

3.1 Transportation/Traffic

This study provides an evaluation of traffic and transportation issues associated with implementation of the proposed 1300 El Camino Real Greenheart Project (Project). The transportation analysis for the Project was prepared according to the methodology detailed in the Menlo Park Transportation Impact Analysis Guidelines to meet the criteria established in the San Mateo County Congestion Management Program (CMP). Potential impacts on intersections, local roadway segments, highways, transit, bicycle transit, and pedestrian facilities were evaluated following these standards, methodologies, and significance criteria. Particular attention was given to vehicular impacts on transportation facilities located within the city of Menlo Park and the surrounding jurisdictions.

In response to the NOP, several comment letters were received. These included requests for analysis of certain transportation issues such as the inclusion of intersections and roadway segments into the study area, consideration of Transportation Demand Management programs, and other transportation issues. These issues have been incorporated into the analysis in this report to the extent that is consistent with the City's Traffic Impact Analysis Guidelines.

The following conditions were evaluated as part of this study:

- a) Existing Conditions
- b) Near-Term 2020 Conditions (existing [a] + approved projects + background growth)
- c) Near-Term 2020 [b] plus-Project Conditions
- d) Cumulative 2040 Conditions (existing [a] + approved and pending projects + background growth)
- e) Cumulative 2040 [d] plus-Project Conditions

Study Intersections and Roadway Segments

City of Menlo Park (City) staff members selected the 40 intersections and 26 roadway segments to be analyzed; these are the facilities that are most likely to be affected by the Project. The study area is shown in Figure 3.1-1, and the study intersection geometries are shown in Figure 3.1-2. The analysis of these intersections was conducted for the AM and PM Peak-Hour commute times on a typical weekday.

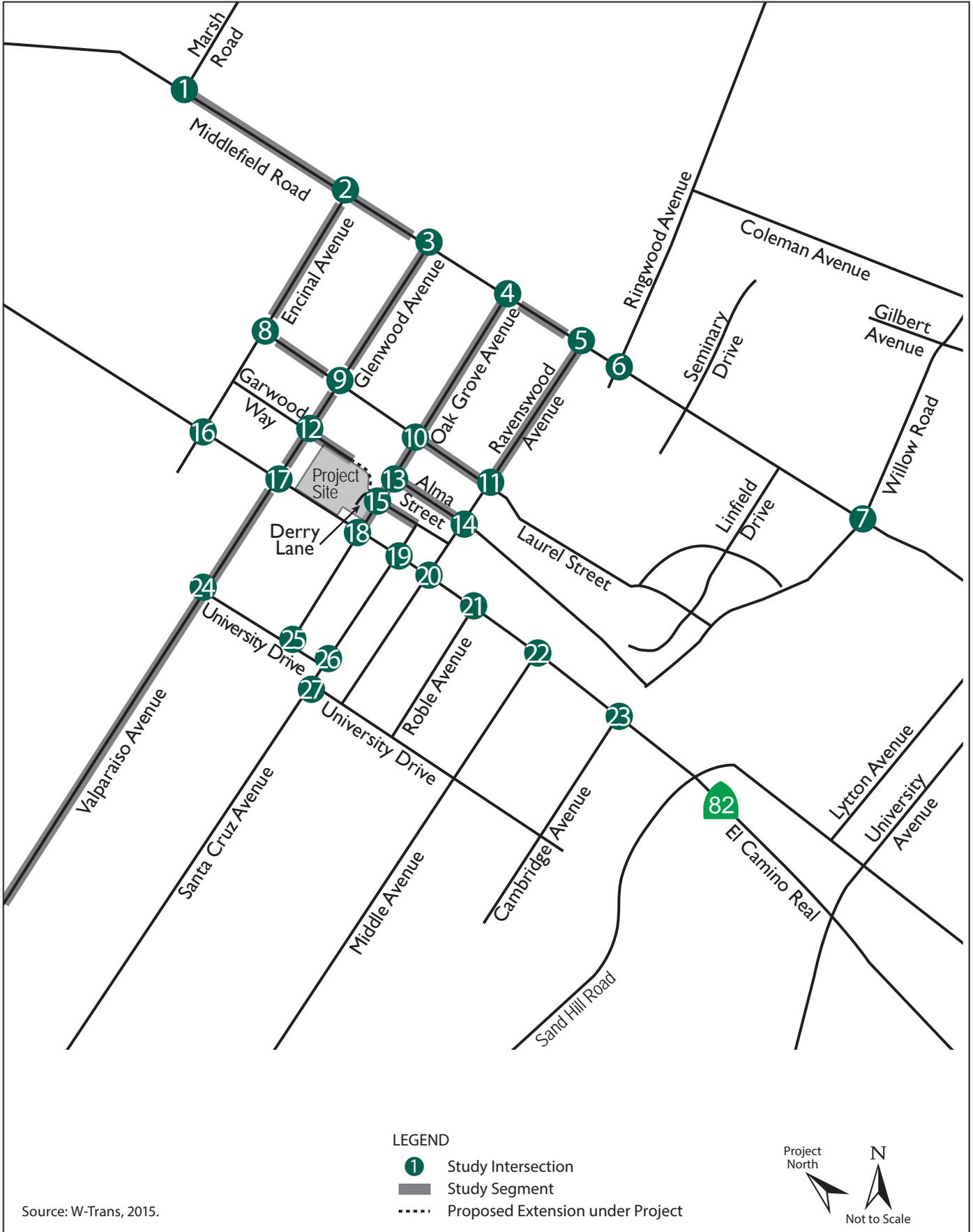
The following are the study intersections, with the controlling agency shown in parenthesis:

1. Middlefield Road and Marsh Road (Atherton)
2. Middlefield Road and Encinal Avenue (Atherton)
3. Middlefield Road and Glenwood Avenue (Atherton)
4. Middlefield Road and Oak Grove Avenue (Atherton)
5. Middlefield Road and Ravenswood Avenue (Menlo Park)
6. Middlefield Road and Ringwood Avenue (Menlo Park)
7. Middlefield Road and Willow Road (Menlo Park)
8. Laurel Street and Encinal Avenue (Menlo Park)
9. Laurel Street and Glenwood Avenue (Menlo Park)

10. Laurel Street and Oak Grove Avenue (Menlo Park)
11. Laurel Street and Ravenswood Avenue (Menlo Park)
12. Garwood Way and Glenwood Avenue (Menlo Park)
13. Alma Street and Oak Grove Avenue (Menlo Park)
14. Alma Street and Ravenswood Avenue (Menlo Park)
15. Derry Lane (Garwood Way)/Merrill Street and Oak Grove Avenue (Menlo Park)
16. El Camino Real and Encinal Avenue (California Department of Transportation [Caltrans])
17. El Camino Real and Valparaiso Avenue/Glenwood Avenue (Caltrans)
18. El Camino Real and Oak Grove Avenue (Caltrans)
19. El Camino Real and Santa Cruz Avenue (Caltrans)
20. El Camino Real and Ravenswood Avenue/Menlo Avenue (Caltrans)
21. El Camino Real and Roble Avenue (Caltrans)
22. El Camino Real and Middle Avenue (Caltrans)
23. El Camino Real and Cambridge Avenue (Caltrans)
24. University Drive and Valparaiso Avenue (Menlo Park)
25. University Drive and Oak Grove Avenue (Menlo Park)
26. Santa Cruz Avenue and University Drive (North) (Menlo Park)
27. Santa Cruz Avenue and University Drive (South) (Menlo Park)

The following roadway segments, all controlled by the City of Menlo Park unless otherwise noted, were also evaluated:

