1	1	1	1	1	1	1	1	1	1	1	1
4. SR 84 East	2	2	2	2	20	20	20	20	1	1	1	1
5. US 101 South	-	9	18	26	-	17	33	37	-	3	6	13
6. US 101 North	-	2	5	7	-	4	12	10	-	2	7	7
7. Alameda North	13	6	2	-	7	4	-	-	6	4	-	-
8. El Camino North	-	10	5	4	-	7	5	3	-	6	5	2
9. Alpine South	-	-	-	-	-	-	-	-	-	-	-	-
10. Junipero South	8	5	-	-	4	3	-	-	7	4	-	-
11. Sand Hill East	14	3	-	-	7	1	-	-	15	3	-	-
12. Middlefield South	-	-	19	12	-	-	10	5	-	-	19	10
14. El Camino South	1	14	3	1	-	7	1	1	-	15	3	1
15. Middlefield North	-	-	9	13	-	-	6	14	-	-	5	10
16. Local Sharon Hts	10	5	2	-	2	1	-	-	15	8	3	-
17. Local Downtown	20	26	25	5	5	6	6	1	31	38	38	8
18. Local Willows	3	3	7	3	1	1	2	1	5	5	10	5
19. Local Belle Haven	-	-	-	26	-	-	-	7	-	-	-	42
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Notes: SH = Sharon Heights Local (Sharon Park Drive/Shopping Center Area)
WM = West Menlo/Downtown Local (Downtown area bounded by University Drive, El Camino Real, Menlo Avenue, Roble Avenue)
w/o 101 = West of US 101 Local (Willows area east of Willow Road near Gilbert Avenue)
e/o 101 = East of US 101 Local (Belle Haven area near Newbridge Street and Chilco Street)

Source: Adoption of City of Menlo Park Circulation System Assessment Update, 2004.

E. Standards of Significance

The City of Menlo Park, the City of Palo Alto, the Town of Atherton, the County of San Mateo, and the County of Santa Clara each has traffic impact guidelines and standards of significance that apply to the EA Study Area. The standard of significance criteria from these agencies was previously described in Section C.3 and C.6 above. The transportation items of the CEQA checklist are addressed through these local, regional, and state guidelines. Therefore, the Plan Components would have a significant impact with regard to transportation and traffic if they would:

1. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
2. Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

F. Impact Discussion

This section presents the potentially significant impacts as a result of implementation of the Plan Components, and the mitigation measures that would reduce the future effects of the planned for development. For a discussion of impacts relating to increased traffic noise associated with increased traffic volumes, see Chapter 4.10, Noise, of this EA.

1. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation

including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

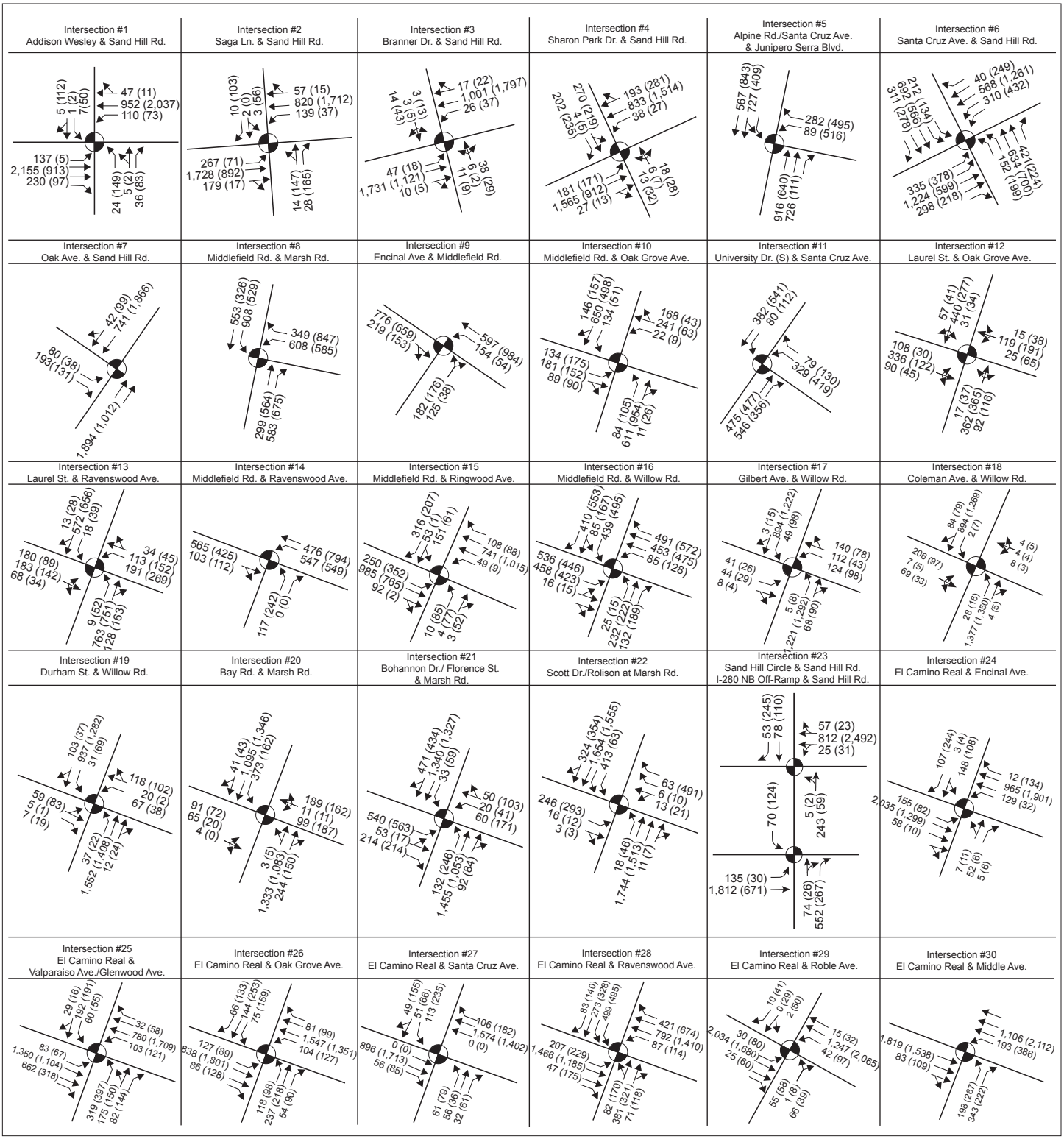
a. Near-Term 2014 Plus Plan Components Conditions

i. Intersection Level of Service Analysis

Figures 4.13-7a and 4.13-7b illustrate intersection peak hour turning movement traffic volumes under Near-Term 2014 plus Plan Components conditions. Anticipated traffic controls and lane geometries for the 52 study intersections are also included in this figure. Table 4.13-7 shows the corresponding intersection service levels. Detailed level of service calculations are contained in Appendix E of the Traffic Study (see Appendix F of this EA).

Under Near-Term 2014 plus Plan Components conditions, all study intersections operate within acceptable standards, with the exception of the intersections listed below:

- Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard operates at LOS E during AM peak hour.
- Middlefield Road and Marsh Road (Atherton) operates at LOS E during AM peak hour.
- Middlefield Road and Willow Road operates at LOS E during AM peak hour and operates at LOS F during PM peak hour.
- Scott Drive/Rolison Road and Marsh Road operates at LOS E during PM peak hour.
- Newbridge Street and Willow Road (Caltrans) operates at LOS F during both AM and P.M peak hours.
- Bayfront Expressway and Willow Road (Caltrans) operates at LOS F during both AM and P.M peak hours.
- Bayfront Expressway and University Avenue (Caltrans) operates at LOS F during PM peak hour.
- Bayfront Expressway and Marsh Road (Caltrans) operates at LOS F during both AM and PM peak hour.
- Bohannon Drive/Florence Street and Marsh Road operates at LOS E during PM peak hour.
- 101 NB Ramps and Marsh Road (Caltrans) operates at LOS E during AM peak hour.



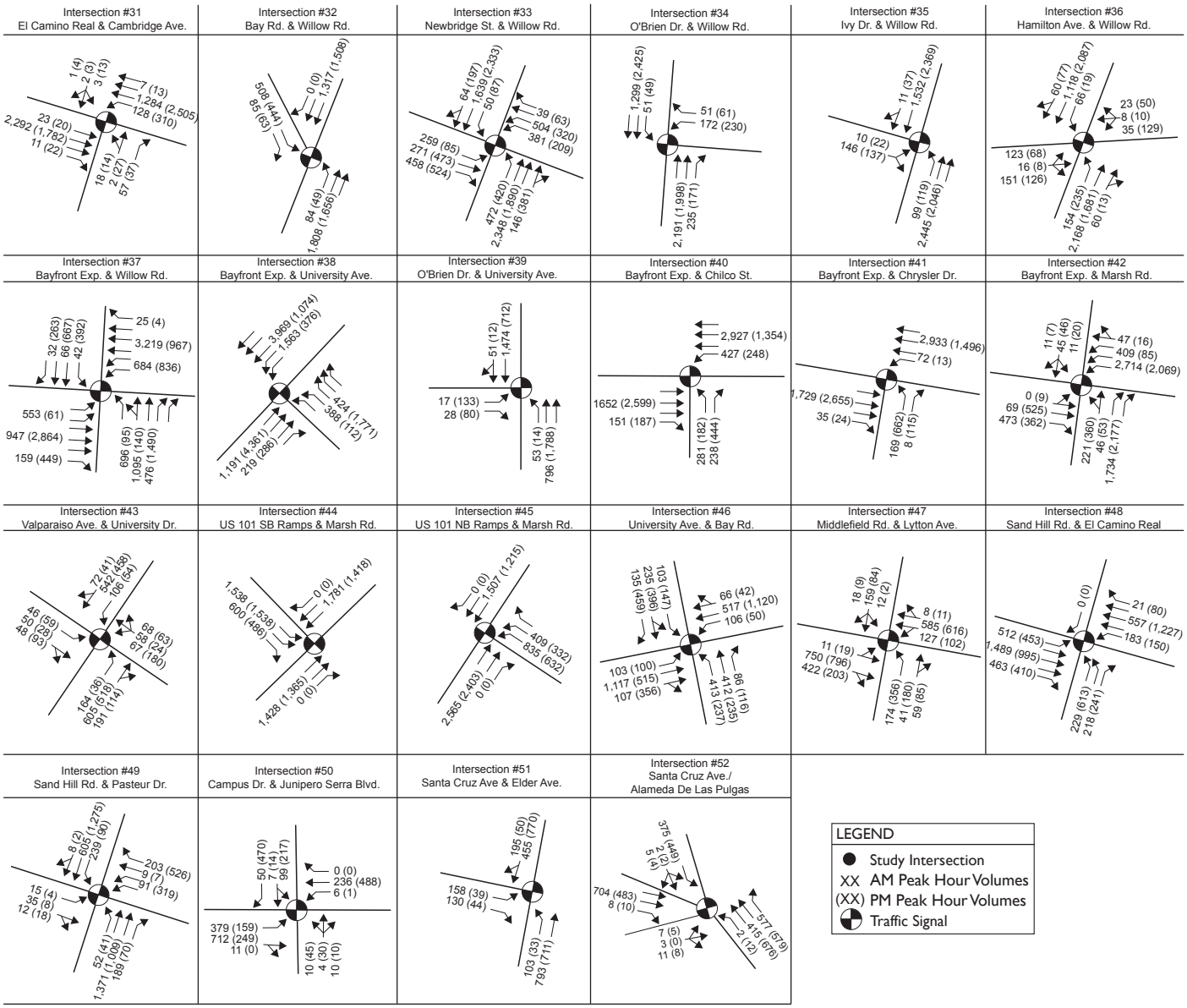
Source: TJKM Transportation Consultants.

LEGEND

- Study Intersection
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Traffic Signal

FIGURE 4.13-7A

NEAR-TERM 2014 PLUS PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS



Source: TJKM Transportation Consultants.

FIGURE 4.13-7B

NEAR-TERM 2014 PLUS PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS

TABLE 4.13-7 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Near-Term		Near-Term Plus Project		Delay		Near-Term		Near-Term Plus Project		Delay	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?
1	Addison Wesley and Sand Hill Rd.	Signal	Menlo Park	D	B	12.8	B	13.1	0.3	No	B	18.2	B	18.3	0.1	No
2	Saga Ln. and Sand Hill Rd.	Signal	Menlo Park	D	A	8.6	A	8.6	0.0	No	B	12.1	B	12.0	-0.1	No
3	Branner Dr. and Sand Hill Rd.	Signal	Menlo Park	D	A	4.5	A	4.5	0.0	No	A	5.5	A	5.5	0.0	No
4	Sharon Park Dr. and Sand Hill Rd.	Signal	Menlo Park	D	C	22.4	C	23.1	0.7	No	C	26.4	C	27.3	0.9	No
5	Alpine Rd./Santa Cruz Ave. and Junipero Serra Blvd.	Signal	Menlo Park	D	E	55.7	E	56.3	0.6	Yes	D	49.2	D	49.5	0.3	No
	WB Critical Approach on Junipero Serra Blvd.				F	96.6	F	97.6	1.0							
6	Santa Cruz Ave. and Sand Hill Rd.	Signal	Menlo Park	D	D	45.7	D	45.9	0.2	No	D	46.0	D	46.5	0.5	No
7	Oak Ave. and Sand Hill Rd.	Signal	Menlo Park	D	B	10.9	B	11.3	0.4	No	A	6.4	A	6.9	0.5	No
8	Middlefield Rd. and Marsh Rd.	Signal	Atherton	D	E	59.0	E	65.2	6.2	No	D	41.8	D	47.6	5.8	No
9	Encinal Ave. and Middlefield Rd.	Signal	Atherton	D	C	20.2	C	20.7	0.5	No	B	10.0	B	10.2	0.2	No
10	Middlefield Rd. and Oak Grove Ave.	Signal	Atherton	D	B	14.7	B	15.1	0.4	No	B	11.4	B	11.6	0.2	No
11	University Dr. (S) and Santa Cruz Ave.	Signal	Menlo Park	D	B	13.1	B	13.3	0.2	No	B	15.7	B	15.9	0.2	No

TABLE 4.13-7 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Near-Term		Near-Term Plus Project		Delay		Near-Term		Near-Term Plus Project		Delay	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?
12	Laurel St. and Oak Grove Ave.	Signal	Menlo Park	C	B	15.2	B	15.5	0.3	No	B	11.7	B	11.8	0.1	No
13	Laurel St. and Ravenswood Ave.	Signal	Menlo Park	D	B	18.3	B	18.9	0.6	No	B	14.0	B	14.5	0.5	No
14	Middlefield Rd. and Ravenswood Ave.	Signal	Menlo Park	D	C	25.7	C	27.2	1.5	No	D	38.8	D	41.5	2.7	No
15	Middlefield Rd. and Ringwood Ave.	Signal	Menlo Park	D	C	27.4	C	27.2	-0.2	No	C	26.3	C	25.9	-0.4	No
16	Middlefield Rd. and Willow Rd.	Signal	Menlo Park	D	E	66.3	E	73.8	7.5	Yes	F	90.0	F	105.8	15.8	Yes
17	Gilbert Ave. and Willow Rd.	Signal	Menlo Park	D	B	19.3	C	21.0	1.7	No	B	12.2	B	15.5	3.3	No
18	Coleman Ave. and Willow Rd.	Signal	Menlo Park	D	C	33.3	D	36.3	3.0	No	B	13.5	B	16.4	2.9	No
19	Durham St. and Willow Rd.	Signal	Menlo Park	D	B	12.0	B	12.5	0.5	No	B	15.3	B	16.7	1.4	No
20	Bay Rd. and Marsh Rd.	Signal	Menlo Park	D	C	27.6	C	28.7	1.1	No	B	17.6	B	17.9	0.3	No
21	Bohannon Dr./ Florence St. and Marsh Rd.	Signal	Menlo Park	D	C	32.9	D	41.4	8.5	No	D	46.4	E	68.3	21.9	Yes
22	Scott Dr./Rolison Rd. and Marsh Rd.	Signal	Menlo Park	D	C	27.8	C	30.5	2.7	No	E	69.8	E	74.6	4.8	Yes
23	Sand Hill Circle and Sand Hill Rd.	Signal	Menlo Park	D	C	25.6	C	26.5	0.9	No	D	41.4	D	45.1	3.7	No

TABLE 4.13-7 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Near-Term		Near-Term Plus Project		Delay		Near-Term		Near-Term Plus Project		Delay	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?
	I-280 NB Off-Ramp and Sand Hill Rd.	Signal	Caltrans	D	C	24.0	C	26.3	2.3	No	C	21.9	C	22.7	0.8	No
24	El Camino Real and Encinal Ave.	Signal	Caltrans	D	B	15.8	B	15.8	0.0	No	B	19.1	B	19.0	-0.1	No
25	El Camino Real and Valparaiso Ave./ Glenwood Ave.	Signal	Caltrans	D	C	34.8	D	35.2	0.4	No	C	34.9	D	35.4	0.5	No
26	El Camino Real and Oak Grove Ave.	Signal	Caltrans	D	C	30.0	C	30.2	0.2	No	C	33.0	C	33.2	0.2	No
27	El Camino Real and Santa Cruz Ave.	Signal	Caltrans	D	B	13.3	B	13.2	-0.1	No	B	19.8	B	20.0	0.2	No
28	El Camino Real and Ravenswood Ave./ Menlo Ave.	Signal	Caltrans	D	D	42.9	D	44.0	1.1	No	D	49.6	D	53.1	3.5	No
29	El Camino Real and Roble Ave.	Signal	Caltrans	D	B	11.9	B	11.9	0.0	No	B	17.2	B	17.2	0.0	No
30	El Camino Real and Middle Ave.	Signal	Caltrans	D	C	29.6	C	29.9	0.3	No	D	48.9	D	49.5	0.6	No
31	El Camino Real and Cambridge Ave.	Signal	Caltrans	D	B	11.4	B	11.4	0.0	No	B	15.3	B	15.3	0.0	No
32	Bay Rd. and Willow Rd.	Signal	Caltrans	D	C	27.0	C	27.7	0.7	No	C	22.7	C	23.4	0.7	No
33	Newbridge St. and Willow Rd.	Signal	Caltrans	D	F	144.8	F	162.0	17.2	Yes	F	192.7	F	211.7	19.0	Yes

TABLE 4.13-7 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Near-Term		Near-Term Plus Project		Delay		Near-Term		Near-Term Plus Project		Delay	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?
	SB Critical Local Approach on Newbridge St.				F	240.2	F	281.7	41.5		F	321.1	F	356.4	35.3	
34	O'Brien Dr. and Willow Rd.	Signal	Caltrans	D	B	13.5	B	13.6	0.1	No	B	17.4	B	18.2	0.8	No
35	Ivy Dr. and Willow Rd.	Signal	Caltrans	D	B	14.4	B	14.7	0.3	No	B	18.5	B	19.5	1.0	No
36	Hamilton Ave. and Willow Rd.	Signal	Caltrans	D	C	24.0	C	34.4	10.4	No	C	29.4	D	45.9	16.5	No
37	Bayfront Exp. and Willow Rd.	Signal	Caltrans	D	F	111.3	F	111.3	0.0	No	F	136.6	F	137.2	0.6	Yes
	WB Critical Approach on Willow Rd.										F	199.5	F	200.3	.84	
	SB Critical Approach on Bayfront Exp.										F	166.0	F	167.0	1.0	
38	Bayfront Exp. and University Ave.	Signal	Caltrans	D	C	32.4	C	32.5	0.1	No	F	172.1	F	172.4	0.3	No
39	O'Brien Dr. and University Ave.	Signal	Caltrans	D	A	5.4	A	5.4	0.0	No	A	9.5	A	9.5	0.0	No
40	Bayfront Exp. and Chilco St.	Signal	Caltrans	D	C	26.0	C	26.1	0.1	No	D	44.4	D	44.5	0.1	No
41	Bayfront Exp. and Chrysler Dr.	Signal	Caltrans	D	B	10.1	B	10.1	0.0	No	D	43.2	D	43.3	0.1	No
42	Bayfront Exp. and Marsh Rd.	Signal	Caltrans	D	D	38.7	F	86.8	48.1	Yes	F	81.1	F	105.3	24.2	Yes

TABLE 4.13-7 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Near-Term		Near-Term Plus Project		Delay		Near-Term		Near-Term Plus Project		Delay	
No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Diff (sec)	Sig. Impact?
43	Valparaiso Ave. and University Dr.	Signal	Menlo Park	D	B	13.2	B	13.3	0.1	No	B	15.8	B	15.9	0.1	No
44	US 101 SB Ramps and Marsh Rd.	Signal	Caltrans	D	D	40.2	D	44.5	4.3	No	C	26.1	C	27.8	1.7	No
45	US 101 NB Ramps and Marsh Rd.	Signal	Caltrans	D	**D**	**44.1**	**E**	**57.5**	**13.4**	**Yes**	C	21.4	C	30.0	8.6	No
46	University Ave. and Bay Rd.	Signal	Caltrans	D	D	37.1	D	37.1	0.0	No	D	39.9	D	39.9	0.0	No
47	Middlefield Rd. and Lytton Ave.	Signal	Palo Alto	D	D	39.4	D	40.7	1.3	No	D	39.8	D	41.6	1.8	No
48	Sand Hill Rd. and El Camino Real	Signal	Caltrans	D	C	21.2	C	21.1	-0.1	No	C	25.3	C	25.3	0.0	No
49	Sand Hill Rd. and Pasteur Dr.	Signal	Palo Alto	D	C	23.2	C	23.2	0.0	No	C	28.1	C	28.1	0.0	No
50	Campus Dr. and Junipero Serra Blvd.	Signal	Santa Clara Co.	D	B	17.2	B	17.6	0.4	No	C	34.3	C	34.3	0.0	No
51	Santa Cruz Ave. and Elder Ave.	Signal	Menlo Park	D	B	16.3	B	16.3	0.0	No	A	5.9	A	5.9	0.0	No
52	Santa Cruz Ave./ Alameda De Las Pulgas	Signal	San Mateo Co.	D	B	11.6	B	11.8	0.2	No	B	12.4	B	12.6	0.2	No

Note: **Bold** indicates unacceptable operational conditions based on applicable City/Caltrans standards, as well as potentially significant impacts.

[a] LOS=Level of Service, Delay = Average control delay per vehicle

[b] Delay / LOS are for overall intersection

Source: TJKM Transportation Consultants, March 2013.

ii. Roadway Traffic Volumes

a) Arterial Streets

The following arterial segments (primary and minor) exceed 90 percent capacity with ADTs over 18,000 vehicles per day and under Near-Term 2014 plus Plan Components conditions more than 100 trips would be added to each of these segments; therefor, City's threshold of significance for arterial streets would be exceeded. As shown in Table 4.13-8, the future development would result in *significant* impacts on the following arterial roadway segments:

- Marsh Road from Bohannon Drive/Florence St to Scott Drive
- Marsh Road from Bay Road to Bohannon Drive/Florence Street
- Willow Road from Middlefield Road to Bay Road
- Willow Road from Gilbert Ave-Coleman Ave
- Willow Road from Coleman Ave-Durham St/Hospital Ave
- Willow Road from Durham St/Hospital Ave to Bay Road
- Middlefield Road from Ravenswood Avenue to Willow Road
- Ravenswood Avenue from El Camino Real to Alma Street
- Ravenswood Avenue from Alma Street to Laurel Street
- Ravenswood Avenue from Laurel Street to Middlefield Road
- Santa Cruz Avenue from Avy Ave/Orange Avenue to Olive Street
- Santa Cruz Avenue from Olive Street to University Drive
- Alpine Road/Santa Cruz Avenue from Junipero Serra Boulevard to City Limits
- Alpine Road/Santa Cruz Avenue from Sand Hill Road to Serra Boulevard

b) Collector Streets

Under Near-Term 2014 without Plan Components conditions more than a net total of 50 trips would be added to the following collector streets that are currently at 90 percent capacity with ADTs over 9,000 vehicles per day:

- University Drive from Menlo Avenue to Santa Cruz Avenue
- Oak Grove Avenue from El Camino Real to Laurel Street

TABLE 4.13-8 **ROADWAY AVERAGE DAILY TRAFFIC VOLUMES – EXISTING AND NEAR-TERM 2014 CONDITIONS**

Segment No.	Roadway	Segment	Classification	Existing ADT	Near-Term ADT	Near-Term Plus Project ADT	Future Trip ADT Contribution		Significant Impact
							Added Daily Volume	% of Near-Term	
1	Haven Ave	City Limits-Bayfront Expwy/Marsh Rd	Collector	5,751	5,873	7,512	1,639	27.9%	Yes
2-1	Marsh Rd	Bay Rd-Bohannon Dr/Florence St	Minor Arterial	27,013	33,251	34,534	1,284	3.9%	Yes
2-2		Bohannon Dr/Florence St-Scott Dr	Primary Arterial	32,768	39,414	41,033	1,619	4.1%	Yes
3	Hamilton Ave	Chilco St-Willow Rd	Collector	3,010	3,101	4,219	1,117	36.0%	Yes
4-1	Willow Rd	Laurel St-Middlefield Rd	Collector	5,181	6,181	6,245	64	1.0%	No
4-2		Middlefield Rd-Gilbert Ave	Minor Arterial	26,213	32,189	34,046	1,857	5.8%	Yes
4-3		Gilbert Ave-Coleman Ave	Minor Arterial	26,336	32,581	34,448	1,867	5.7%	Yes
4-4		Coleman Ave-Durham St/Hospital Ave	Minor Arterial	28,038	34,239	35,932	1,694	4.9%	Yes
4-5		Durham St/Hospital Ave-Bay Rd	Minor Arterial	32,148	38,225	39,722	1,496	3.9%	Yes
5	Middlefield Rd	Ravenswood Ave-Willow Rd	Minor Arterial	20,668	22,789	23,658	869	3.8%	Yes
6-1	Laurel St	Glenwood Ave-Oak Grove Ave	Collector	3,916	4,060	4,180	120	3.0%	No
6-2		Oak Grove Ave-Ravenswood Ave	Collector	4,404	4,497	4,507	10	0.2%	No
6-3		Ravenswood Ave-Willow Rd	Collector	4,917	6,231	6,293	62	1.0%	No
7-1	University Dr	Middle Ave-Menlo Ave	Collector	5,666	5,857	6,148	290	5.0%	No
7-2		Menlo Ave-Santa Cruz Ave	Collector	17,641	18,675	19,028	353	1.9%	Yes
7-3		Santa Cruz Ave-Oak Grove Ave	Collector	7,052	7,199	7,310	111	1.5%	No
7-4		Oak Grove Ave-Valparaiso Ave	Collector	5,376	5,499	5,560	61	1.1%	No
8-1	Valparaiso Ave/ Glenwood Ave	University Dr-El Camino Real	Minor Arterial	13,238	14,119	14,243	124	0.9%	No
8-2		El Camino Real-Laurel St	Collector	5,899	6,363	6,459	95	1.5%	No

Segment No.	Roadway	Segment	Classification	Existing ADT	Near-Term ADT	Near-Term Plus Project ADT	Future Trip ADT Contribution		Significant Impact
							Added Daily Volume	% of Near-Term	
9-1	Oak Grove Ave	University Dr -El Camino Real	Collector	10,038	10,246	10,296	50	0.5%	No
9-2		El Camino Real-Laurel St	Collector	9,677	9,967	10,175	208	2.1%	Yes
9-3		Laurel St-Middlefield Rd	Collector	8,556	8,728	8,754	26	0.3%	No
10-1	Ravenswood Ave	El Camino Real-Alma St	Minor Arterial	24,076	26,451	27,189	738	2.8%	Yes
10-2		Alma St-Laurel St	Minor Arterial	19,912	22,044	22,695	651	3.0%	Yes
10-3		Laurel St-Middlefield Rd	Minor Arterial	17,977	18,742	19,332	590	3.1%	Yes
11-1	Santa Cruz Ave	Alameda de las Pulgas- Avy Ave/Orange Ave	Minor Arterial	9,238	9,723	10,025	303	3.1%	No
11-2		Avy Ave/Orange Ave-Olive St	Minor Arterial	16,097	18,020	18,399	379	2.1%	Yes
11-3		Olive St-University Dr	Minor Arterial	17,179	18,911	19,234	323	1.7%	Yes
11-4		University Dr-Crane St	Minor Arterial	8,895	9,858	10,004	146	1.5%	No
11-5		Crane St-El Camino Real	Minor Arterial	8,074	9,899	9,998	99	1.0%	No
12-1	Middle Ave	Olive St-University Dr	Collector	7,222	7,583	7,796	212	2.8%	No
12-2		University Dr-El Camino Real	Collector	7,519	7,716	7,787	71	0.9%	No
13-1	Alpine Rd/ Santa Cruz Ave	Junipero Serra Blvd-City Limits	Minor Arterial	23,406	23,868	23,988	120	0.5%	Yes
13-2		Sand Hill Rd-Junipero Serra Blvd	Minor Arterial	30,187	31,077	31,306	229	0.7%	Yes
14	Linfield Dr	Middlefield Rd - Laurel St	Local	1,583	1,615	1,756	141	8.7%	Yes
15	Oak Ave	Sand Hill Rd - Olive St	Local	2,518	2,615	2,759	143	5.5%	Yes

Notes: Bold indicates potentially significant impacts.
Source: TJKM Transportation Consultants, March 2013.