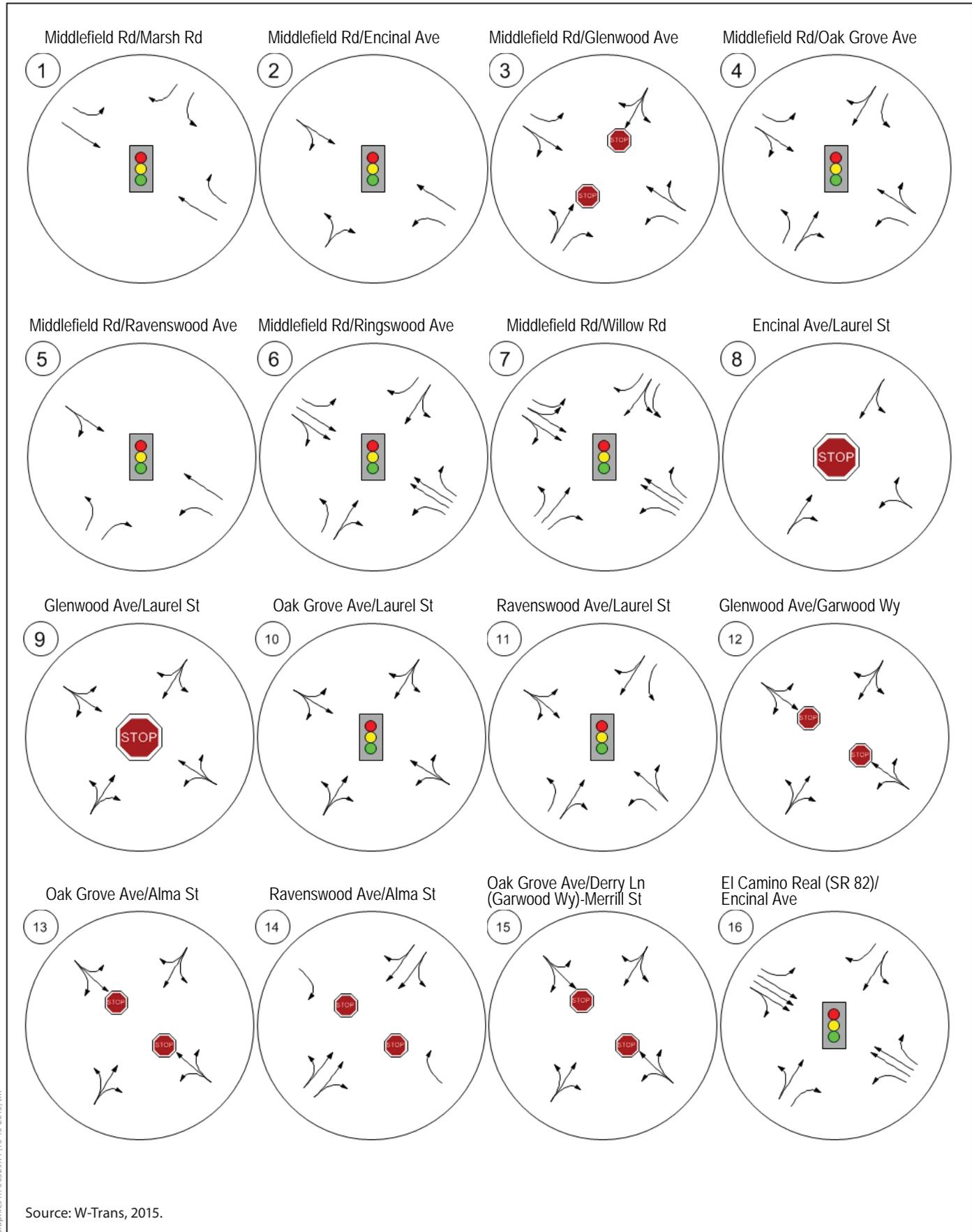
1. Middlefield Road between Marsh Road and Glenwood Avenue (Atherton)
2. Middlefield Road between Oak Grove Avenue and Ravenswood Avenue (Atherton)
3. Laurel Street between Encinal Avenue and Glenwood Avenue
4. Laurel Street between Oak Grove Avenue and Ravenswood Avenue
5. Ravenswood Avenue between Laurel Street and Middlefield Road
6. Encinal Avenue between Laurel Street and Middlefield Road (partially in Atherton)
7. Valparaiso Avenue between University Drive and El Camino Real
8. Glenwood Avenue between El Camino Real and Laurel Street
9. Glenwood Avenue between Laurel Street and Middlefield Road (Atherton)
10. Oak Grove Avenue between El Camino Real and Laurel Street
11. Oak Grove Avenue between Laurel Street and Middlefield Road (partially in Atherton)
12. Alma Street between Oak Grove Avenue and Ravenswood Avenue



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Figure 3.1-1
Study Network
1300 El Camino Real Greenheart Project



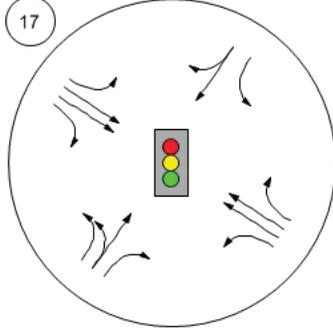
Source: W-Trans, 2015.

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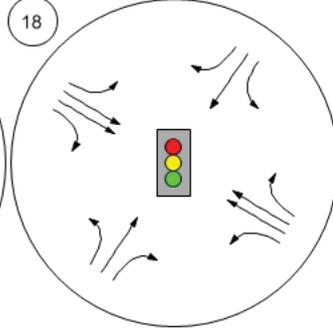


Figure 3.1-2A
Existing Lane Configurations
 1300 El Camino Real Greenheart Project

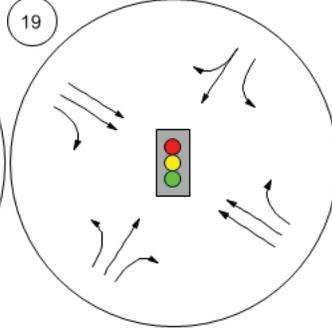
El Camino Real (SR 82)/
Glenwood Ave



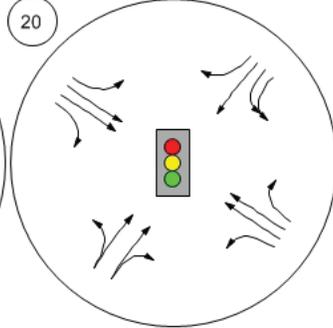
El Camino Real (SR 82)/
Oak Grove Ave



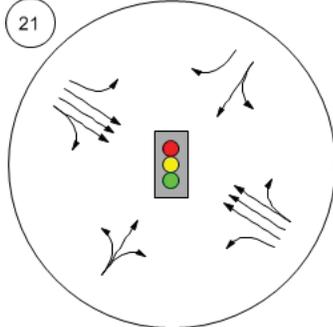
El Camino Real (SR 82)/
Santa Cruz Ave



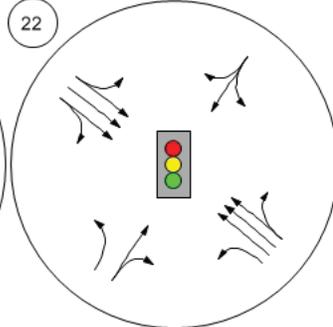
El Camino Real (SR 82)/
Ravenswood Ave



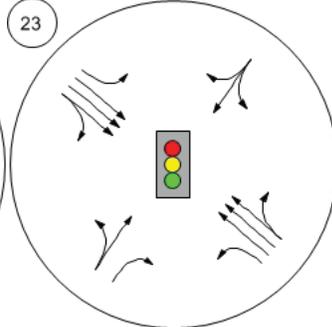
El Camino Real (SR 82)/
Roble Ave



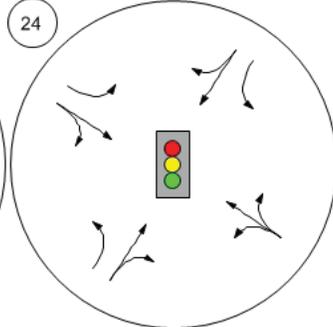
El Camino Real (SR 82)/
Middle Ave



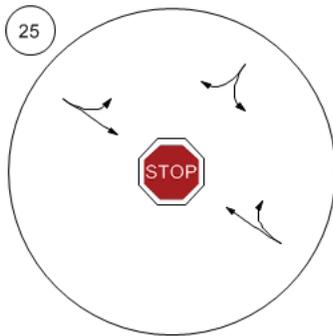
El Camino Real (SR 82)/
Cambridge Ave



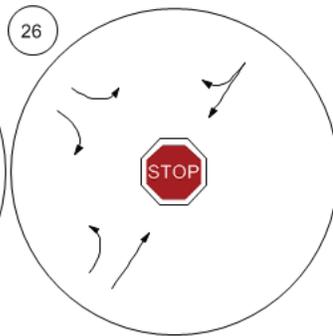
Valparaiso Ave/University Dr



University Dr/Oak Grove Ave



Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)

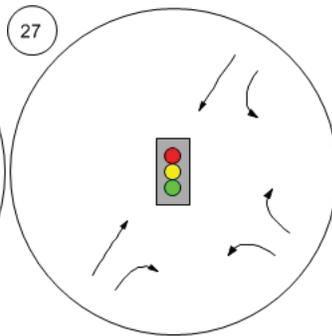


Figure 3.1-2B
Existing Lane Configurations
1300 El Camino Real Greenheart Project

13. Garwood Way between Glenwood Avenue and Oak Grove Avenue
14. Merrill Street between Oak Grove Avenue and Ravenswood Avenue

Roadway Network

The existing roadway network in the vicinity of the Project site is illustrated in Figure 3.1-1. It is acknowledged that streets in Menlo Park generally do not follow a true north-south or east-west alignment. For the purpose of this analysis, both US 101 and El Camino Real are considered roadways with a north-south alignment. The alignment designation of all other streets was based on the street's relative position to US 101 and/or El Camino Real.

The following are descriptions of regional routes in the vicinity of the Project site as well as routes that provide a direct connection between the Project site and regional routes.

US 101 – US 101 is a north-south highway that extends from Los Angeles, California, to Olympia, Washington. US 101 is a major corridor in San Mateo County. In Menlo Park, US 101 is owned and operated by Caltrans. The segment of US 101 in Menlo Park is an eight-lane, grade-separated freeway. The Project site is located approximately 3 miles west of US 101 via Willow Road and approximately 2.5 miles west of US 101 via Marsh Road. US 101 has high-occupancy vehicle (HOV) lanes in both directions in Menlo Park. There is an auxiliary lane, or a fifth lane, which provides additional room for merging into and out of freeway traffic, in both directions between the Marsh Road intersection and the University Avenue interchange. The posted speed limit on US 101 near the Project site is 65 miles per hour (mph).

Bayfront Expressway (SR 84) – Bayfront Expressway, also designated as State Route (SR) 84, is a six-lane highway that connects Marsh Road with the Dumbarton Bridge and, ultimately, Alameda County to the east. As a State Route, Bayfront Expressway is owned and operated by Caltrans. On-street parking is prohibited on Bayfront Expressway, and the posted speed limit is 50 mph.