Future trips would exceed the City's threshold by adding 12.5 percent additional trips or resulting in an ADT that would exceed 9,000 vehicles per day for the collector streets which exceed 50 percent capacity with ADTs greater than 5,000 vehicles per day at the following intersection:

- Haven Avenue from City Limits to Bayfront Expressway/Marsh Road

Future trips would exceed the City's threshold by adding more than 25 percent additional trips for the collector streets with ADTs of less than 5,000 vehicles per day at the following collector street segment:

- Hamilton Avenue from Chilco Street to Willow Road

c) Local Streets

Under Near-Term 2014 without Plan Components conditions future trips more than a net total of 25 trips would be added to the following local streets that are currently at 90 percent capacity with ADTs over 1,350 vehicles per day:

- Linfield Drive from Middlefield Road to Laurel Street
- Oak Avenue from Sand Hill Road to Olive Street

a) Freeway Peak Hour Volumes

The six selected freeway segments are all considered as Routes of Regional Significance by the San Mateo County CMP. As shown in Table 4.13-9, all study segments currently operate at their CMP level of service standards or worse, with the exception of SR 84 between Marsh Road and Willow Road. The results shown in Table 4.13-9 also show that the addition of the traffic volumes generated by the future development permitted under the Plan Components would result in *significant* impacts on US 101 South of Marsh Road.

Within these intersections, the intersections of Bohannon Drive/Florence Street and Marsh Road and US 101 NB Ramps and Marsh Road operate at acceptable level of service prior to the addition of the future development under the Plan Components. The intersection of Bayfront Expressway and Marsh Road operates at acceptable level of service during the AM peak hour prior to the addition of the future housing under the Plan Components.

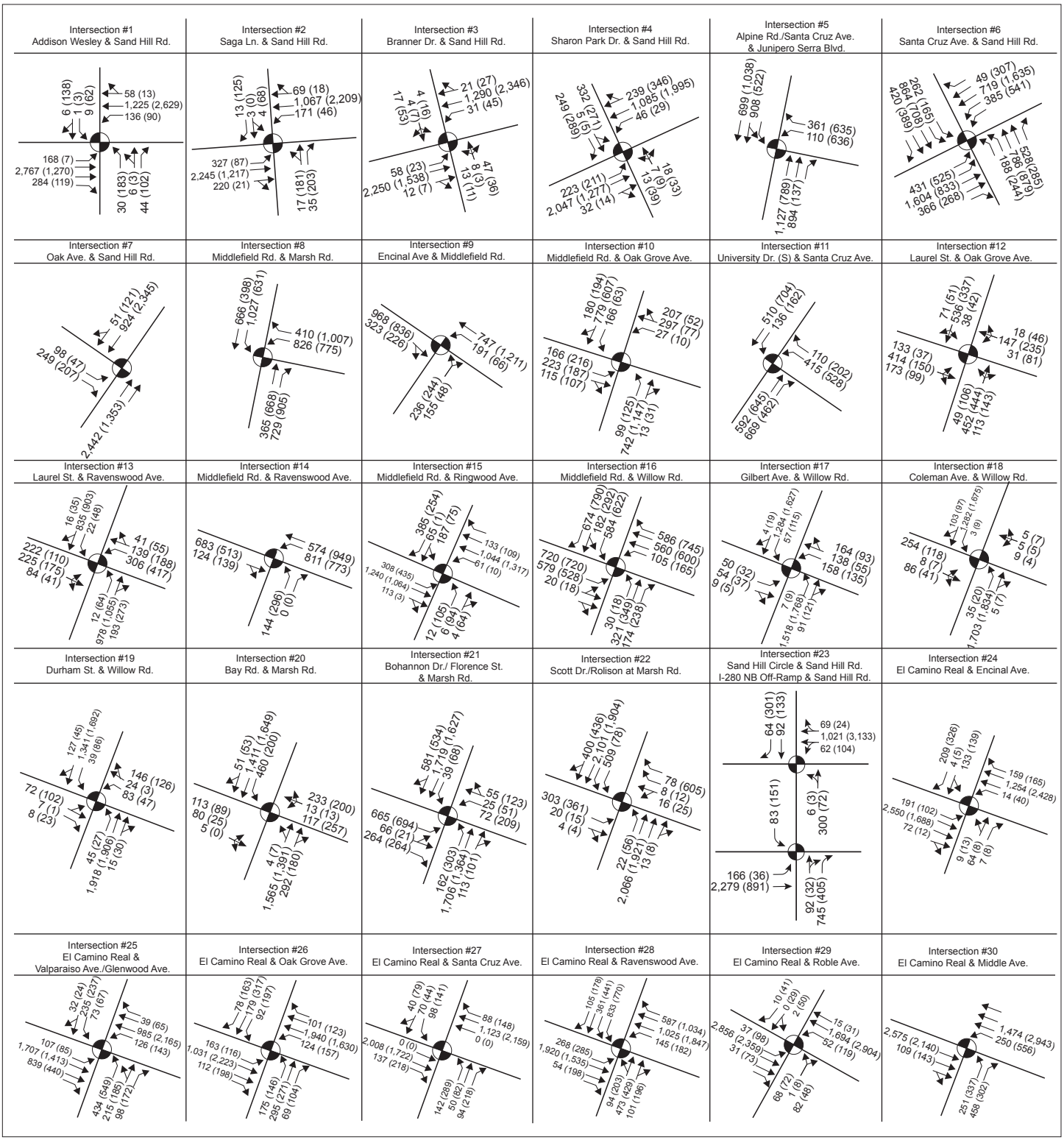
As shown in Table 4.13-9, eight intersections listed below would have *significant* impacts with the addition of trips from future residential development under Near-Term 2014 plus Plan Components conditions during AM or PM peak hour.

- Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard during AM peak hour delay increases by more than 0.8 seconds.
- Middlefield Road and Willow Road during both AM and PM peak hour delay increases by more than 0.8 seconds.
- Bohannon Drive/Florence Street and Marsh Road during PM peak hour level of service degrades from LOS D to LOS E.
- Scott Drive/Rolison Road and Marsh Road during PM peak hour delay increases by more than 0.8 seconds.
- Newbridge Street and Willow Road (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds.
- Bayfront Expressway and Willow Road (Caltrans) during PM peak hour delay increases by more than 0.8 seconds.
- Bayfront Expressway and Marsh Road (Caltrans) during both AM and PM peak hour level of service degrades from LOS D to LOS F during AM Peak hour and delay increases by 23 seconds for PM peak hour.
- US 101 NB Ramps and Marsh Road (Caltrans) during AM peak hour level of service degrades from LOS D to LOS E.

b. 2035 Plus Plan Components Conditions

i. Intersection Levels of Service Analysis

Figures 4.13-8a and 4.13-8b illustrate the peak hour turning movement volumes at the study intersections, as well as lane geometry and traffic controls under 2035 plus Plan Components conditions. Anticipated traffic controls and lane geometries for the study intersections are also included in this figure. The roadway segment and freeway segment ADTs for 2035 plus Plan Components conditions were estimated based on the existing ADTs and the traffic volumes for the intersections along the segments.



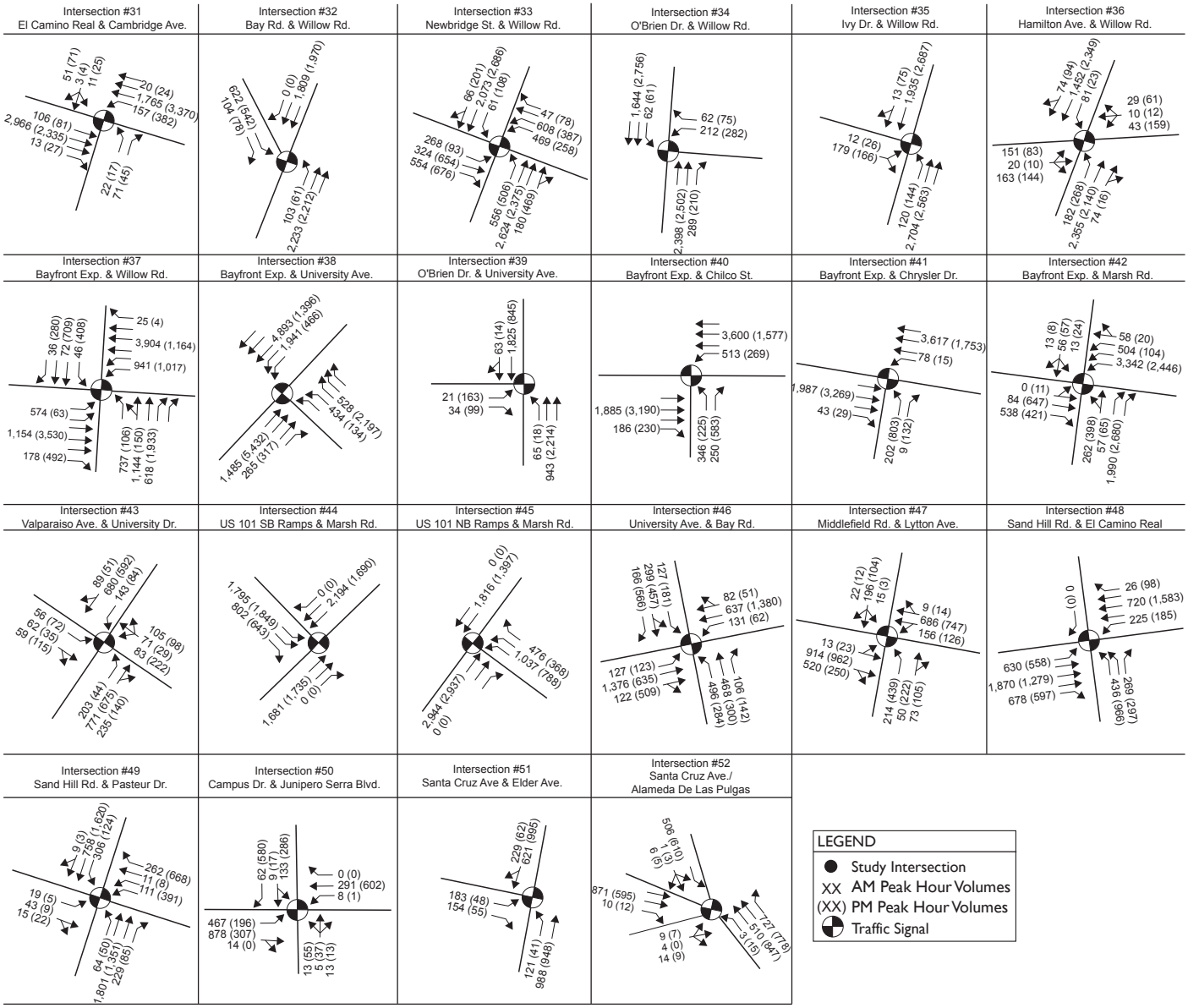
Source: TJKM Transportation Consultants.

LEGEND

- Study Intersection
- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- Traffic Signal

FIGURE 4.13-8A

2035 PLUS PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS



Source: TJKM Transportation Consultants.

FIGURE 4.13-8B

2035 PLUS PLAN COMPONENTS PEAK HOUR VOLUMES AND LANE CONFIGURATIONS

TABLE 4.13-9 **FREEWAY LEVELS OF SERVICE – EXISTING AND NEAR-TERM 2014 CONDITIONS**

Segment No.	Roadway	Segment	Existing LOS[a]	CMP LOS Standards	Capacity[b]	Project Trips	% of Capacity	Significant Impact?
1	US 101	N/O Marsh Rd	F	F	9,200	20	0.21%	No
2	US 101	S/O Marsh Rd	F	F	9,200	134	1.46%	Yes
3	US 101	S/O Willow Rd	F	F	9,200	88	0.96%	No
4 -1	SR 84	Marsh Rd – Willow Rd	B	D	4,500	4	0.09%	No
4-2	SR 84	Willow Rd – University Ave	F	E	4,500	10	0.22%	No
5	I-280	N/O Sand Hill	E	D	9,200	9	0.10%	No
6	I-280	S/O Sand Hill	E	D	9,200	12	0.13%	No

Note: Bold indicates unacceptable operational conditions based on applicable City/Caltrans standards, as well as potentially significant impacts.
[a] Source: 2011 CMP Monitoring Report. Based on average speed.
[b] Capacity is based on number of lanes and 2,200 vehicles per hour per lane (vphpl) for four lane segments and 2,300 vphpl for six lane and more segments for US 101 and I-280. Capacity of 1,500 vphpl is used for SR 84 segments.
Source: TJKM Transportation Consultants, March 2013.

The level of service was evaluated for the study intersections under 2035 plus Plan Components conditions. Table 4.13-10 summarizes the results. Detailed level of service calculations are contained in Appendix G of the Traffic Report (see Appendix F of this EA).

As previously discussed, under 2035 without Plan Components conditions all study intersections operate within acceptable standards, with the exception of 29 intersections. With the addition of trips generated by future development under the Plan Components, no additional intersections operate at unacceptable levels of service. However, the levels of service for the five intersections listed below would be degraded:

- Laurel Street & Ravenswood Avenue operates at LOS E during AM peak hour
- Middlefield Road and Ravenswood Avenue operates at LOS E during AM peak hour.
- Gilbert Avenue and Willow Road operates at LOS E during AM peak hour and LOS F during PM peak hour.
- Bohannon Drive/Florence Street and Marsh Road operates at LOS F during AM peak hour.
- Hamilton Avenue and Willow Road (Caltrans) operates at LOS E during AM peak hour and LOS F during PM peak hour.
- US 101 NB Ramps and Marsh Road (Caltrans) operates at LOS F during PM peak hour.

As shown in Table 4.13-11, 25 intersections have *significant* impacts with the addition of trips from future development to the 2035 conditions during the AM or PM peak hours to the following intersections:

- Addison Wesley and Sand Hill Road during AM peak hour delay increases by more than 0.8 seconds.
- Sharon Park Drive and Sand Hill Road during PM peak hour delay increases by more than 0.8 seconds.
- Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard during both AM and PM peak hours delay increases by more than 0.8 seconds.
- Santa Cruz Avenue and Sand Hill Road during both AM and PM peak hours delay increases by more than 0.8 seconds.
- Middlefield Road and Marsh Road (Atherton) during both AM and PM peak hours delay increases by 4 seconds at LOS F.
- Laurel Street and Ravenswood Avenue during AM peak hour the LOS degrades from LOS D to LOS E.

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
1	Addison Wesley and Sand Hill Rd.	Signal	Menlo Park	D	E	57.2	E	59.4	2.2	Yes	D	42.5	D	44.6	2.1	No
2	Saga Ln. and Sand Hill Rd.	Signal	Menlo Park	D	B	11.1	B	11.3	0.2	No	B	15.5	B	15.7	0.2	No
3	Branner Dr. and Sand Hill Rd.	Signal	Menlo Park	D	A	5.4	A	5.4	0.0	No	A	7.9	A	8.1	0.2	No
4	Sharon Park Dr. and Sand Hill Rd.	Signal	Menlo Park	D	D	43.9	D	47.4	3.5	No	E	64.3	E	69.2	4.9	Yes
5	Alpine Rd./Santa Cruz Ave. and Junipero Serra Blvd.	Signal	Menlo Park	D	F	108.1	F	109.2	1.1	Yes	E	69.1	E	70.4	1.3	Yes
6	Santa Cruz Ave. and Sand Hill Rd.	Signal	Menlo Park	D	E	61.6	E	62.7	1.1	Yes	E	58.0	E	60.4	2.4	Yes
7	Oak Ave. and Sand Hill Rd.	Signal	Menlo Park	D	B	14.3	B	14.9	0.6	No	B	10.2	B	10.8	0.6	No
8	Middlefield Rd. and Marsh Rd.	Signal	Atherton	D	F	116.4	F	124.3	7.9	Yes	F	87.5	F	99.5	12.0	Yes
9	Encinal Ave. and Middlefield Rd.	Signal	Atherton	D	D	45.9	D	48.8	2.9	No	B	15.2	B	15.8	0.6	No
10	Middlefield Rd. and Oak Grove Ave.	Signal	Atherton	D	C	32.9	C	33.8	0.9	No	B	16.9	B	17.6	0.7	No
11	University Dr. (S) and Santa Cruz Ave.	Signal	Menlo Park	D	B	18.2	B	18.6	0.4	No	C	20.0	C	20.5	0.5	No
12	Laurel St. and Oak Grove Ave.	Signal	Menlo Park	C	C	24.1	C	25.3	1.2	No	B	14.3	B	14.7	0.4	No

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
13	Laurel St. and Ravenswood Ave.	Signal	Menlo Park	D	D	52.9	E	55.7	2.8	Yes	D	41.3	D	47.3	6.0	No
14	Middlefield Rd. and Ravenswood Ave.	Signal	Menlo Park	D	D	50.1	E	57.0	6.9	Yes	E	69.4	E	78.3	8.9	Yes
15	Middlefield Rd. and Ringwood Ave.	Signal	Menlo Park	D	C	29.9	C	29.9	0.0	No	C	29.0	C	29.0	0.0	No
16	Middlefield Rd. and Willow Rd.	Signal	Menlo Park	D	F	144.3	F	156.0	11.7	Yes	F	187.8	F	207.2	19.4	Yes
17	Gilbert Ave. and Willow Rd.	Signal	Menlo Park	D	D	51.6	E	58.5	6.9	Yes	E	63.9	F	81.0	17.1	Yes
18	Coleman Ave. and Willow Rd.	Signal	Menlo Park	D	F	93.5	F	103.7	10.2	Yes	F	80.9	F	97.4	16.5	Yes
19	Durham St. and Willow Rd.	Signal	Menlo Park	D	C	26.9	C	32.5	5.6	No	E	55.1	E	61.6	6.5	Yes
20	Bay Rd. and Marsh Rd.	Signal	Menlo Park	D	E	63.7	E	66.2	2.5	Yes	C	31.8	D	35.8	4.0	No
21	Bohannon Dr./Florence St. and Marsh Rd.	Signal	Menlo Park	D	E	76.3	F	86.9	10.6	Yes	F	128.1	F	132.9	4.8	Yes
22	Scott Dr./Rolison Rd. and Marsh Rd.	Signal	Menlo Park	D	E	74.5	F	80.8	6.3	Yes	F	138.9	F	144.0	5.1	Yes
23	Sand Hill Circle and Sand Hill Rd.	Signal	Menlo Park	D	C	27.2	C	28.1	0.9	No	F	142.7	F	148.4	5.7	Yes
	WB Critical Approach on Sand Hill Rd.										F	140.3	F	146.1	5.8	

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
	I-280 NB Off-Ramp and Sand Hill Rd.	Signal	Caltrans	D	E	68.1	E	76.6	8.4	Yes	C	26.1	C	26.8	0.7	No
	EB Critical Approach on Sand Hill Rd.				E	60.2	E	69.1	8.9							
24	El Camino Real and Encinal Ave.	Signal	Caltrans	D	B	18.7	B	18.7	0.0	No	C	31.8	C	32.0	0.2	No
25	El Camino Real and Valparaiso Ave./Glenwood Ave.	Signal	Caltrans	D	D	48.8	D	49.8	1.0	No	E	57.3	E	58.9	1.6	Yes
	EB Critical Local Approach on Valparaiso Ave.										F	99.4	F	101.3	1.9	
26	El Camino Real and Oak Grove Ave.	Signal	Caltrans	D	D	38.3	D	39.2	0.9	No	D	52.1	D	52.6	0.5	No
27	El Camino Real and Santa Cruz Ave.	Signal	Caltrans	D	B	16.5	B	16.5	0.0	No	C	31.5	C	32.2	0.7	No
28	El Camino Real and Ravenswood Ave./Menlo Ave.	Signal	Caltrans	D	F	82.2	F	84.6	2.4	Yes	F	123.4	F	130.1	6.7	Yes
	WB Critical Local Approach on Ravenswood Ave.				F	114.7	F	117.1	2.4		F	223.0	F	235.0	12.0	
29	El Camino Real and Roble Ave.	Signal	Caltrans	D	B	14.0	B	14.0	0.0	No	D	47.6	D	48.1	0.5	No
30	El Camino Real and Middle Ave.	Signal	Caltrans	D	D	52.9	D	53.9	1.0	No	F	134.8	F	136.5	1.7	Yes

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
	EB Critical Local Approach on Middle Ave.										F	223.8	F	225.6	2.8	
31	El Camino Real and Cambridge Ave.	Signal	Caltrans	D	B	16.0	B	16.1	0.1	No	C	22.1	C	22.1	0.0	No
32	Bay Rd. and Willow Rd.	Signal	Caltrans	D	E	63.0	E	68.1	5.1	Yes	D	48.0	D	54.4	6.4	No
	EB Critical Approach on Willow Rd.				E	71.5	E	76.3	4.8							
33	Newbridge St. and Willow Rd.	Signal	Caltrans	D	F	235.3	F	255.1	19.8	Yes	F	292.4	F	315.4	23.0	Yes
	SB Critical Local Approach on Newbridge St.				F	380.4	F	423.2	42.8							
34	O'Brien Dr. and Willow Rd.	Signal	Caltrans	D	B	18.3	B	18.6	0.3	No	C	34.3	D	39.6	5.3	No
35	Ivy Dr. and Willow Rd.	Signal	Caltrans	D	C	22.3	C	23.5	1.2	No	D	37.6	D	41.8	4.2	No
36	Hamilton Ave. and Willow Rd.	Signal	Caltrans	D	D	37.6	E	55.7	18.1	Yes	E	57.8	F	83.1	25.3	Yes
37	Bayfront Exp. and Willow Rd.	Signal	Caltrans	D	F	156.8	F	156.7	-0.1	No	F	235.2	F	235.9	0.7	Yes
	WB Critical Approach on Willow Road										F	322.9	F	323.8	0.9	
38	Bayfront Exp. and University Ave.	Signal	Caltrans	D	F	82.8	F	83.3	0.5	No	F	293.1	F	293.2	0.1	No

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
39	O'Brien Dr. and University Ave.	Signal	Caltrans	D	A	6.7	A	6.7	0.0	No	B	12.3	B	12.3	0.0	No
40	Bayfront Exp. and Chilco St.	Signal	Caltrans	D	D	37.4	D	37.4	0.0	No	F	103.9	F	104.0	0.1	No
41	Bayfront Exp. and Chrysler Dr.	Signal	Caltrans	D	B	13.8	B	13.8	0.0	No	F	102.6	F	102.7	0.1	No
42	Bayfront Exp. and Marsh Rd.	Signal	Caltrans	D	F	94.6	F	159.2	64.6	Yes	F	178.9	F	197.3	18.4	Yes
	EB Critical Approach on Marsh Rd.										F	174.7	F	213.3	38.6	
43	Valparaiso Ave. and University Dr.	Signal	Menlo Park	D	B	19.4	B	19.7	0.3	No	C	21.2	C	21.5	0.3	No
44	US 101 SB Ramps and Marsh Rd.	Signal	Caltrans	D	F	104.8	F	111.7	6.9	Yes	E	70.8	E	78.4	7.6	Yes
	WB Critical Approach on Marsh Rd.				F	129.0	F	139.0	10.0		E	69.7	E	77.5	7.8	
45	US 101 NB Ramps and Marsh Rd.	Signal	Caltrans	D	F	95.8	F	112.5	16.7	Yes	E	74.6	F	89.1	14.5	Yes
	EB Critical Approach on Marsh Rd.				F	122.0	F	145.0	23.0		F	94.5	F	109.0	14.5	
46	University Ave. and Bay Rd.	Signal	Caltrans	D	E	60.0	E	60.0	0.0	No	E	69.0	E	69.0	0.0	No
47	Middlefield Rd. and Lytton Ave.	Signal	Palo Alto	D	E	64.1	E	69.9	5.8	No	E	63.6	E	70.3	6.7	No

TABLE 4.13-10 **PEAK HOUR INTERSECTION LEVELS OF SERVICE – EXISTING AND 2035 CONDITIONS**

					AM Peak Hour						PM Peak Hour					
					Cumulative		2035 Plus Project				Cumulative		2035 Plus Project			
Int. No.	Intersection	Control	Jurisdiction	LOS Threshold	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?	LOS	Delay (sec)	LOS	Delay (sec)	Delay Diff (sec)	Sig. Impact?
48	Sand Hill Rd. and El Camino Real	Signal	Caltrans	D	C	23.5	C	23.6	0.1	No	C	34.0	C	34.3	0.3	No
49	Sand Hill Rd. and Pasteur Dr.	Signal	Palo Alto	D	C	34.5	C	34.7	0.2	No	D	46.3	D	46.7	0.4	No
50	Campus Dr. and Junipero Serra Blvd.	Signal	Santa Clara Co.	D	B	19.9	C	20.2	0.3	No	D	50.3	D	50.3	0.0	No
51	Santa Cruz Ave. and Elder Ave.	Signal	Menlo Park	D	B	19.0	B	19.1	0.1	No	A	7.2	A	7.2	0.0	No
52	Santa Cruz Ave./Alameda De Las Pulgas	Signal	San Mateo Co.	D	B	13.5	B	13.8	0.3	No	B	14.7	B	15.0	0.3	No

Note: **Bold** indicates unacceptable operational conditions based on applicable City/Caltrans standards, as well as potentially significant impacts.

[a] LOS = Level of Service. Delay = Average control delay per vehicle.

[b] Delay / LOS are for overall intersection

Source: TJKM Transportation Consultants, March 2013.