El Camino Real – El Camino Real, also designated as SR 82, is a primary arterial roadway and commercial corridor on the San Francisco Peninsula. El Camino Real is one of the routes included in the San Mateo County Smart Corridor Project, an Intelligent Transportation System (ITS) program that has been designed to improve mobility along the US 101 corridor (including parallel routes) in San Mateo County. The Project site is located on El Camino Real. Within Menlo Park, El Camino Real has two lanes in each direction north of Ravenswood Avenue/Menlo Avenue; to the south, three lanes are provided in each direction. The route has a posted speed limit of 35 mph. As a regional route, El Camino Real extends from Santa Clara County, to the south, and continues through Daly City, to the north, where it continues as Mission Street.

Middlefield Road – Middlefield Road is a north-south street with a posted speed limit of 30 mph. It is classified as a Minor Arterial. Middlefield Road has one through lane in each direction north of Ringwood Avenue; two lanes are provided in each direction south of Ringwood Avenue. On-street parking is not permitted. Middlefield Road provides access to mainly residential, office, and school sites.

Ravenswood Avenue – Ravenswood Avenue is an east-west street. It is classified as a Minor Arterial between El Camino Real and Middlefield Road. Ravenswood Avenue has a posted speed limit of 30 mph and has one lane in each direction east of Noel Drive and two lanes in each direction between El Camino Real and Noel Drive. It provides access to both commercial and residential uses.

Laurel Street – Laurel Street is a north-south street with one lane in each direction and a 25 mph posted speed limit. It is classified as a Collector between Willow Road and Glenwood Avenue. The Project site lies west of Laurel Street.

Bicycle and Pedestrian Facilities

The *Highway Design Manual* (Caltrans 2012) classifies bikeways according to four categories:

- Class I Multi-Use Path: A completely separated right-of-way for the exclusive use of bicycles and pedestrians, with cross flows of motorized traffic minimized.
- Class II Bike Lane: A striped and signed lane for one-way bike travel on a street or highway.
- Class III Bike Route: Signed only for shared use with motor vehicles within the same travel lane on a street or highway.
- Class IV Bikeways: A separated bikeway for the exclusive use of bicycles and includes a separation between the bikeway and the through vehicular traffic.

The Project site is bounded by continuous Class II bike lanes on Laurel Street, Willow Road, Middlefield Road, and Ravenswood Avenue. There are also Class II facilities on the surrounding streets (i.e., Valparaiso Avenue, Santa Cruz Avenue, Encinal Avenue, Willow Avenue, Alma Street, Middlefield Road).

The El Camino Real Corridor Study, which is currently being conducted, includes alternatives that would provide bicycle lanes on El Camino Real within the city limits. In addition, recommendations from the El Camino Real/Downtown Specific Plan (Specific Plan) include Class II bike lanes on Oak Grove Avenue between University Drive and Laurel Street and a Class III Bike Route on Garwood Way between Encinal Avenue and Oak Grove Avenue.

Pedestrian facilities include sidewalks, crosswalks, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. Adjacent to the Project site, there is an enhanced lighted crosswalk on the west leg of Oak Grove Avenue/Merrill Street that would provide pedestrian access to the nearby Caltrain station. In general, the network of sidewalks, crosswalks, pedestrian signals, and curb ramps accommodates pedestrians in the vicinity of the Project site.

There are continuous sidewalks along El Camino Real, Glenwood Avenue, and Oak Grove Avenue adjacent to the Project site. In the vicinity of the Project site, the sidewalks are in generally good condition, although narrow in width. Marked crosswalks with pedestrian signal phasing are provided at all signalized study intersections.

Transit Facilities

Local transit services in the vicinity of the Project site are provided by the San Mateo County Transit District (SamTrans). Additional regional services are provided by Caltrain, the Santa Clara Valley Transportation Authority (VTA), and Bay Area Rapid Transit (BART).

SamTrans

SamTrans, a fixed-route bus transit service, serves primarily as a local transit provider within San Mateo County but also provides connecting regional services to neighboring Santa Clara and San Francisco Counties. All SamTrans buses are equipped with bike racks. Two additional bikes are allowed inside the bus, depending on passenger loads.

The following SamTrans routes serve the Project site:

- Route 286 serves the West Menlo Park and Sharon Heights neighborhoods, along with the Downtown Menlo Park and the Menlo Park Caltrain station. The bus runs four times daily in each direction, twice in the morning and twice in the evening.
- Route 296 serves Redwood City, Atherton, Menlo Park, and East Palo Alto. Within the vicinity of the Project site, Route 296 stops at Santa Cruz Avenue/Merrill Street. The route serves the Redwood City Transit Center from approximately 5:15 a.m. to 11:00 p.m., with headways of 15 minutes on weekdays. On weekends, Route 296 runs from approximately 8:45 a.m. to 8:00 p.m. with half-hour headways. Route 296 serves both the Redwood City and Menlo Park Caltrain stations, where riders can transfer to Caltrain service or other SamTrans routes.
- Route ECR serves El Camino Real between Palo Alto and the Daly City BART station. The bus runs Monday through Friday from approximately 4:00 a.m. to 2:30 a.m., on Saturdays from 4:45 a.m. to 2:30 a.m., and on Sundays from 5:00 a.m. to 2:30 a.m., with headways of approximately 15 to 20 minutes.
- Route 397 serves San Francisco, South San Francisco, San Francisco International Airport, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, and Palo Alto. The bus stops at Middlefield Avenue/Oak Grove Avenue, 0.75 mile from the Project site. This route provides only late-night service, operating with 1-hour headways from approximately 12:45 a.m. to 6:30 a.m.
- Routes 80, 82, 83, 84, 85, 86, 87, 88, and 89 provide school-oriented services. These routes operate only on school days and are timed to coincide with school arrival and dismissal times.

SamTrans provides paratransit services through the affiliated Redi-Wheels and RediCoast providers. Paratransit, also known as dial-a-ride or door-to-door service, is available for those who are unable to use the transit system independently because of a disability.

Stanford Marguerite Shuttle

Stanford University operates the Marguerite Shuttle, which provides free public service within the main campus as well as destinations near campus. The Marguerite BOH line also provides service between the main campus and Stanford Children's Hospital, near the US 101 interchange at Marsh Road, via El Camino Real, Ravenswood Avenue, and Ringwood Avenue. In the vicinity of the Project site, the nearest shuttle stop for the BOH line is the Menlo Park Caltrain station. The shuttle operates on weekdays from 7:00 a.m. to 7:20 p.m., with headways of approximately 20 to 30 minutes.

Regional Transit Services

In addition to the local service provided by SamTrans, the regional transit services discussed below are also available in the vicinity of the Project site and along San Francisco Peninsula. These services are not intended for riders who travel only within Menlo Park; instead, they provide connections between Menlo Park and neighboring cities and counties.

Caltrain

Caltrain is a commuter rail line that serves the San Francisco Peninsula. It connects Menlo Park with San Francisco to the north and San José and Gilroy to the south. On weekdays, approximately 32 trains service the Menlo Park station from each direction (i.e., northbound and southbound). There are four to six northbound trains during the AM and the PM Peak Periods (i.e., 7:00–9:00 a.m. and 4:00–6:00 p.m.)

and four or five southbound trains during the AM and the PM Peak Periods. On weekends, 14 to 16 trains stop at the station (both Saturday and Sunday). The Menlo Park Caltrain station is on the south side of Oak Grove Avenue, across the street from the Project site.

Santa Clara VTA

Santa Clara VTA operates Dumbarton Express routes DB/DB1/DB3, which serve Palo Alto, East Palo Alto, Menlo Park, and Union City. Route DB runs along University Avenue, US 101, Willow Road, and Bayfront Expressway. There are no Dumbarton Express stops near the Project site; however, the SamTrans ECR route provides connecting service to the Dumbarton Express. The Dumbarton Express operates only on weekdays from 5:30 a.m. to 9:00 p.m., with headways of approximately 30 minutes.

VTA also provides light-rail services within Mountain View, Santa Clara, Sunnyvale, Milpitas, San José, and Campbell. The nearest VTA light-rail station is the Downtown Mountain View station, with Caltrain providing a connection between Menlo Park and the light-rail service.

BART

BART provides heavy-rail rapid transit service within Alameda, Contra Costa, San Francisco, and northern San Mateo Counties. Although BART does not provide service within the city of Menlo Park, both Caltrain and SamTrans provide connections between BART and the Project site.

Regulatory Setting

City of Menlo Park

Menlo Park General Plan

The Menlo Park General Plan (General Plan), adopted in 1994, provides the framework for transportation planning within the city. The General Plan established goals relative to the safe and efficient movement of people and goods in and around the city while promoting alternative modes of transportation. In addition, an update to the General Plan, called ConnectMenlo, is currently in development.

Transportation-related goals and policies included in the Circulation and Transportation Element of the General Plan that are relevant to this Project 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-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 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 problem.

Goal II-B: To promote the use of public transit.

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-3: The City shall promote improved public transit service and increased transit ridership, especially to office and industrial areas and schools.

Goal II-C: To promote the use of alternatives to the single-occupant automobile.

Policy II-C-1: The City shall work with all Menlo Park employers to encourage the use of alternatives to the single-occupant automobile in their commute to work.