TABLE 4.13-11 **ROADWAY AVERAGE DAILY TRAFFIC VOLUMES – EXISTING AND 2035 CONDITIONS**

No.	Roadway	Segment	Classification	Existing ADT	2035 ADT	2035 Plus Plan ADT	Trip ADT Contribution		
							Added Daily Volume	% of 2035	Significant Impact
1	Haven Ave	City Limits-Bayfront Expwy/Marsh Rd	Collector	5,751	7,235	8,874	1,639	22.7%	Yes
2-1	Marsh Rd	Bay Rd-Bohannon Dr/Florence St	Minor Arterial	27,013	43,338	44,616	1,278	2.9%	Yes
2-2		Bohannon Dr/Florence St-Scott Dr	Primary Arterial	32,768	51,195	52,817	1,622	3.2%	Yes
3	Hamilton Ave	Chilco St-Willow Rd	Collector	3,010	3,812	4,929	1,117	29.3%	Yes
4-1	Willow Rd	Laurel St-Middlefield Rd	Collector	5,181	8,964	9,048	85	0.9%	No
4-2		Middlefield Rd-Gilbert Ave	Minor Arterial	26,213	43,774	45,626	1,852	4.2%	Yes
4-3		Gilbert Ave-Coleman Ave	Minor Arterial	26,336	43,885	45,747	1,862	4.2%	Yes
4-4		Coleman Ave-Durham St/Hospital Ave	Minor Arterial	28,038	45,853	47,549	1,697	3.7%	Yes
4-5		Durham St/Hospital Ave-Bay Rd	Minor Arterial	32,148	50,607	52,108	1,500	3.0%	Yes
5	Middlefield Rd	Ravenswood Ave-Willow Rd	Minor Arterial	20,668	29,610	30,467	856	2.9%	Yes
6-1	Laurel St	Glenwood Ave-Oak Grove Ave	Collector	3,916	5,717	5,840	123	2.1%	No
6-2		Oak Grove Ave-Ravenswood Ave	Collector	4,404	5,540	5,554	14	0.3%	No
6-3		Ravenswood Ave-Willow Rd	Collector	4,917	9,481	9,599	118	1.2%	Yes
7-1	University Dr	Middle Ave-Menlo Ave	Collector	5,666	8,087	8,372	285	3.5%	No
7-2		Menlo Ave-Santa Cruz Ave	Collector	17,641	24,577	24,930	353	1.4%	Yes
7-3		Santa Cruz Ave-Oak Grove Ave	Collector	7,052	9,210	9,335	125	1.4%	Yes
7-4		Oak Grove Ave-Valparaiso Ave	Collector	5,376	7,197	7,253	56	0.8%	No
8-1	Valparaiso Ave/ Glenwood Ave	University Dr-El Camino Real	Minor Arterial	13,238	18,279	18,422	143	0.8%	Yes
8-2		El Camino Real-Laurel St	Collector	5,899	7,854	7,957	102	1.3%	No

No.	Roadway	Segment	Classification	Existing ADT	2035 ADT	2035 Plus Plan ADT	Trip ADT Contribution: Added Daily Volume	Trip ADT Contribution: % of 2035	Significant Impact
9-1	Oak Grove Ave	University Dr -El Camino Real	Collector	10,038	12,808	12,851	43	0.3%	No
9-2		El Camino Real-Laurel St	Collector	9,677	13,196	13,399	203	1.5%	Yes
9-3		Laurel St-Middlefield Rd	Collector	8,556	10,710	10,742	31	0.3%	No
10-1	Ravenswood Ave	El Camino Real-Alma St	Minor Arterial	24,076	37,525	38,471	946	2.5%	Yes
10-2		Alma St-Laurel St	Minor Arterial	19,912	31,116	31,972	856	2.8%	Yes
10-3		Laurel St-Middlefield Rd	Minor Arterial	17,977	25,237	25,827	589	2.3%	Yes
11-1	Santa Cruz Ave	Alameda de las Pulgas- Avy Ave/ Orange Ave	Minor Arterial	9,238	12,973	13,282	308	2.4%	No
11-2		Avy Ave/Orange Ave-Olive St	Minor Arterial	16,097	23,277	23,644	367	1.6%	Yes
11-3		Olive St-University Dr	Minor Arterial	17,179	24,391	24,720	329	1.4%	Yes
11-4		University Dr-Crane St	Minor Arterial	8,895	13,298	13,466	168	1.3%	No
11-5		Crane St-El Camino Real	Minor Arterial	8,074	12,969	13,087	118	0.9%	No
12-1	Middle Ave	Olive St-University Dr	Collector	7,222	9,936	10,162	226	2.3%	Yes
12-2		University Dr-El Camino Real	Collector	7,519	10,450	10,530	80	0.8%	Yes
13-1	Alpine Rd/ Santa Cruz Ave	Junipero Serra Blvd-City Limits	Minor Arterial	23,406	29,425	29,550	125	0.4%	Yes
13-2		Sand Hill Rd-Junipero Serra Blvd	Minor Arterial	30,187	38,793	39,026	233	0.6%	Yes
14	Linfield Dr	Middlefield Rd - Laurel St	Local	1,583	1,990	2,131	141	7.1%	Yes
15	Oak Ave	Sand Hill Rd - Olive St	Local	2,518	3,482	3,645	163	4.7%	Yes

Notes: Bold indicates potentially significant impacts.

Source: TJKM Transportation Consultants, March 2013.

- Middlefield Road and Ravenswood Avenue during both AM and PM peak hours level of service degrades from LOS D to LOS E during AM peak hour and delay increases by more than 0.8 seconds during PM peak hour.
- Middlefield Road and Willow Road during both AM and PM peak hour delay increases by more than 0.8 seconds.
- Gilbert Avenue and Willow Road during both AM and PM peak hour level of service degrades from LOS D to LOS E during AM peak hour and delay increases by more than 0.8 seconds during PM peak hour.
- Coleman Avenue and Willow Road during both AM and PM peak hours delay increases by more than 0.8 seconds.
- Durham Street and Willow Road during PM peak hour delay increases by more than 0.8 seconds
- Bay Road and Marsh Road during AM peak hour delay increases by more than 0.8 seconds.
- Bohannon Drive/Florence Street and Marsh Road during both AM and PM peak hours delay increases by more than 0.8 seconds.
- Scott Drive/Rolison Road and Marsh Road during both AM and PM peak hours delay increases by more than 0.8 seconds.
- I-280 NB Off-Ramp/Sand Hill Circle and Sand Hill Road (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds.
- El Camino Real and Valparaiso Avenue/Glenwood Avenue (Caltrans) during PM peak hour delay increases by more than 0.8 seconds
- El Camino Real and Ravenswood Avenue/Menlo Avenue (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds
- El Camino Real and Middle Avenue (Caltrans) during PM peak hour delay increases by more than 0.8 seconds
- Bay Road and Willow Road (Caltrans) during AM peak hour delay increases by more than 0.8 seconds
- Newbridge Street and Willow Road (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds during AM peak hour delay increases by 23 seconds for PM peak hour
- Hamilton Avenue and Willow Road (Caltrans) during both AM and PM peak hour level of service degrades from LOS D to LOS E during AM peak hour delay increases by 23 seconds for PM peak hour

- Bayfront Expressway and Willow Road (Caltrans) during PM peak hour delay increases by more than 0.8 seconds
- Bayfront Expressway and Marsh Road (Caltrans) during both AM and PM peak hour delay increase by 23 seconds during AM Peak hour
- The most critical movement delay increases by more than 0.8 seconds during PM peak hour
- US 101 SB Ramps and Marsh Road (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds
- US 101 NB Ramps and Marsh Road (Caltrans) during both AM and PM peak hours delay increases by more than 0.8 seconds

ii. Roadway Traffic Volumes

a) Arterial Streets

The following arterial segments (primary and minor) exceed 90 percent capacity with ADTs over 18,000 vehicles per day and under 2035 plus Plan Components conditions more than 100 trips would be added to each of these segments; therefore, City's threshold of significance for arterial streets would be exceeded.

- Marsh Road from Bohannon Drive/Florence Street to Scott Drive (primary arterial)
- Marsh Road from Bay Road to Bohannon Drive/Florence Street
- Willow Road from Middlefield Road to Gilbert Avenue
- Willow Road from Gilbert Avenue to Coleman Ave
- Willow Road from Coleman Avenue to Durham St/Hospital Avenue
- Willow Road from Durham Street/Hospital Ave to Bay Road
- Middlefield Road from Ravenswood Avenue to Willow Road
- Valparaiso Avenue/Glenwood Avenue from University Drive to El Camino Real
- Ravenswood Avenue from El Camino Real to Alma Street
- Ravenswood Avenue from Alma Street to Laurel Street
- Ravenswood Avenue from Laurel Street to Middlefield Road
- Santa Cruz Ave from Avy Avenue/Orange Ave to Olive Street
- Santa Cruz Ave from Olive Street to University Drive

- Alpine Road/Santa Cruz Avenue from Junipero Serra Boulevard to City Limits
- Alpine Road/Santa Cruz Avenue from Sand Hill Road to Serra Boulevard

b) Collector Streets

More than a net total of 50 trips would be added to the following collector streets that are currently at 90 percent capacity with ADTs over 9,000 vehicles per day:

- University Drive from Menlo Avenue to Santa Cruz Avenue
- University Drive from Santa Cruz Avenue to Oak Grove Avenue
- Oak Grove Avenue from University Drive to El Camino Real
- Oak Grove Avenue from El Camino Real to Laurel Street
- Middle Avenue from Olive Street to University Drive
- Middle Avenue from University Drive to El Camino Real

Future trips would exceed the City's threshold by adding more than 12.5 percent additional trips or resulting in an ADT that would exceed 9,000 vehicles per day for the collector streets which exceed 50 percent capacity with ADTs over 5,000 vehicles per day at the following segment.

- Haven Avenue from City Limits to Bayfront Expressway/Marsh Road

Future trips would exceed the City's threshold by adding more than 25 percent additional trips for the collector streets with ADTs of less than 5,000 vehicles per day at the following collector street segment:

- Hamilton Avenue from Chilco Street to Willow Road

c) Local Streets

Future trips more than a net total of 25 trips would be added to the following local streets that are currently at 90 percent capacity with ADTs over 1,350 vehicles per day:

- Linfield Drive from Middlefield Road to Laurel Street
- Oak Avenue from Sand Hill Road to Olive Street

d) Freeway Traffic Volumes

The six selected freeway segments are all considered as Routes of Regional Significance by the San Mateo County CMP. As shown in Table 4.13-12, all study segments currently operate at their CMP level of ser-

vice standards or worse, with the exception of SR 84 between Marsh Road and Willow Road. The results shown in Table 4.13-12 also show that the addition of the traffic volumes generated by the future development under the Plan Components would bring potentially significant impact on US 101 South of Marsh Road.

2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

As discussed above in Section F.1, selected roadway and freeway segments on the C/CAG's CMP system were assessed to determine compliance with the C/CAG's CMP standards. The results for roadway and freeway segments are presented in Table 4.13-5 and Table 4.13-6, respectively.

As shown in Table 4.13-5, the future development would result in *significant* impacts on 12 roadway segments under Near-Term 2014 plus Plan Components conditions. Out of the six freeway segments analyzed, as shown on Table 4.13-6, the addition of the traffic volumes generated by the future development permitted under the Plan Components would result in *significant* impacts on the freeway segment on US 101 South of Marsh Road.

3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

The EA Study Area is located approximately two miles from Palo Alto Airport, but no portions of the City are within the airport safety zones identified in the Comprehensive Land Use Plan for the airport.[14] Menlo Park is located more than two miles from the San Francisco International and San Carlos Airports to the north and Moffett Federal Airfield to the south. The Plan Components do not propose any land uses which could disrupt air traffic patterns and *no impact* would occur.

[14] Santa Clara County Airport Land Use Commission, 2008. Palo Alto Airport Comprehensive Land Use Plan, Figure 7, http://www.sccgov.org/sites/planning/Plans%20-%20Programs/Airport%20Land-Use%20Commission/Documents/PAO-adopted-11-19-08-CLUP.pdf, accessed on September 6, 2012.

TABLE 4.13-12 **FREEWAY TRAFFIC VOLUMES – EXISTING AND 2035 CONDITIONS**

Segment No.	Roadway	Segment	Existing LOS[a]	CMP LOS Standards	Capacity[b]	Project Trips	% of Capacity	Significant Impact?
1	US 101	N/O Marsh Rd	F	F	11,500	20	0.17%	No
2	US 101	S/O Marsh Rd	F	F	11,500	134	1.17%	Yes
3	US 101	S/O Willow Rd	F	F	11,500	88	0.77%	No
4 -1	SR 84	Marsh Rd – Willow Rd	B	D	4,500	4	0.09%	No
4-2	SR 84	Willow Rd – University Ave	F	E	4,500	10	0.22%	No
5	I-280	N/O Sand Hill	E	D	9,200	7	0.08%	No
6	I-280	S/O Sand Hill	E	D	9,200	14	0.16%	No

Note: Bold indicates unacceptable operational conditions based on applicable City/Caltrans standards, as well as potentially significant impacts.
[a] Source: 2011 CMP Monitoring Report. Based on average speed.
[b] Capacity is based on number of lanes and 2,200 vphpl for four lane segments and 2,300 vphpl for six lane and more segments for US 101 and I-280. Capacity of 1,500 vphpl is used for SR 84 segments.
Source: TJKM Transportation Consultants, March 2013.

4. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).

The Plan Components would result in an increase of residential and some mixed-use land uses. As these land uses develop, construction of new roadways would not be necessary; however, modifications to existing roadways may be necessary to support the growth. As with current practice, the improvements would be designed and reviewed in accordance with the City's Public Works Department Transportation Program. In addition, the future housing would be concentrated on sites either already developed and/or in close proximity to existing residential and residential-serving development, where impacts related to incompatible traffic related land uses would not likely occur with the exception of housing Site 5 (Haven Avenue).

Housing Site 5 (Haven Avenue) is located in an area surrounded by limited industrial uses and would not be compatible with the surrounding land uses. However, the General Plan contains policies that would reduce potential hazards due to roadway design or incompatible uses through establishing acceptable levels of service, travel speeds, and promote land use compatibility as follows:

a. Current General Plan Land Use and Circulation Element

- Policy II-A-1: Level of service D (40 seconds average stopped delay per vehicle) or better shall be maintained at all City-controlled signalized intersections during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and at intersections along Willow Road from Middlefield Road to US 101.
- Policy II-A-2: The City should attempt to achieve and maintain average travel speeds of 14 miles per hour (Level of Service D) or better on El Camino Real and other arterial roadways controlled by the State, and at 46 miles per hour (Level of Service D) or better on US 101. The City shall work with Caltrans to achieve and maintain average travel speeds and intersection level of service consistent with standards established by the San Mateo County Congestion Management Plan.
- Policy II-A-3: The City shall work with Caltrans to ensure that average stopped delay on local approaches to State-controlled signalized intersections does not exceed Level of Service E (60 seconds per vehicle).
- Policy II-A-4: New development shall be restricted or required to implement mitigation measures in order to maintain the levels of service and travel speeds specified in Policies II-A-1 through II-A-3.

- Policy II-A-8: New development shall be reviewed for its potential to generate significant traffic volumes on local streets in residential areas and shall be required to mitigate potential significant traffic problems.
- Policy I-A-2: New residential developments shall be designed to be compatible with Menlo Park's residential character.
- Policy I-A-4: Residential uses may be combined with commercial uses in a mixed use project, if the project is designed to avoid conflicts between the uses, such as traffic, parking, noise, dust, and odors.
- Policy I-A-7: Development of secondary residential units on existing developed residential lots shall be encouraged consistent with adopted City standards

Future developments and roadway improvements would be designed in accordance to City standards and will be subject to the General Plan policies. Compliance with the City standards and policies would ensure that the future housing would not significantly increase hazards due to design features or incompatible uses. Therefore, the Plan Components impact is *less than significant*.