Policy II-C-2: The City shall provide information to existing and new Menlo Park employers to assist their employees in identifying potential carpools, transit alternatives, and other commute alternatives.

Policy II-C-6: The City shall, to the degree feasible, assist Menlo Park employers in meeting the Average Vehicle Ridership (AVR) targets established by the Bay Area Air Quality Management District.

Policy II-C-7: Commuter shuttle service between the industrial work centers and the Downtown Transportation Center should be maintained and improved, within fiscal constraints. The City shall encourage SamTrans and other agencies to provide funding to support shuttle services.

Goal II-D: To promote the safe use of bicycles as a commute alternative and for recreation.

Policy II-D-2: The City shall, within available funding, work to complete a system of bikeways within Menlo Park.

Policy II-D-4: The City shall require new commercial and industrial development to provide secure bicycle storage facilities on-site.

Goal II-E: To promote walking as a commute alternative and for short trips.

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 that are City controlled and at the signalized intersections along El Camino Real.

Goal II-F: To provide adequate parking in the downtown area, especially for retail customers and Caltrain patrons.

Policy II-F-1: Adequate off-street parking should be required for all new development in the downtown area.

Policy II-F-2: Short-term retail customer parking shall be first priority for the allocation of parking spaces in downtown parking plazas. Long-term employee parking shall be located in such a manner that it does not create a shortage of customer parking adjacent to retail shops.

El Camino Real/Downtown Specific Plan

The Specific Plan, adopted in 2012, establishes a framework for private and public improvements on El Camino Real, in the Caltrain station area, and in downtown Menlo Park. The standards and guidelines of this plan are applicable to private and public improvements in the area. Transportation-related standards and guidelines included in the Specific Plan that are relevant to this Project include the following:

F.5 Bicycle Storage Standards and Guidelines

Standard F.5.01: Outside downtown, new commercial and residential development shall provide secure bicycle storage facilities for long-term occupants (e.g., employees and residents) on-site.

Standard F.5.02: Outside downtown, new commercial and residential development shall provide bicycle parking spaces for long-term occupants and short-term visitors (e.g., employees and guests, respectively), per the requirements in Table F1.

Guideline F.5.04: Visitor and customer bicycle racks should be positioned in areas with active visual surveillance and night lighting, and protected from damage from nearby vehicles.

Guideline F.5.05: Outside downtown, bicycle racks should be located within 50 feet of each building's main entries. For retail buildings or other buildings with multiple main entries, bicycle racks should be proportionally distributed within 50 feet of business or other main entries.

City of Menlo Park Comprehensive Bicycle Development Plan

The 2005 Comprehensive Bicycle Development Plan (CBDP) provides a blueprint with strategies and actions related to bike usage, both for commuting and for recreation. The goals of this plan provide the framework for specific policies and actions with a long-range vision, while the policies provide specific actions for implementing the 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 tested regularly to ensure they remain functional.

Policy 3.4: Require that construction or repair activities, both on street and at adjacent buildings, minimize disruptions to bicycle facilities, ensure bicyclist safety at all times, and provide alternate routes if necessary.

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 who commute by bicycle.

Policy 4.9: Promote bicycling as a healthy transportation alternative.

El Camino Real Corridor Study

A study of the El Camino Real corridor is currently underway. The study will review potential transportation and safety improvements for El Camino Real within the city limits. The improvements to El Camino Real that are being considered include capacity improvements, transportation safety improvements, and bicycle and pedestrian infrastructure enhancements.

City of Menlo Park Transportation Impact Fee Study

The City of Menlo Park Transportation Impact Fee, adopted in 2009, established the nexus between anticipated future development in the city of Menlo Park and the need for certain improvements to local transportation facilities. This nexus serves as the basis for requiring transportation impact fees from new developments. The projects that will be needed to support expected traffic growth were also identified.

Proportionate Cost-Sharing Program Study

The Proportionate Cost-Sharing Program Study was prepared in 2014 to determine a proportional cost per trip for mitigating environmental impacts associated with the Specific Plan in addition to those added by the 2009 TIF. Various transportation improvements will supplement the projects included in the 2009 Transportation Impact Fee Study. This fee is also referred to as the Supplemental Transportation Impact Fee.

Regional Regulatory Setting

City/County Association of Governments of San Mateo County Congestion Management Program

The City/County Association of Governments (C/CAG), as the Congestion Management Agency for San Mateo County, is required to prepare and adopt a CMP on a biennial basis. The purpose of the CMP is

to identify strategies that respond to future transportation needs, develop procedures for alleviating and controlling congestion, and promote countywide solutions.

The CMP is required to be consistent with the Metropolitan Transportation Commission (MTC) planning process, which includes regional goals, policies, and projects for the Regional Transportation Improvement Program (RTIP). The 2013 CMP, which is consistent with MTC's Transportation 2040 Plan, provides updated program information and performance monitoring results for the CMP roadway system.

Metropolitan Transportation Commission

The MTC was created by the California Legislature in 1970 as the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area. The MTC functions as the Metropolitan Planning Organization for state and federal purposes as well as the regional transportation planning agency at the state level. It is responsible for prioritizing regional transportation projects and attaining federal and state funding through the Regional Transportation Program (RTP), which provides a comprehensive blueprint for the development of mass transit, highway, rail, and bicycle and pedestrian facilities. Prioritization is accomplished through coordination among local agencies and congestion management plans that demonstrate need, feasibility, and conformance with federal and local transportation policies.

San Mateo County Comprehensive Bicycle and Pedestrian Plan

The C/CAG, with support from the San Mateo County Transportation Authority (SMCTA), developed the 2011 San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) to address issues related to the planning, design, funding, and implementation of bicycle and pedestrian projects of countywide significance.

The relevant goals and policies are as follows:

Goal 2: More People Riding and Walking for Transportation and Recreation

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 4.5: 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.

State of California Complete Streets Act

On September 30, 2008, Governor Schwarzenegger signed Assembly Bill (AB) 1358, the California Complete Streets Act of 2008, into law. AB 1358 requires any substantive revision of the Circulation Element of a city or county's general plan to identify how it will safely accommodate the circulation of all users of the roadway, including pedestrians, bicyclists, children, seniors, individuals with disabilities, transit riders, and motorists.

Caltrans Deputy Directive 64-R1: Complete Streets – Integrating the Transportation System

In 2001, Caltrans adopted Deputy Directive (DD) 64, a policy directive related to non-motorized travel throughout the state. In October 2008, DD 64 was strengthened to reflect changing priorities and challenges.

DD 64-R1 states:

The Department views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating “complete streets,” beginning early in system planning and continuing through project delivery and maintenance and operations. Developing a network of “complete streets” requires collaboration among all Department functional units and stakeholders to establish effective partnerships.

Providing safe mobility for all users, including motorists, bicyclists, pedestrians, and transit, contributes to the Department’s vision: “Improving Mobility across California.”

Successful long-term implementation of this policy will result in more options for people when going from one place to another, less traffic congestion, fewer greenhouse gas (GHG) emissions, more walkable communities (with healthier, more active people), and fewer barriers for older adults, children, and people with disabilities.

Caltrans Director’s Policy 22, Director’s Policy on Context-Sensitive Solutions

Director’s Policy 22, regarding the use of “Context-Sensitive Solutions” on all state highways, was adopted by Caltrans in November 2001.

The policy reads:

The Department uses “Context-Sensitive Solutions” as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context-sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders.

The context of all projects and activities is a key factor in reaching decisions. It is considered for all state transportation and support facilities when defining, developing, and evaluating options. When considering the context, issues such as funding feasibility, maintenance feasibility, traffic demand, impact on alternate routes, impact on safety, and relevant laws, rules, and regulations must be addressed.

The policy recognizes that, in towns and cities across California, a state highway may be the only through street. Alternatively, it may function as a local street. Communities want their main street be an economic, social, and cultural asset and facilitate the safe and efficient movement of people and goods. Furthermore, communities want transportation projects to provide opportunities for enhanced non-motorized travel and visual quality. By recognizing these criteria, the policy ensures that transportation solutions will meet more than just traffic and operational objectives.

Plan Bay Area

The current RTP produced by MTC, Plan Bay Area, was adopted in 2013. Plan Bay Area sets forth a regional transportation policy and provides capital program planning for all regional, state, and federally funded projects. In addition, Plan Bay Area provides strategic investment recommendations to improve the performance of the regional transportation system over the next 25 years. Information regarding investments in regional highway, transit, local roadway, bicycle, and pedestrian projects is set forth.

Plan Bay Area includes the following transportation-related projects within or immediately adjacent to the city of Menlo Park:

- Implement an incentive program to support transit-oriented development.
- Implement bicycle/pedestrian enhancements in San Mateo County.
- Implement local circulation improvements and traffic management programs countywide.
- Implement San Mateo County's Safe Routes to School program.
- Implement San Mateo County's Transportation for Livable Communities Program.
- Implement traffic signal interconnect between signals on Willow Road from Middlefield Avenue to Bay Road.
- Implement transportation environmental enhancements countywide.
- Electrify Caltrain from San Jose Tamien to San Francisco, which includes the segment in Menlo Park

Analysis Methodology

Study intersections were analyzed utilizing methodologies published in the *Highway Capacity Manual* (2000). Details regarding these methodologies, and the associated level-of-service (LOS) criteria, are provided in Appendix 3.1-A. An analysis of Menlo Park roadway segments is based on the criteria established in the City of Menlo Park Circulation System Assessment document.

Standards of Significance

The City of Menlo Park's traffic impact analysis guidelines are contained in the 2004 Circulation System Assessment document. Within the Circulation System Assessment, the City has established detailed standards of significance, which are to be used when analyzing a project's impact on the City's circulation network. For reference, the Circulation System Assessment is provided in Appendix 3.1-B.

Intersections

A Project is considered to have a potentially significant traffic impact if the addition of project traffic causes an intersection on a collector street operating at LOS A through C to operate at an unacceptable level (LOS D, E, or F) or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first. A potential significant traffic impact shall also include a project that causes an intersection on arterial streets or local approaches to state-controlled signalized intersections operating at LOS A through D to operate at an unacceptable level (LOS E or F) or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first.

A project is also considered to have a potentially significant traffic impact if the addition of project traffic causes an increase of more than 0.8 second of average delay to vehicles on all critical movements for intersections operating at a near term LOS D through F for collector streets and at a near term LOS E or F for arterial streets. For local approaches to state-controlled signalized intersections, a project is considered to have a potentially significant impact if the addition of project traffic causes an increase of more than 0.8 second of delay to vehicles on the most critical movements for intersections operating at a near term LOS E or F.

Roadway Segments

On Minor Arterial Streets, a traffic impact may be considered potentially significant if the existing average daily traffic (ADT) volume is (1) greater than 18,000 (90 percent of capacity), and there is a net increase (i.e., 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.

On Collector Streets, a traffic impact may be considered potentially significant if the existing ADT volume is (1) greater than 9,000 (90 percent of capacity), and there is a net increase (i.e., 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.

On Local Streets, a traffic impact may be considered potentially significant if the existing ADT volume is (1) greater than 1,350 (90 percent of capacity), and there is a net increase (i.e., 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 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.

For study facilities that are not under the control of the City of Menlo Park, the following standards of significance were applied. These thresholds are consistent with the standards of significance that were applied to other impact analyses that were recently completed for the City of Menlo Park.

Atherton Roadway Segments. At Town of Atherton-controlled roadway segments, the capacity of each roadway segment is defined in the Town of Atherton General Plan. The capacity is based on the road type and ADT. The capacity of Minor Arterial, Collector, and Local Streets is defined as 25,000 ADT, 12,000 ADT, and 1,000 ADT respectively. The Project would have an impact if Project traffic were to result in ADT volumes that are higher than the stated traffic capacity thresholds for the roadway segment.

Atherton Intersections. At Town of Atherton-controlled intersections that currently operate at LOS D or better, the Project would have an impact if Project traffic were to result in an intersection LOS of E or F or increase the critical worst-approach delay by 4.0 seconds or more if the LOS is E or F without Project traffic.

The LOS thresholds that were applied to the study intersections are summarized in Table 3.1-1.

Table 3.1-1. LOS Significance

Study Intersection	Jurisdiction	LOS Significance Threshold	Significance Threshold for Unacceptable LOS
Middlefield Rd/Marsh Rd	Town of Atherton	D	LOS becomes E or F or 4.0-second increase occurs at critical worst approach if LOS is currently E or F
Middlefield Rd/Encinal Ave	Town of Atherton	D	LOS becomes E or F or 4.0-second increase occurs at critical worst approach if LOS is currently E or F
Middlefield Rd/Glenwood Ave	Town of Atherton	D	LOS becomes E or F or 4.0-second increase occurs at critical worst approach if LOS is currently E or F
Middlefield Rd/Oak Grove Ave	Town of Atherton	D	LOS becomes E or F or 4.0-second increase occurs at critical worst approach if LOS is currently E or F
Middlefield Rd/Ravenswood Ave	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Middlefield Rd/Ringwood Ave	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Middlefield Rd/Willow Rd	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Encinal Ave/Laurel St	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Glenwood Ave/Laurel St	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Oak Grove Ave/Laurel St	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Ravenswood Ave/Laurel St	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second

Study Intersection	Jurisdiction	LOS Significance Threshold	Significance Threshold for Unacceptable LOS
Glenwood Ave/Garwood Way	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Oak Grove Ave/Alma St	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Ravenswood Ave/Alma St	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Oak Grove Ave/Derry Ln (Garwood Way)-Merrill St	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
El Camino Real/Encinal Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Valparaiso Ave-Glenwood Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Oak Grove Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Santa Cruz Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Ravenswood Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Roble Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
El Camino Real/Middle Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more

Study Intersection	Jurisdiction	LOS Significance Threshold	Significance Threshold for Unacceptable LOS
El Camino Real/ Cambridge Ave	State with Local Approach	D	LOS of local approaches becomes E or F; if LOS is currently E or F, all critical approach delay increases by 0.8 second or more
University Dr/Valparaiso Ave	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Oak Grove Ave/University Dr	City of Menlo Park	C	LOS becomes D or worse or delay increases by 23 seconds or more or, if LOS is currently D, E or F, all critical movement delay increases by 0.8 second
Santa Cruz Ave/ University Dr (North)	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second
Santa Cruz/ University Dr (South)	City of Menlo Park	D	LOS becomes E or worse or delay increases by 23 seconds or more or, if LOS is currently E or F, all critical movement delay increases by 0.8 second

Routes of Regional Significance

LOS standards for Routes of Regional Significance were established by C/CAG and published in the 2013 CMP Monitoring Report.

The following are the LOS standards for roadway segments in San Mateo County:

- If the existing (1990/1991) LOS was F, then the standard was set to be LOS F.
- If the existing or future LOS was or will be E, then the standard was set to be LOS E.
- On SR 82 (El Camino Real), the standard was set to be LOS E.
- For the remaining roadway segments, the standard was set to be one letter designation worse than the LOS projected for 2000.

Table 3.1-2 provides a summary of the standards of significance for the study area segments. If a Route of Regional Significance operates unacceptably without the addition of Project-generated traffic, the Project's impact would be considered significant if the volume-to-capacity (v/c) ratio increases by 0.01 or more. This approach is consistent with the standards of significance that were applied to other impact analyses that were recently completed for projects in the city of Menlo Park.

Table 3.1-2. C/CAG Routes of Regional Significance

Route	Segment	Roadway Type ^a	Estimated Capacity (vph) ^{a,b,c}	LOS Standard ^a
El Camino Real (SR 82)	North of Ravenswood Ave	Arterial	2,200	E
	South of Ravenswood Ave	Arterial	3,300	E
Bayfront Expressway (SR 84)	Willow Road to University Ave	Arterial	3,300	E
	University Ave to County Line	Freeway	6,900	F
Willow Road (SR 114)	US 101 to Bayfront Expressway	Arterial	2,200	E
US 101	North of Marsh Rd	Freeway	9,200	F
	Marsh Rd to Willow Rd	Freeway	9,200	F
	Willow Rd to University Ave	Freeway	9,200	F
	South of University Ave	Freeway	9,200	F

Notes:

a. Source: San Mateo County. 2013. *Congestion Management Program Monitoring Report*.

b. Freeway capacity is 2,300 vehicles per hour per lane (vphpl) for six-lane segments and 2,200 vphpl for four-lane segments. Arterial capacity is based on a 60 percent green time saturation flow rate of 1,900 vphpl (1,140 vphpl is rounded to 1,100 vphpl).

c. Capacity is per direction of travel.

Existing Conditions

Existing Traffic Demand and Levels of Service

The existing conditions scenario, which evaluates current operations, considers existing traffic volumes during the weekday AM and PM Peak Periods. This does not include Project-generated traffic volumes.

Existing conditions at the study intersections were evaluated during typical weekday AM and PM Peak Periods, which are defined as the hours with the highest traffic volumes (i.e., 7:00–9:00 a.m. and 4:00–6:00 p.m., respectively). Traffic counts for all intersections and roadway segments were collected between September and December 2014 and provided by the City of Menlo Park. Existing intersection lane geometrics are provided in Figure 3.1-2, and the existing intersection traffic volumes are shown in Figures 3.1-3 and 3.1-4 for the AM and PM Peak Hours, respectively. ADT volumes for the existing study segments are provided in Figure 3.1-5.

Intersection LOS

The existing intersection levels of service are summarized in Table 3.1-3. Detailed results are provided in Appendix 3.1-C, and calculations are provided in Appendix 3.1-D. Currently, all study intersections are operating acceptably, with the exception of Middlefield Road/Glenwood Avenue-Linden Avenue.