5. Result in inadequate emergency access.

Development permitted under the Plan Components would be dispersed throughout the City and does not propose any new major roadways or other physical features through existing neighborhoods that would obstruct emergency access to evacuation routes. Substantial land use changes would occur to the land use map with regards to potential housing Site 5 (Haven Avenue) where the Limited Industry land use designation would change to a Residential land use designation allowing up to 40 dwelling units per acre. However, housing Site 5 (Haven Avenue) would rely on existing roadway infrastructure and would not obstruct existing emergency access to evacuation routes. In addition, buildings and site design for individual projects would be designed and built according to local Fire District standards and State Building Code standards, further ensuring that emergency access by fire or emergency services personnel would not be impaired. The Plan Components do not propose any new major roadways or other physical features through existing neighborhoods that would create new barriers in the EA Study Area under the Plan Components would be reviewed by City Planning, Engineering and Building Departments as well as the Menlo Park Fire Protection District for compliance with the Zoning and Building Code and Engineering Standards and Fire Code to ensure adequate emergency vehicle access. Accordingly, emergency access impacts would be *less than significant.*

6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The new residential development permitted under the Plan Components is anticipated to generate new transit riders, bicyclists, and pedestrians. The General Plan includes current goals, policies, and programs that provide for an integrated network of bicycle and pedestrian facilities as well as for the needs of transit users. The future housing would be concentrated on sites either already developed and/or in close proximity to existing residential and residential-serving development, and would be served by existing transit, bicycle, and pedestrian infrastructure.

The additional transit ridership on the transit network is estimated to be approximately 0.37 riders/unit, a total of 430 transit riders, based on the transit mode share for the multi-family residential in Menlo Park.[15] Considering that the potential future residential development is dispersed throughout the City, the current transit service system is expected to have enough capacity to accommodate these additional riders.[16] In addition, as shown in Figure 4.13-2, most of the future housing would be located along the current transit or shuttle routes, so most of the riders would be able to walk or bike to the closest transit station. Therefore, the Plan Components would have a *less-than-significant* impact to the transit system.

The additional bicycle ridership is estimated to be approximately 0.26 riders/unit, a total of 300 bicycle riders, based on the bike mode share for the multi-family residential in Menlo Park.[17] Considering that the potential future residential development is dispersed throughout the City, the current bicycle network should be able to accommodate these additional bicycle riders. In addition, as illustrated in Figure 4.13-3, the current bikeways are along the major roadways of the City. There are also many bikeways proposed to fill in the current gap in the City. Housing Sites 2 and 3 are located along the existing Class II Bike Lanes and Sites 1, 4 and 4 are located along the proposed Class I and Class II Bike Lanes. Therefore, the future development under the Plan Components would have a *less-than-significant impact* to the bicycle system.

Implementation of the Plan Components would continue to promote the use of public transit, promote the safe use of bicycles as a commute alternative and for recreation and promotes walking as a commute alternative and for short trips, under Goals II-B, II-D and II-E, respectively. In addition, the Plan Components

[15] C/CAG Model, 2013. Santa Clara County VTA.

[16] Personal correspondence with TJKM staff and Ted Yurek, Senior Planner, at SamTrans, February 2013.

[17] C/CAG Model, 2013. Santa Clara County VTA.

would be consistent with the following current, modified, and new General Plan goals, policies, and programs regarding public transit, bicycle, and pedestrian facilities.

a. Transit (Rail and Bus Service)

- Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects.
- Policy II-B-2: As many activities as possible should be located within easy walking distance of transit stops, and transit stops should be convenient and close to as many activities as possible.
- Policy II-B-5: The City shall work with appropriate agencies to agree on long-term peninsula transit service that reflects Menlo Park's desires and is not disruptive to the City.

i. Pedestrian and Bicycle Facilities

- Policy I-G-11: Well-designed pedestrian facilities should be included in areas of intensive pedestrian activity.
- Policy II-D-2: The City shall, within available funding, work to complete a balanced system of bikeways within Menlo Park and implement the Comprehensive Bicycle Plan.
- Policy II-D-3: The design of streets within Menlo Park shall consider the impact of street cross section, intersection geometries and traffic control devices on bicyclists.
- Policy II-D-5: The City shall encourage transit providers within San Mateo County to provide improved bicycle access to transit including secure storage at transit stations and on-board storage where feasible.
- Policy II-E-1: The City shall require all new development to incorporate safe and attractive pedestrian facilities on-site.
- Policy II-E-2: The City shall endeavor to maintain safe sidewalks and walkways where existing within the public right-of-way.
- Policy II-E-3: Appropriate traffic control shall be provided for pedestrians at intersections
- Policy II-E-4: The City shall incorporate appropriate pedestrian facilities, traffic control, and street lighting within street improvement projects to maintain or improve pedestrian safety.
- Policy II-E-5: The City shall support full pedestrian access across all legs of an intersection at all signalized intersections which are City-controlled and at the signalized intersections along El Camino Real.

ii. Land Use and Transportation

- Policy I-I-2: Regional land use planning structure should be integrated within a larger transportation network built around transit rather than freeways and the City shall influence transit development so that it coordinates with Menlo Park's land use planning structure.
- Policy II-C-4: The City shall coordinate its transportation demand management efforts with other agencies providing similar services within San Mateo County.

a) Amended General Plan Open Space and Conservation Element

- Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption. Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.
- Goal OSC-4: Promote Sustainability and Climate Action Planning. Promote a sustainable energy supply and implement City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips and promotion of recycling, reduction, and reuse programs.

Furthermore, the introduction of additional residential land uses would not conflict with the City's Sidewalk Master Plan, Bike Plan and Complete Streets Policy. Implementation of the Plan Components would therefore support and would not conflict with plans, programs, and policies regarding bicycle or pedestrian facilities, or decrease the performance and safety of such facilities. Therefore, the Plan Components impact is *less than significant.*

7. Cumulative Impacts

As discussed under Section D.1, this analysis takes a conservative approach by applying both a one percent compound growth per year and the traffic generated by the pending/approved projects within the City of Menlo Park shown on Table 4.13-3 under both the Near-Term 2014 plus Plan Components conditions and the 2035 plus Plan Components conditions. Therefore, the impact discussion above incorporates the cumulative scenario by default and no further discussion is warranted.

G. Impacts and Mitigation Measures

1. Intersections

Impact TR-1: As shown in Table 4.13-10, eight intersections have *significant* impacts with the addition of trips from future residential development during both AM or PM peak hours under Near-Term 2014 plus Plan Components conditions. Figure 4.13-9 illustrates the recommended geometry improvements to reduce these impacts.

Mitigation Measure TR-1a: At the intersection of Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard, the necessary mitigation measure is to re-stripe the northbound approach on Alpine Road from two through lanes and one right turn lane to one through lane, one shared through/right turn lane and one right turn lane. A bike lane is currently striped between the right-most thru lane and the right turn lane.

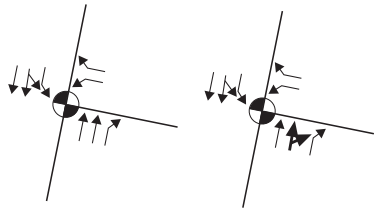
With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the Near-Term 2014 plus Plan Components conditions. However, the re-striping for the northbound approach may not be feasible since this may create a challenge by placing bicyclists between two right turn lanes and may, therefore, require further analysis for the existing bike lane. Therefore, this impact would remain *significant and unavoidable*.

Mitigation Measure TR-1b: At the intersection of Middlefield Road and Willow Road, the necessary mitigation measure is to re-stripe the northbound approach on Middlefield Road from one left turn lane, two through lanes and one right turn lane to one left turn lane, one through lane, one shared through/right turn lane and one right turn lane.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour and improves to LOS E during the PM peak hour, under the Near-Term 2014 plus Plan Components conditions. According to the 1601 Willow Road Development Agreement for the Facebook East Campus Project (FECPDA), Facebook is responsible for implementing this necessary mitigation measure. Therefore, after applying the mitigation measure, the impact is *less than significant*.

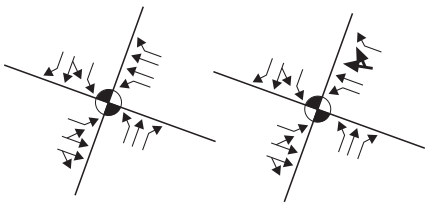
Intersection #5 - Alpine Rd./Santa Cruz Ave. & Junipero Serra Blvd.

Existing Proposed



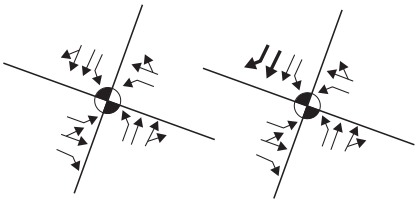
Intersection #16 - Middlefield Rd. & Willow Rd.

Existing Proposed



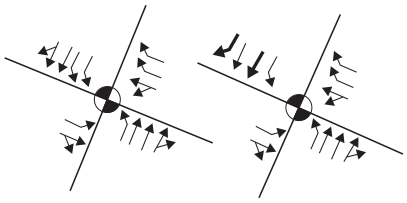
Intersection #21 - Bohannon Dr./ Florence St. & Marsh Rd.

Existing Proposed



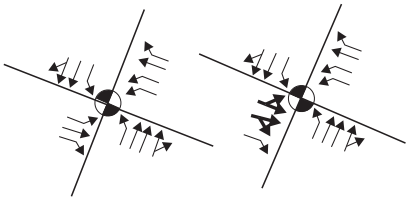
Intersection #22 - Scott Dr./Rolison Rd. at Marsh Rd.

Existing Proposed



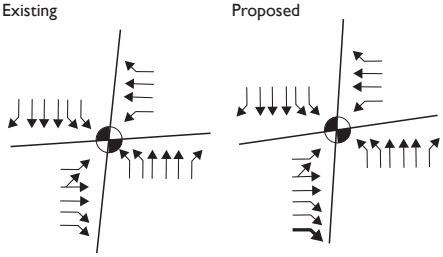
Intersection #33 - Newbridge St. & Willow Rd.

Existing Proposed



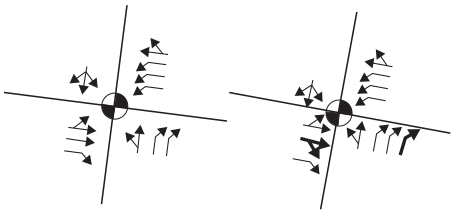
Intersection #37 - Bayfront Exp. & Willow Rd.

Existing Proposed



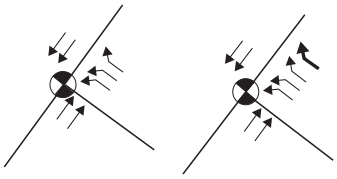
Intersection #42 - Bayfront Exp. & Marsh Rd.

Existing Proposed



Intersection #45 - US 101 NB Ramps & Marsh Rd.

Existing Proposed



Source: TJKM Transportation Consultants.

FIGURE 4.13-9

NEAR-TERM 2014 WITH PLAN COMPONENTS INTERSECTION MITIGATIONS MEASURES

Mitigation Measure TR-1c: At the intersection of Bohannon Drive/Florence Street and Marsh Road, the necessary mitigation measure is to add one exclusive westbound right turn lane on Marsh Road.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the Near-Term 2014 plus Plan Components conditions. Through the Development Agreement for the Menlo Gateway Project (MGDA), Bohannon Development Agreement is responsible for implementing the necessary mitigation measure. Therefore, after applying the mitigation measures, this impact is *less than significant*.

Mitigation Measure TR-1d: At the intersection of Scott Drive/Rolison Road and Marsh Road, the necessary mitigation measure is to re-stripe the westbound approach on Marsh Road from two left turn lanes, one through lane and one shared through/right turn lane to one left turn lane, two through lanes and one right turn lane.

With the mitigation measure, the intersection level of service improves to LOS D while the average queue for the westbound left turn movement remains as one vehicle during the PM peak hour, under the Near-Term 2014 plus Plan Components conditions. The improvements may appear feasible in the existing right-of-way, but the intersection is under both City and Caltrans jurisdiction and coordination between the two jurisdictions would be required. As such, the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-1e: At the intersection of Newbridge Street and Willow Road, the necessary mitigation measure is to re-stripe the southbound approach on Newbridge Street from one left turn lane, one through lane and one right-turn lane to one shared left turn/through lane, one shared through/right turn lane and one right turn lane, and to add one additional receiving lane on the south leg on Newbridge Street accordingly.

With the mitigation measure, the intersection still operates at LOS F during both the AM and PM peak hours, but the delay for the most critical movements are reduced to be less than under the Near-Term 2014 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constraints on the south leg of the intersection, which would impact private property in East Palo Alto. In addition, this intersection is under Caltrans jurisdiction, and the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable.*

It should be noted that FECPDA also suggests a mitigation measure for this intersection, which includes an additional eastbound left-turn lane, an additional northbound receiving lane for the eastbound left turning traffic, an additional westbound through/right-turn lane, and an additional receiving lane for the westbound through traffic. With this mitigation measure, the intersection still operates at LOS F during both the AM and PM peak hours. The delay for the most critical movements are reduced to be less than under the Near-Term condition during the PM peak hour; however, during the AM peak hour, the delay for the eastbound through critical movement is 70 seconds higher than under the Near-Term 2014 plus Plan Components condition even though the overall delay of the intersection was reduced. Therefore, this potential FPDA mitigation measure could be considered as a partial mitigation measure, under the Near-Term 2014 plus Plan Components conditions, and this impact remains *significant and unavoidable*.

Mitigation Measure TR-1f: At the intersection of Bayfront Expressway and Willow Road, the necessary mitigation measure is to add a third right turn lane for the eastbound approach on Willow Road.