Table 3.1-3. Existing Intersection LOS

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
1. Middlefield Rd/Marsh Rd	21.7	C	28.5	C
2. Middlefield Rd/Encinal Ave	29.0	C	15.0	B
3. Middlefield Rd/Glenwood Ave-Linden Ave*	92.4	F	124.1**	F
4. Middlefield Rd/Oak Grove Ave	17.4	B	15.7	B
5. Middlefield Rd/Ravenswood Ave	22.2	C	25.1	C
6. Middlefield Rd/Ringwood Ave	30.7	C	33.9	C
7. Middlefield Rd/Willow Rd	48.3	D	47.1	D
8. Laurel St/Encinal Ave	17.7	C	10.4	B
9. Laurel St/Glenwood Ave	16.3	C	11.4	B
10. Laurel St/Oak Grove Ave	14.7	B	15.0	B
11. Ravenswood Ave/Laurel St	18.5	B	23.5	C
12. Glenwood Ave/Garwood Way*	14.1	B	13.3	B
13. Oak Grove Ave/Alma St*	20.5	C	19.0	C
14. Ravenswood Ave/Alma St*	12.2	B	16.8	C
15. Oak Grove Ave/Derry Ln (Garwood Way)-Merrill St*	20.2	C	17.1	C
16. El Camino Real/Encinal Ave	26.9	C	26.2	C
17. El Camino Real/Valparaiso Ave-Glenwood Ave	35.5	D	39.1	D
18. El Camino Real/Oak Grove Ave	18.1	B	16.6	B
19. El Camino Real/Santa Cruz Ave	11.3	B	13.7	B
20. El Camino Real/Ravenswood Ave	37.6	D	46.3	D
21. El Camino Real/Roble Ave	8.7	A	10.7	B
22. El Camino Real/Middle Ave	15.7	B	19.4	B
23. El Camino Real/Cambridge Ave	4.6	A	10.4	B
24. Valparaiso Ave/University Dr	21.3	C	23.2	C
25. Oak Grove Ave/University Dr	13.6	B	13.4	B
26. Santa Cruz Ave/University Dr (North)	13.3	B	16.1	C
27. Santa Cruz Ave/University Dr (South)	16.9	B	18.4	B

Source: W-Trans 2015.

Notes:

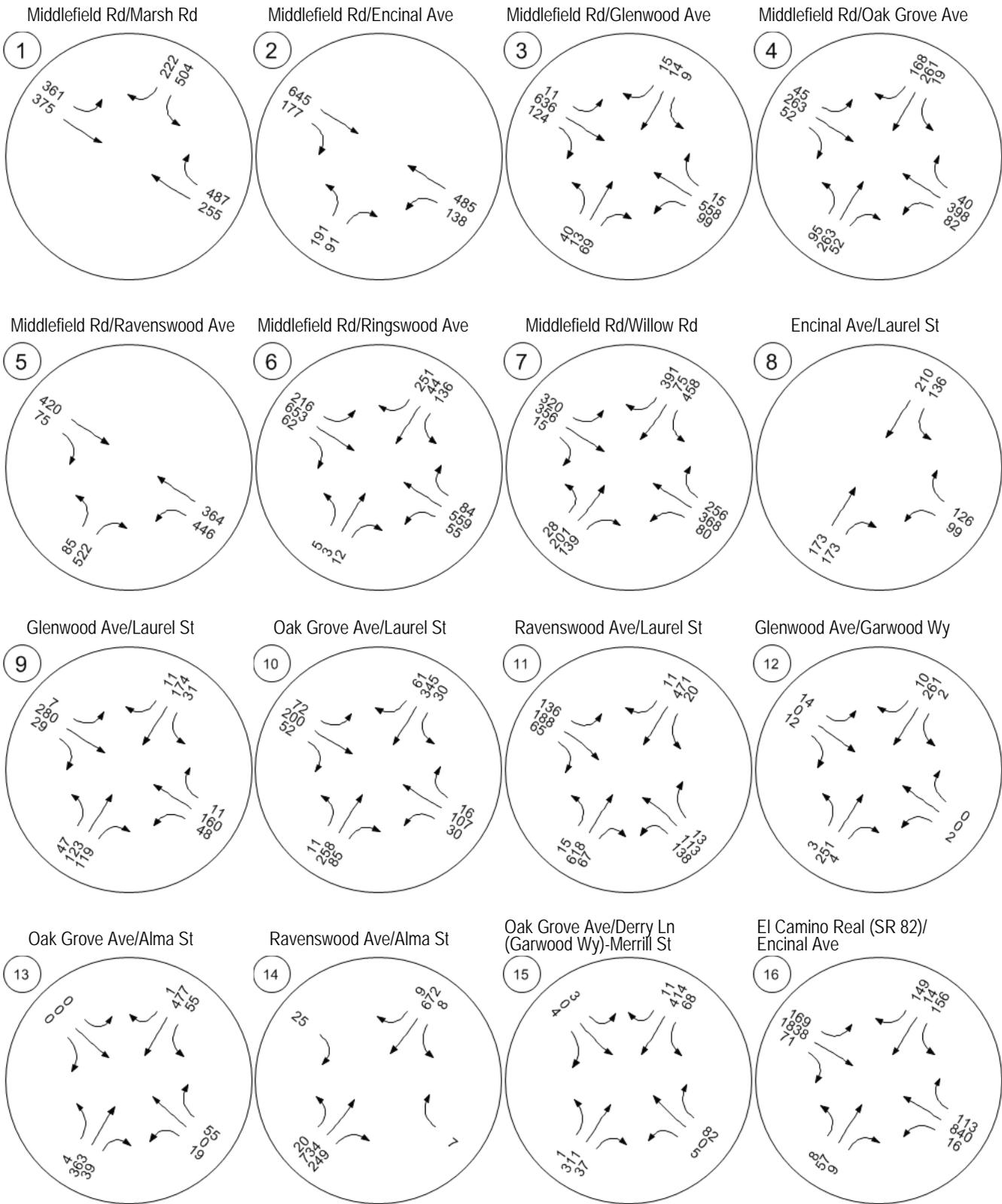
Delay = average number of seconds per vehicle.

LOS = level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

** For calculated delays greater than 120 seconds, *Highway Capacity Manual* methodology does not provide an accurate representation of actual conditions. However, calculated delays greater than 120 seconds are reported for comparative purposes and used to determine the significance of an impact.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.



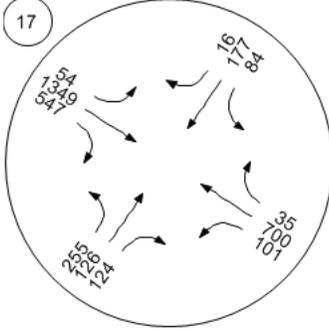
Source: W-Trans, 2015.

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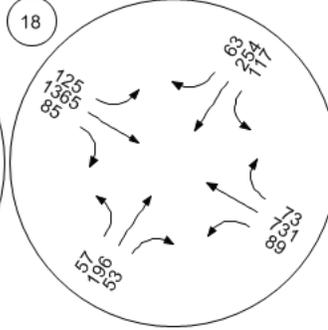