With the mitigation measure, the intersection still operates at LOS F during the PM peak hour, but the delay for the most critical movements are reduced to be less than under 2014 plus Plan Components condition. According to the FECPDA, Facebook is responsible for implementing this mitigation measure. However, since this intersection is under Caltrans jurisdiction and the City cannot guarantee implementation of the mitigation measure, this impact remains *significant and unavoidable*.

Mitigation Measure TR-1g: At the intersection of Bayfront Expressway and Marsh Road, the necessary mitigation measure is to re-stripe the southbound approach on Bayfront Expressway from one shared left turn/through lane, one through lane and one right turn lane to one left turn/through lane, one through/right turn lane and one right turn lane and to add a third right turn lane for the eastbound approach on Marsh Road.

With the mitigation measure, the intersection operates at LOS D during both AM and PM peak hours, under the Near-Term 2014 plus Plan Components conditions. However, this intersection is included in the City's TIF Program and the improvements to each approach may appear feasible in the existing right-of-way. Since the intersection is under Caltrans jurisdiction, the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-1h: At the intersection of US 101 NB Ramps and Marsh Road, the necessary mitigation measure is to widen the northbound off-ramp on the western side of the approach and add an additional left-turn lane along with adding a second right-turn lane by restriping one of the existing left-turn lanes. This improvement will require relocation of existing traffic signal poles, utility relocation, and reconstruction of the curb ramp on the southwest corner of the intersection.

With the mitigation measure, the intersection operates at LOS D during the AM peak hour, under the Near-Term 2014 plus Plan Components conditions. According to the FECPDA, Facebook is responsible for implementing this mitigation measure. However, since this intersection is under Caltrans jurisdiction, the City cannot guarantee implementation of the mitigation measure. Therefore this impact remains *significant and unavoidable*.

Impact TR-2: 2035 Plus Plan Components Condition. As shown in Table 4.13-10, 25 intersections would have significant impacts with the addition of project trips to 2035 plus Plan Components Condition during the AM or PM peak hours. Figure 4.13-10a and 4.13-10b illustrates the recommended geometry improvements to reduce these impacts.

Mitigation Measure TR-2a: At the intersection of Addison Wesley and Sand Hill Road, the necessary mitigation measure is to restripe the eastbound approach on Sand Hill Road from one left turn lane, two through lanes and one right turn lane to one left turn lane, two through lanes and one shared through/right turn lane. One additional receiving lane on Sand Hill Road is recommended to be added accordingly. A bike lane currently exists between the right-most through lane and the right turn lane.

With the mitigation measure, the intersection level of service improves to LOS B during the AM peak hour, under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constraints affecting private property. In addition, the re-striping for the eastbound approach is not be feasible since this could result in increased safety hazards to bicyclist by placing bicyclists between two through lanes. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2b: At the intersection of Sharon Park Drive and Sand Hill Road, the necessary mitigation measure is to add one exclusive westbound right turn lane on Sand Hill Road.

With the mitigation measure, the intersection level of service improves to LOS D during the PM peak hour, under the 2035 plus Plan Components conditions. However, the improvements may not be fea-

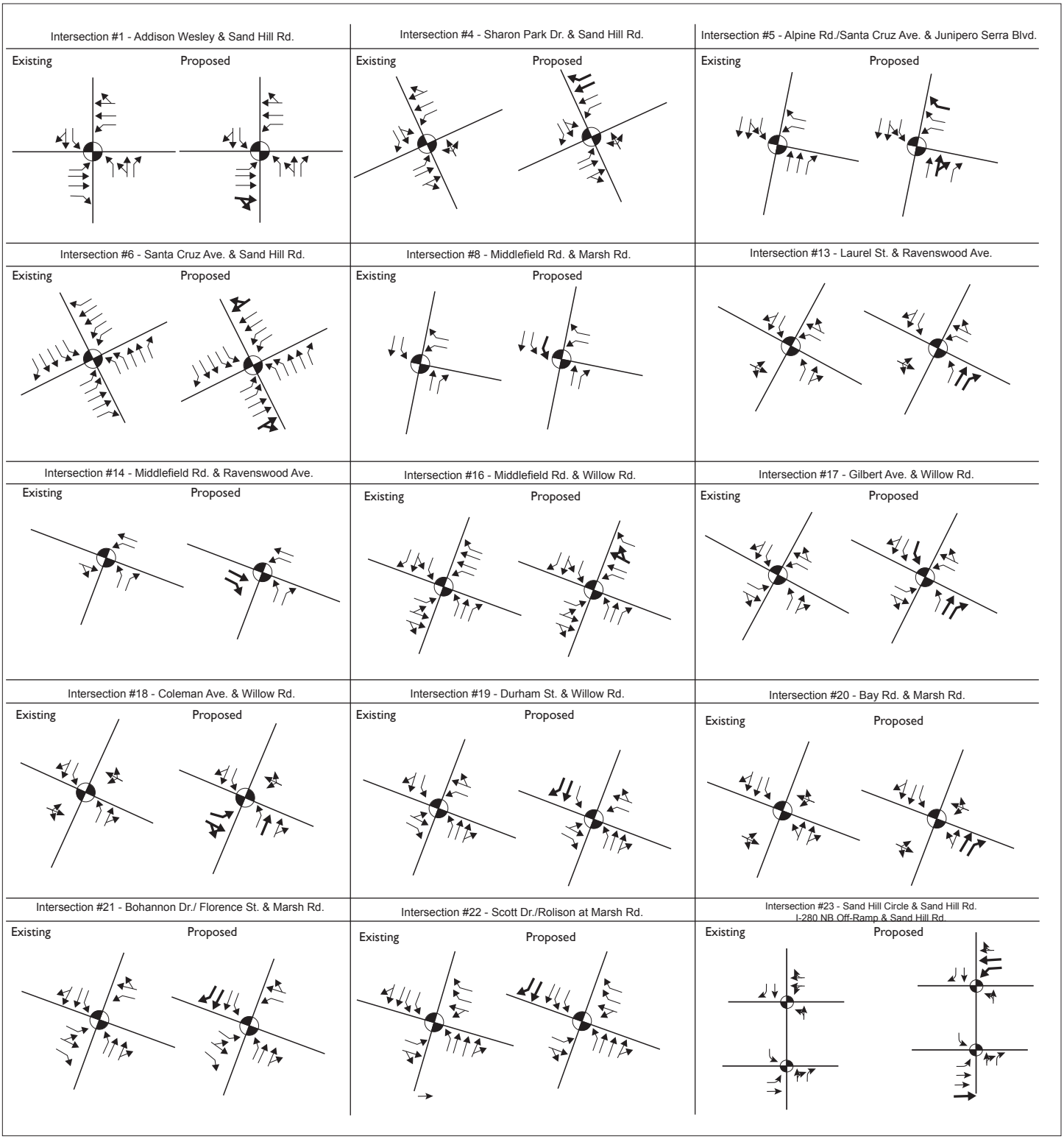
sible due to right-of-way constraints and the presence of a dozen mature evergreen trees. Even though this impact remains *significant and unavoidable*, it should be noted that the width of the westbound bike lane of 10.5 feet enables this lane to function as a right turn lane in compliance with the California Manual on Uniform Traffic Control Devices (California MUTCD).

Mitigation Measure TR-2c: At the intersection of Alpine Road/Santa Cruz Avenue and Junipero Serra Boulevard, the necessary mitigation measure is to re-stripe the northbound approach on Alpine Road from two through lanes and one right turn lane to one through lane, one shared through/right turn lane and one right turn lane. In addition, a second westbound right turn lane is recommended to be added on Junipero Serra Boulevard.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the 2035 plus Plan Components conditions; and remains LOS E during PM peak hour, with the delay for the most critical movements reduced to be less than under the 2035 plus Plan Components conditions. However, the re-striping for the northbound approach may not be feasible since this may create a challenge by placing bicyclists between two right turn lanes and may, therefore, require further analysis for the existing bike lane. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2d: At the intersection of Santa Cruz Avenue and Sand Hill Road, the necessary mitigation measure is to re-stripe both westbound and eastbound approaches on Sand Hill Road from two left turn lanes, two through lanes and one right turn lane to two left turn lanes, two through lanes and one shared through/right turn lane. One additional receiving lane is recommended to be added on Sand Hill Road for the westbound direction.

With the mitigation measure, the intersection level of service remains LOS E during the AM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions; and improves to LOS D during the PM peak hour, under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constraints, with the northwest corner of the intersection under the control of San Mateo County. Also, the re-striping for the eastbound and westbound approaches may not be feasible since this could result in increased safety hazards to bicyclist by placing bicyclists between two through lanes. Therefore, this impact remains *significant and unavoidable*.



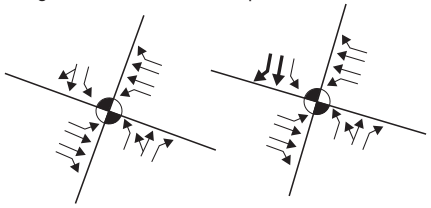
Source: TJKM Transportation Consultants.

FIGURE 4.13-10A

2035 PLUS PLAN COMPONENTS INTERSECTION MITIGATIONS MEASURES

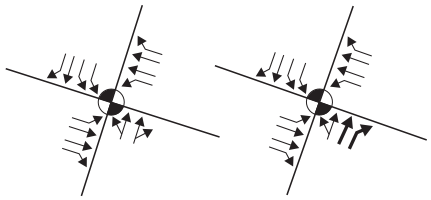
Intersection #25 - El Camino Real & Valparaiso Ave./Glenwood Ave.

Existing Proposed



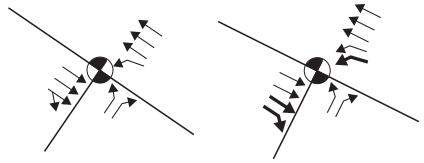
Intersection #28 - El Camino Real & Ravenswood Ave.

Existing Proposed



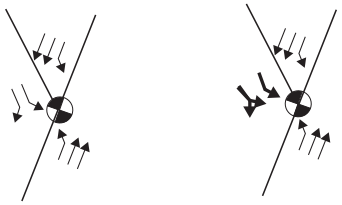
Intersection #30- El Camino Real & Middle Ave.

Existing Proposed



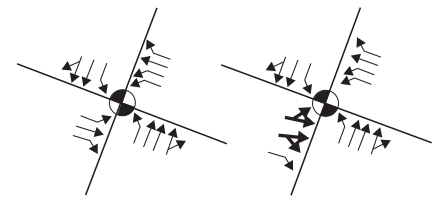
Intersection #32 - Bay Rd. & Willow Rd.

Existing Proposed



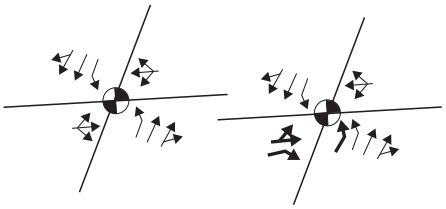
Intersection #33 - Newbridge St. & Willow Rd.

Existing Proposed



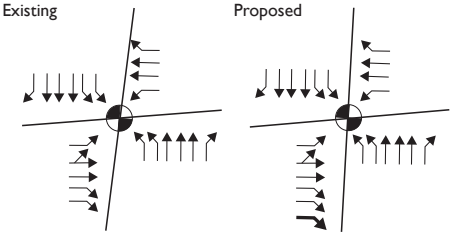
Intersection #36 - Hamilton Ave. & Willow Rd.

Existing Proposed



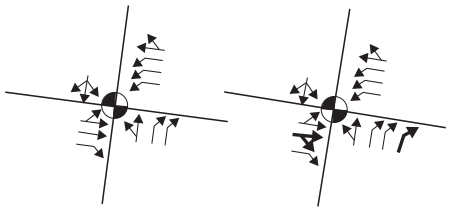
Intersection #37 - Bayfront Exp. & Willow Rd.

Existing Proposed



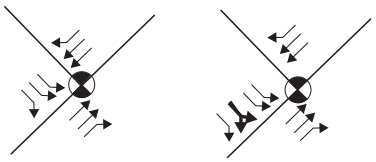
Intersection #42 - Bayfront Exp. & Marsh Rd.

Existing Proposed



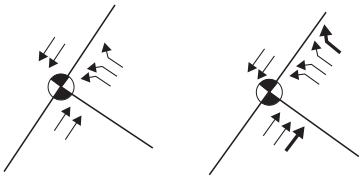
Intersection #44 - US 101 SB Ramps & Marsh Rd.

Existing Proposed



Intersection #45 - US 101 NB Ramps & Marsh Rd.

Existing Proposed



Source: TJKM Transportation Consultants.

FIGURE 4.13-10B

2035 PLUS PLAN COMPONENTS INTERSECTION MITIGATIONS MEASURES

Mitigation Measure TR-2e: At the intersection of Middlefield Road and Marsh Road, the necessary mitigation measure is to add a second southbound left turn lane on Middlefield Road and to add one receiving lane on Marsh Road accordingly.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour and LOS E during the PM peak hour, under the 2035 plus Plan Components conditions. However, this intersection is under the jurisdiction of Town of Atherton. Based on prior consultation with the Town of Atherton, the improvements may require covering Atherton Channel and removing numerous heritage trees. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2f:
At the intersection of Laurel Street and Ravenswood Avenue, the necessary mitigation measure is to add one exclusive eastbound right turn lane on Ravenswood Avenue.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the 2035 plus Plan Component conditions

Both the City's TIF Program and the El Camino Real/Downtown Specific Plan project suggest the mitigation measures for this intersection, which are consistent with the necessary mitigation measure suggested for the Plan Components. However, the improvements may not be feasible due to right-of-way constraints. Therefore, this impact remains *significant and unavoidable.*

Mitigation Measure TR-2g: At the intersection of Middlefield Road and Ravenswood Avenue, the necessary mitigation measure is to add one exclusive southbound right turn lane on Middlefield Road.

With the mitigation measure, the intersection level of service improves to LOS D during both the AM and the PM peak hours, under the 2035 plus Plan Components conditions. However, this intersection is included in the City's TIF Program and could be constructed over the long term. However, the improvements may not be feasible due to right-of-way constraints affecting private property in Atherton and would involve coordination with the Town of Atherton. Therefore, this impact remains *significant and unavoidable.*

Mitigation Measure TR-2h: At the intersection of Middlefield Road and Willow Road, the necessary mitigation measure is to re-stripe the northbound approach on Middlefield Road from one left turn

lane, two through lanes and one right turn lane to one left turn lane, one through lane, one shared through/right turn lane and one right turn lane.