Figure 3.1-3A
Existing AM Peak Volumes
 1300 El Camino Real Greenheart Project

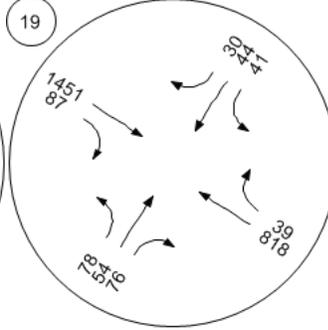
El Camino Real (SR 82)/
Glenwood Ave



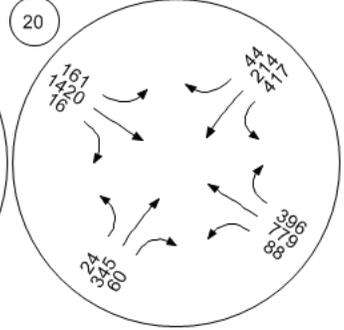
El Camino Real (SR 82)/
Oak Grove Ave



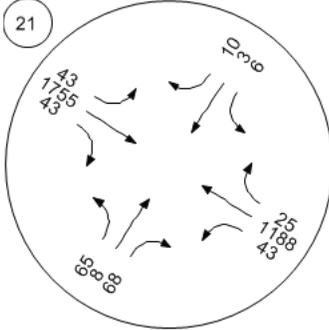
El Camino Real (SR 82)/
Santa Cruz Ave



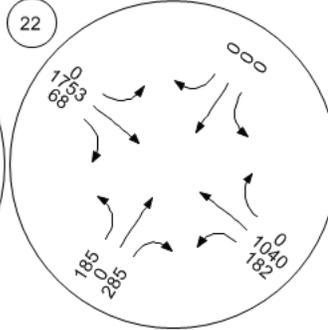
El Camino Real (SR 82)/
Ravenswood Ave



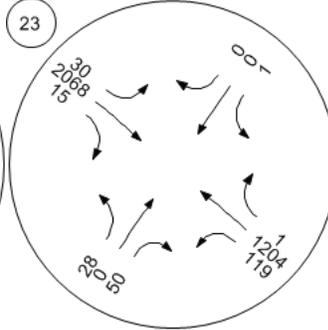
El Camino Real (SR 82)/
Roble Ave



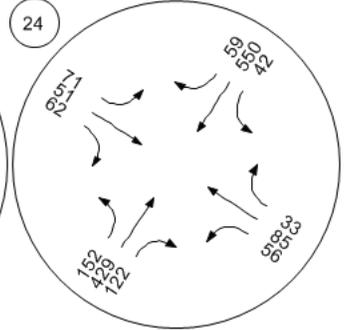
El Camino Real (SR 82)/
Middle Ave



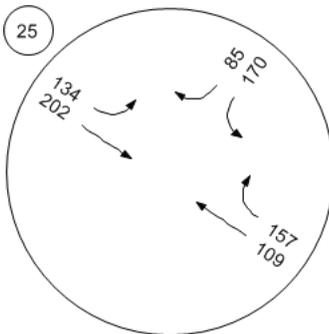
El Camino Real (SR 82)/
Cambridge Ave



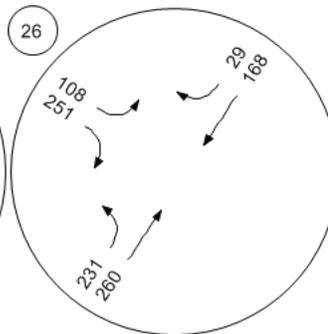
Valparaiso Ave/University Dr



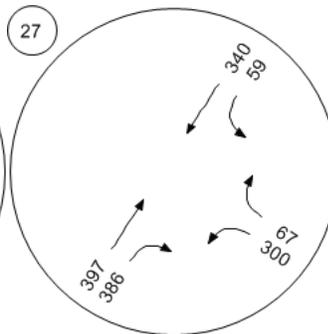
University Dr/Oak Grove Ave

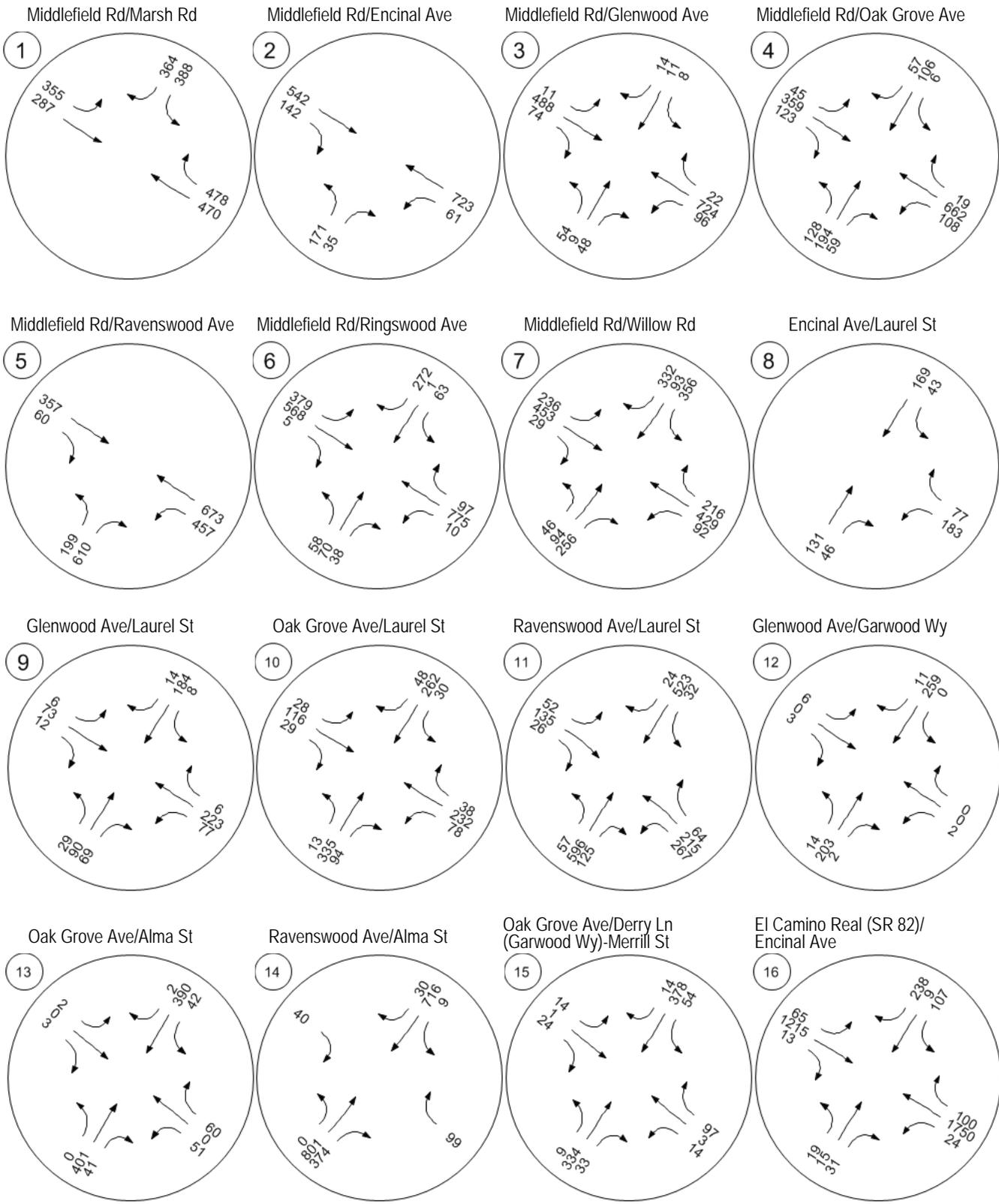


Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)



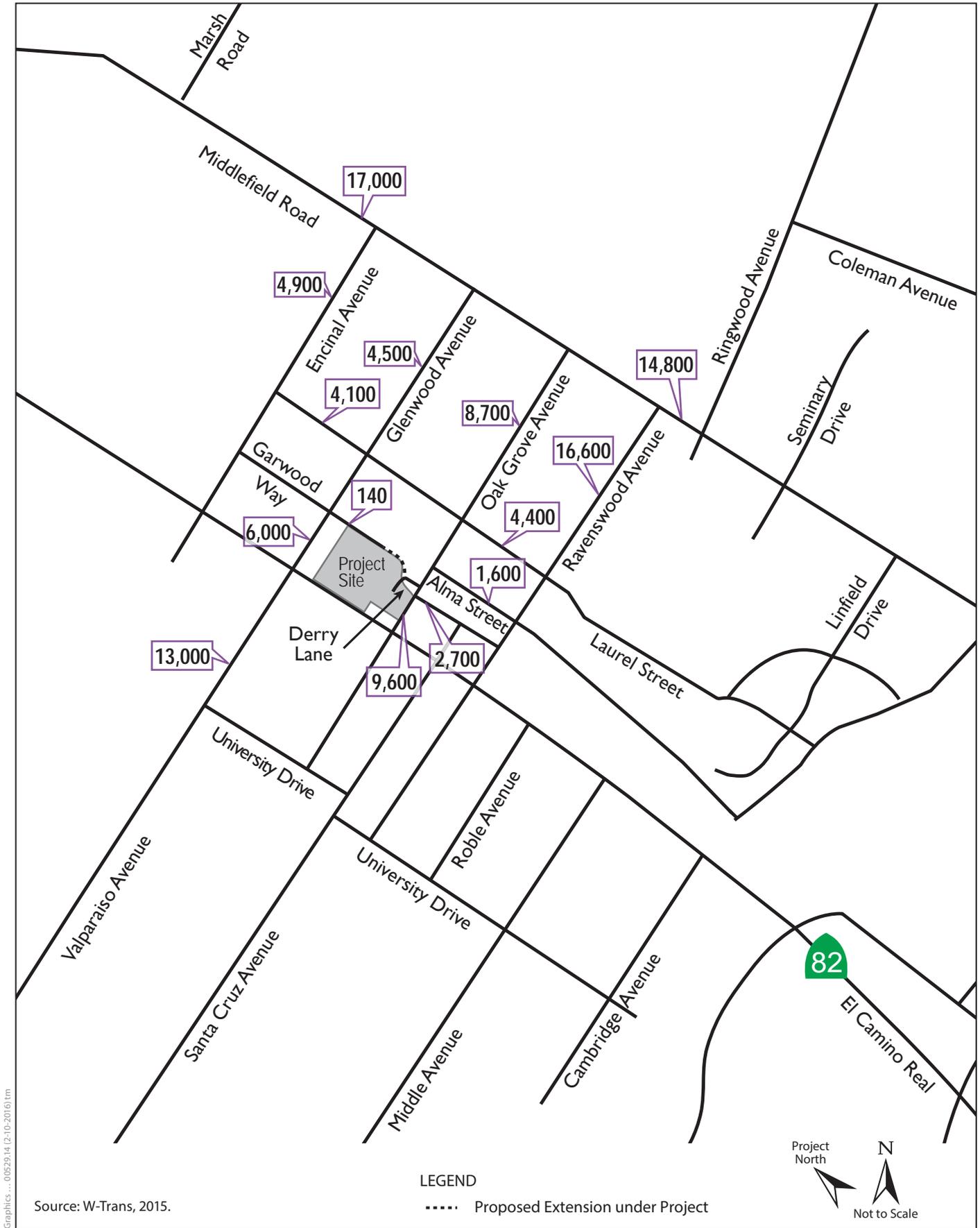


Source: W-Trans, 2015.

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Figure 3.1-4A
Existing PM Peak Volumes
 1300 El Camino Real Greenheart Project



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Figure 3.1-5
Existing Roadway ADT
 1300 El Camino Real Greenheart Project

Roadway Segment Analysis

Existing ADT volumes for study area roadway segments are shown in Table 3.1-4. It is noted that, according to the Circulation System Assessment document, the City of Menlo Park does not designate a roadway as operating acceptably or unacceptably. Instead, the City considers only a proposed project's contribution to an acceptable or unacceptable level of growth on a roadway. Therefore, existing traffic volumes for the roadway segments are provided for reference purposes and used as a basis for determining Project-related impacts.