With the mitigation measure, the intersection level of service remains LOS F during both the AM and the PM peak hours, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. According to the 1601 Willow Road Development Agreement for the Facebook East Campus Project (FECPDA), Facebook is responsible for implementing this necessary mitigation measure. Therefore, after applying the mitigation measure, the impact is *less than significant*.

Mitigation Measure TR-2i: At the intersection of Gilbert Avenue and Willow Road, the necessary mitigation measure is to add one exclusive eastbound right turn lane and a second westbound left turn lane on Willow Road and to add one additional receiving lane on Gilbert Avenue accordingly.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the 2035 plus Plan Components conditions; and remains LOS E during the AM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constraints due to impacts to private property. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2j: At the intersection of Coleman Avenue and Willow Road, the necessary mitigation measure is to add one exclusive southbound left turn lane on Coleman Avenue and a second eastbound through lane on Willow Road and to add one receiving lane on Willow Road accordingly.

With the mitigation measure, the intersection level of service improves to LOS C during the AM peak hour and LOS D during the PM peak hour, under the 2035 plus Plan Components conditions. The installation of one exclusive southbound left turn lane on Coleman Avenue may be accomplished in the existing right-of-way by re-striping work, but it may require the removal of one or two parking spaces.

The other improvements to Willow Road do not appear feasible due to right-of-way constraints affecting private property. Although the restriping on Coleman would partially mitigate the impact, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2k: At the intersection of Durham Street/VA Driveway and Willow Road, the necessary mitigation measure is to add one exclusive westbound right turn lane on Willow Road.

With the mitigation measure, the intersection level of service improves to LOS D during the PM peak hour, under the 2035 plus Plan Components conditions. The improvements does not appear feasible due to right-of-way constrains. Therefore, this impact remains *significant and unavoidable*.

It should be noted that the El Camino Real/Downtown Specific Plan project also suggests a mitigation measure for this intersection, which includes adding a southbound left turn at the VA Driveway. With this mitigation measure, the intersection still operates at LOS E during the PM peak hour, with the delay for the southbound left turn and the westbound through critical movements about 11 seconds higher than under the 2035 plus Plan Components conditions. However, the average delay for the intersection, as well as the delay of the critical movements, is all reduced by about 1 to 3 seconds, compared to without any mitigation measures under the 2035 plus Plan Components conditions. Therefore, this potential El Camino Real/Downtown Specific Plan mitigation measure could be considered as a partial mitigation measure.

Mitigation Measure TR-2l: At the intersection of Bay Road and Marsh Road, the necessary mitigation measure is to add one exclusive eastbound right turn lane on Marsh Road.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the 2035 plus Plan Components conditions. However, the improvements are not feasible due to right-of-way constraints and would require the approval of the County of San Mateo and Town of Atherton. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2m: At the intersection of Bohannon Drive/Florence Street and Marsh Road, the necessary mitigation measure is to add one exclusive westbound right turn lane on Marsh Road.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour and LOS E during the PM peak hour, under the 2035 plus Plan Components conditions. Through the Development Agreement for the Menlo Gateway Project (MGDA), Bohannon Development Agreement is responsible for implementing the necessary mitigation measure. Therefore, after applying the mitigation measures, this impact is *less than significant*.

Mitigation Measure TR-2n: At the intersection of Scott Drive/Rolison Road and Marsh Road, with the necessary mitigation measures suggested for the Near-Term 2014 plus Plan Components conditions (Mitigation Measure TR-1d), the intersection level of service remains LOS E during the AM peak hour and LOS F during the PM peak hours, and the delay for the critical movement was reduced to be lower than under the 2035 plus Plan Components conditions during the PM peak hour; however, during the AM peak hour, the westbound left turn critical movement delay is 54 seconds higher than under the Cumulative conditions. Therefore, such mitigation measures could only be considered as partial mitigation.

Under the 2035 plus Plan Components condition, the necessary mitigation measure is to add one exclusive westbound right turn lane on Marsh Road.

With the mitigation measure, the intersection level of service improves to LOS D during the AM peak hour, under the 2035 plus Plan Components conditions; and remains LOS F during the PM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. The improvements may appear feasible in the existing right-of-way, but the intersection is under both City and Caltrans jurisdiction and coordination between the two jurisdictions would be required. As such, the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2o: At the intersection of I-280 NB Off Ramp/Sand Hill Circle and Sand Hill Road, the necessary mitigation measure is to add one exclusive westbound left turn lane and a third eastbound through lane on Sand Hill Road. In addition, one additional receiving lane is recommended to be added on Sand Hill Road accordingly.

With the mitigation measure, the intersection level of service improves to LOS C for the south part of the intersection of I-280 NB Off Ramp and Sand Hill Road, during the AM peak hour, under the 2035 plus Plan Components conditions; and remains LOS F for the north part of the intersection of Sand Hill Circle and Sand Hill Road during the PM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constraints and would require the approval of Caltrans. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2p: At the intersection of El Camino Real and Valparaiso Avenue/Glenwood Avenue, the necessary mitigation measure is to add one exclusive westbound right turn lane on Glenwood Avenue.

With the mitigation measure, the intersection level of service remains LOS E during the PM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. This intersection is included in the City's TIF program, and improvements could be constructed over time. However, the improvements may not be feasible in the short term due to right-of-way constraints. In addition, this intersection is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable.*

Mitigation Measure TR-2q: At the intersection of El Camino Real and Ravenswood Avenue/Menlo Avenue, the necessary mitigation measure is to add one exclusive eastbound right turn lane on Menlo Avenue.

With the mitigation measure, the intersection level of service improves to LOS E during the A.M peak hour, under the 2035 plus Plan Components conditions; and remains LOS F during the PM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. This intersection is included in the City's TIF program and improvements could be constructed over time. However, the improvements may not be feasible in the short term due to right-of-way constraints. In addition, this intersection is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable.*

Mitigation Measure TR-2r: At the intersection of El Camino Real and Middle Avenue, the necessary mitigation measure is to add one exclusive southbound right turn lane and a second northbound left turn lane on El Camino Real.

With the mitigation measure, the intersection level of service remains LOS F during the PM peak hour, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. The City's TIF program includes this intersection and suggests the same intersection improvements. However, these improvements may not be feasible due to right-of-way constraints. In addition, this intersection is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable.*

Mitigation Measure TR-2s: At the intersection of Bay Road and Willow Road, the necessary mitigation measure is to re-stripe the southbound approach from one left turn lane and one right turn lane to one left turn lane and one shared left turn/right turn lane.

With the mitigation measure, the intersection level of service improves to LOS C during the AM peak hour, under the 2035 plus Plan Components conditions. However, since this intersection is under Caltrans jurisdiction, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2t: At the intersection of Newbridge Street and Willow Road, the necessary mitigation measure is to re-stripe the southbound approach on Newbridge Street from one left turn lane, one through lane and one right-turn lane to one shared left turn/through lane, one shared through/right turn lane and one right turn lane, and to add one additional receiving lane on the south leg on Newbridge Street accordingly.

With the mitigation measure, the intersection remains LOS F during both the AM and PM peak hours, with the delay for the most critical movement reduced to be less than under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way constrains on the south leg of the intersection, which would impact private property in East Palo Alto. In addition, this intersection is under Caltrans jurisdiction, and the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

It should be noted that FPDA also suggests a mitigation measure for this intersection, which includes an additional eastbound left-turn lane, an additional northbound receiving lane for the eastbound left turning traffic, an additional westbound through/right-turn lane, and an additional receiving lane for the westbound through traffic. With this mitigation measure, the intersection still operates at LOS F during both the AM and PM peak hours. The delay for the most critical movements are reduced to be less than under the 2035 plus Plan Components conditions during the PM peak hour; however, during the AM peak hour, the delay for the eastbound through critical movement was over 100 seconds higher than under the Cumulative condition even though the overall delay of the intersection was reduced. Therefore, this potential Facebook mitigation measure could be considered as a partial mitigation measure, under the 2035 plus Plan Components conditions.

Mitigation Measure TR-2u: At the intersection of Hamilton Avenue and Willow Road, the necessary mitigation measure is to add one exclusive southbound right turn lane on Hamilton Avenue and a second eastbound left turn lane on Willow Road and to add one receiving lane on Hamilton Avenue. With the mitigation measure, the intersection level of service improves to LOS C during both the AM and PM peak hours, under the 2035 plus Plan Components conditions. The installation of one exclusive southbound right turn lane on Hamilton Avenue may be done by re-striping work, but it would require the removal of on-street parking spaces. Since the other improvements along Willow Road may not be feasible due to right-of-way constraints and the intersection is under Caltrans jurisdiction, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2v: At the intersection of Bayfront Expressway and Willow Road, the necessary mitigation measure is to add a third right turn lane on Willow Road.

With the mitigation measure, the intersection still operates at LOS F, but the delay for the most critical movements are reduced to be less than under the 2035 plus Plan Components conditions. According to the FECPDA, Facebook is responsible for implementing this mitigation measure. However, since this intersection is under Caltrans jurisdiction and the City cannot guarantee implementation of the mitigation measure, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2w: At the intersection of Bayfront Expressway and Marsh Road, the necessary mitigation measure is to re-stripe the southbound approach on Bayfront Expressway from one shared left turn/through lane, one through lane and one right turn lane to one left turn/through lane, one through/right turn lane and one right turn lane and to add a third right turn lane for the eastbound approach on Marsh Road.

With the mitigation measure, the intersection level of service improves to LOS E during both the AM and PM peak hours, under the 2035 plus Plan Components conditions. However, this intersection is included in the City's TIF Program and the improvements to each approach may appear feasible in the existing right-of-way. Since the intersection is under Caltrans jurisdiction, the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2x: At the intersection of US 101 SB Ramps and Marsh Road, the necessary mitigation measure is to add one southbound shared left turn/right turn lane on US 101 SB ramp and one additional receiving lane on Marsh Road accordingly.

With both mitigation measures, the intersection level of service improves to LOS E during the AM peak hour and LOS D during the PM peak hour, under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way requirements. In addition, this intersection is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable*.

Mitigation Measure TR-2y: At the intersection of US 101 NB Ramps and Marsh Road, the necessary mitigation measure is to widen the northbound off-ramp on the western side of the approach and add an additional left-turn lane along with adding a second right-turn lane by restriping one of the existing left-turn lanes. This improvement will require relocation of existing traffic signal poles, utility relocation, and reconstruction of the curb ramp on the southwest corner of the intersection.

This mitigation measure is suggested for the Near-Term 2014 plus Plan Components conditions (Mitigation Measure TR-1h), which according to the FECPDA, Facebook is responsible for implementing. With this mitigation measure, the intersection level of service remains LOS F during both the AM and PM peak hours, and the delay for the northbound left turn and the eastbound through critical movements is about 23 seconds and 14 seconds higher than under the Cumulative conditions, during the AM peak hour and PM peak hour, respectively. Therefore, such mitigation measures could only be considered as partial mitigation.

Under the 2035 plus Plan Components conditions, in addition to the mitigation measures suggested for the Near-Term 2014 plus Plan Components conditions, the additional necessary mitigation measure is to add a third eastbound through lane on Marsh Road and an additional receiving lane on Marsh Road would be necessary as well.

With the mitigation measure, the intersection level of service improves to LOS C during the AM peak hour and LOS B during the PM peak hour, under the 2035 plus Plan Components conditions. However, the improvements may not be feasible due to right-of-way requirements. In addition, this intersection is under Caltrans jurisdiction and the City cannot guarantee implementation of the mitigation measure. Therefore, this impact remains *significant and unavoidable*.

2. Roadway and Freeway Segments Near-Term 2014 Plus Plan Components Conditions

Impact TR-3: Roadway segment impacts under Near-Term 2014 plus Plan Components conditions would exceed City thresholds.

Mitigation Measure TR-3: The mitigation measures for roadway segment impacts under Near-Term 2014 plus Plan Components conditions would require reducing traffic volumes and improving quality of life and could include transportation demand management (TDM) measures. Such measures may include encouraging carpooling and vanpooling, promoting transit and bicycle/pedestrian mode shares, etc. Even though such TDM measures collectively have the potential to reduce added future development trip totals to less than significant levels, the City cannot guarantee that these measures may be implemented and may reduce the impacts to less than significant. Therefore, the impacts remain *significant and unavoidable*.

Impact TR-4: Freeway segment impacts under Near-Term 2014 plus Plan Components conditions would exceed City thresholds.

Mitigation Measure TR-4: The mitigation measure for freeway segments under Near-Term 2014 plus Plan Components conditions normally requires adding additional travel lanes and increasing the capacity of the roadway, to accommodate the additional trips generated by the Plan Components. However, widening roadways/adding additional travel lanes would require right-of-way and may not be feasible. In addition, SR 84 is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable*.

3. Roadway and Freeway Segments 2035 Plus Plan Components Conditions

Impact TR-5: Roadway segment impacts under 2035 Plus Plan Components conditions would exceed City thresholds.

Mitigation Measure TR-5: The mitigation measures for roadway segment impacts under 2035 Plus Plan Components conditions would require reducing traffic volumes and improving quality of life and could include TDM measures. Such measures may include encouraging carpooling and vanpooling, promoting transit and bicycle/pedestrian mode shares, etc. Even though such TDM measures collectively have the potential to reduce added project trip totals to less than significant levels, the City cannot guarantee that these measures may be implemented and may reduce the impacts to less than significant. Therefore, the impacts remain *significant and unavoidable.*

Impact TR-6: Freeway segment impacts under 2035 Plus Plan Components conditions would exceed City thresholds.

Mitigation Measure TR-6: The mitigation measure for freeway segments under 2035 Plus Plan Components conditions normally requires adding additional travel lanes and increasing the capacity of the roadway, to accommodate the additional trips generated by the Plan Components. However, widening roadways/adding additional travel lanes would require right-of-way and may not be feasible. In addition, SR 84 is under Caltrans jurisdiction. Therefore, this impact remains *significant and unavoidable*.