Table 3.1-4. Existing ADT Summary

Roadway Segment	Classification	Capacity	ADT
1. Middlefield Rd (Marsh Rd to Glenwood Ave)*	Minor Arterial	25,000	17,000
2. Middlefield Rd (Oak Grove Ave to Ravenswood Ave)*	Minor Arterial	25,000	14,800
3. Laurel St (Encinal Ave to Glenwood Ave)	Collector	10,000	4,100
4. Laurel St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	4,400
5. Ravenswood Ave (Laurel St to Middlefield Rd)	Minor Arterial	20,000	16,600
6. Encinal Ave (Laurel St to Middlefield Ave)*	Collector	10,000	4,900
7. Valparaiso Ave (University Dr to El Camino Real)	Minor Arterial	20,000	13,000
8. Glenwood Ave (El Camino Real to Laurel St)	Collector	10,000	6,000
9. Glenwood Ave (Laurel St to Middlefield Rd)*	Collector	12,000	4,500
10. Oak Grove Ave (El Camino Real to Laurel St)	Collector	10,000	9,600
11. Oak Grove Ave (Laurel St to Middlefield Rd)*	Collector	10,000	8,700
12. Alma St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	1,600
13. Garwood Way (Glenwood Ave to Oak Grove Ave)	Local	1,500	140
14. Merrill St (Oak Grove Ave to Ravenswood Ave)	Local	1,500	2,700

Source: W-Trans, 2015.

Notes:

* Part or all of the roadway segment is located in the Town of Atherton.

Roadway capacities for each roadway classification are detailed in the City of Menlo Park Circulation System Assessment and the Town of Atherton General Plan (2002).

Data regarding existing volumes collected by the City of Menlo Park in 2014.

Routes of Regional Significance

Existing operations along the Routes of Regional Significance are summarized in Table 3.1-5. Currently, the segment of Bayfront Expressway between University Avenue and Willow Road operates unacceptably at LOS F in the eastbound direction during the PM Peak Hour; all other Routes of Regional Significance operate acceptably.

Table 3.1-5. Routes of Regional Significance – Existing Conditions

Route	Segment	AM Peak Hour		PM Peak Hour	
		v/c	LOS	v/c	LOS
El Camino Real (SR 82)	Ravenswood Ave to Encinal Ave (NB)	0.35	A	0.66	B
	City limits to Ravenswood Ave (NB)	0.28	A	0.47	A
	Encinal Ave to Ravenswood Ave (SB)	0.65	B	0.51	A
	Ravenswood Ave to City limits (SB)	0.41	A	0.36	A
Bayfront Expressway (SR 84)	University Ave to Willow Road (WB)	0.94	E	0.42	A
	County Line to University Ave (WB)	0.51	C	0.23	A
	Willow Road to University Ave (EB)	0.38	A	0.98	E
	University Ave to County Line (EB)	0.20	A	0.53	C
Willow Road (SR 114)	US 101 to Bayfront Expy (NB)	0.50	A	1.14	F
	Bayfront Expy to US 101 (SB)	0.95	E	0.68	B
US 101	North of Marsh Rd (NB)	0.74	D	0.85	D
	Willow Rd to Marsh Rd (NB)	0.68	C	0.78	D
	University Ave to Willow Rd (NB)	0.73	D	0.83	D
	South of University Ave (NB)	0.75	D	0.85	D
	North of Marsh Rd (SB)	0.89	E	0.71	D
	Marsh Rd to Willow Rd (SB)	0.82	D	0.65	C
	Willow Rd to University Ave (SB)	0.87	D	0.69	C
	South of University Ave (SB)	0.90	E	0.71	D

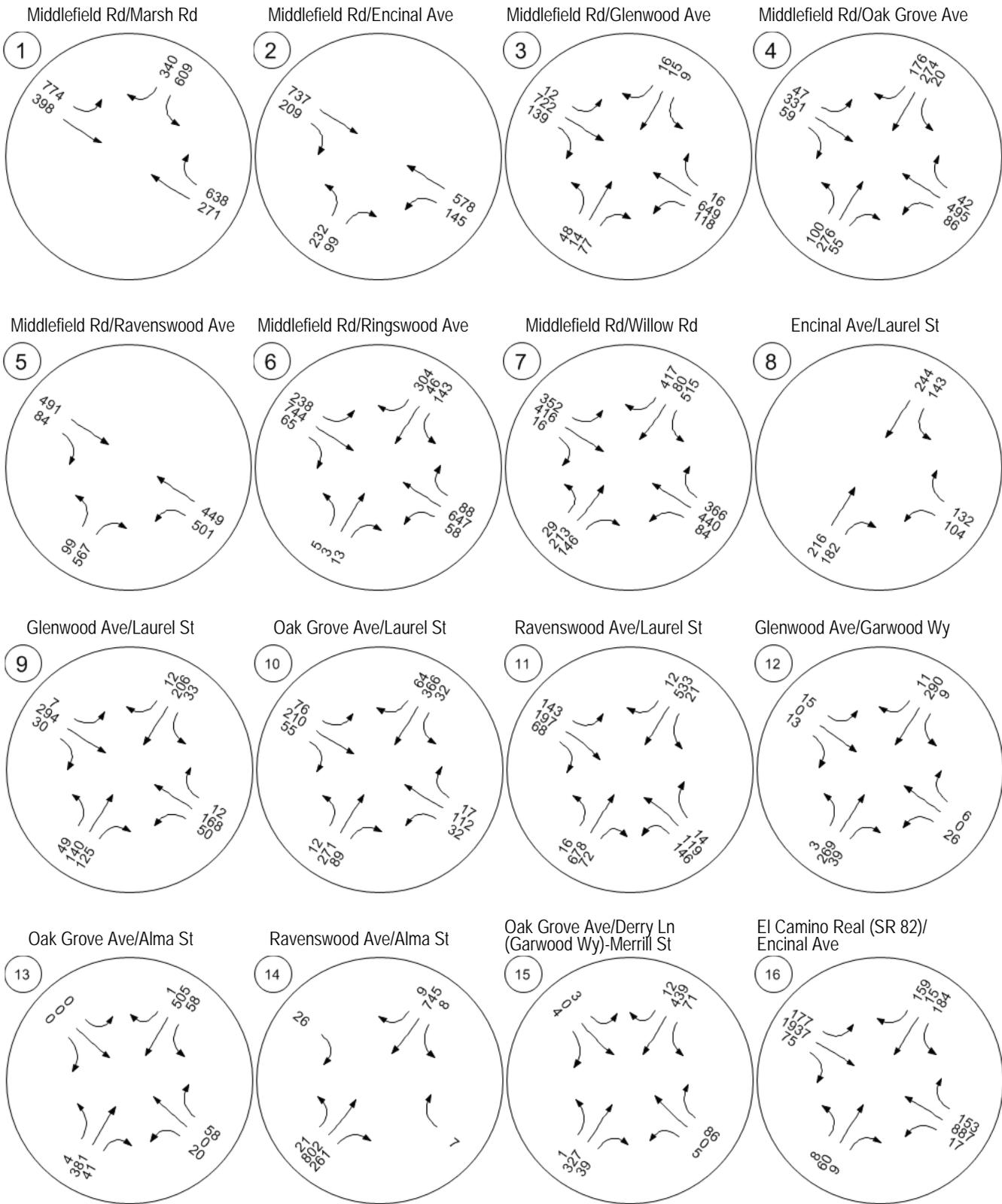
Source: W-Trans, 2015.

Notes:

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; v/c = volume-to-capacity ratio; LOS = level of service.

Near-Term 2020 Conditions

The Near-Term scenario represents a short-term horizon year of 2020, the earliest the Project could be built and fully occupied. The Near-Term scenario includes traffic that would be generated by approved projects within the City of Menlo Park. A list of these projects was provided by the City of Menlo Park (Table 3.1-6). Detailed information, including information regarding the land uses that are being replaced, is provided in Appendix 3.1-E. The traffic volumes that would be generated by these approved projects was obtained from the City's Traffix analysis network, where available, or developed from data published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual. Additionally, a growth rate of 1 percent per year was applied to account for growth in regional traffic until the horizon year of 2020. Near-term traffic volumes are shown in Figure 3.1-6 for the AM Peak Hour and Figure 3.1-7 for the PM Peak Hour. Near-term daily traffic volumes on roadway segments are shown in Figure 3.1-8.

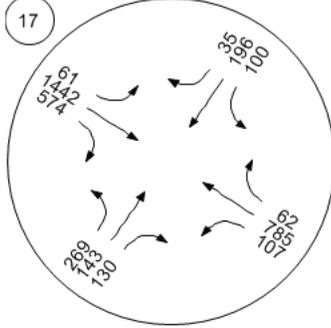


Source: W-Trans, 2015.

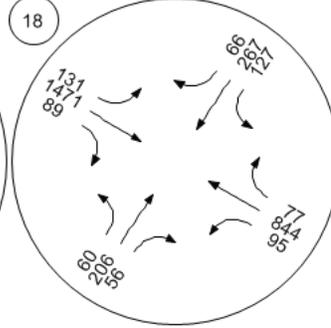


Figure 3.1-6A
Near Term AM Peak Volumes
 1300 El Camino Real Greenheart Project

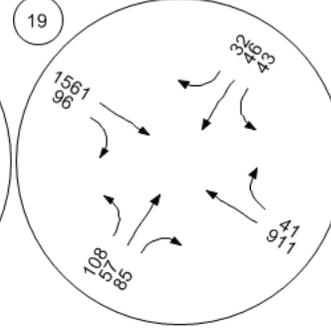
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Glenwood Ave



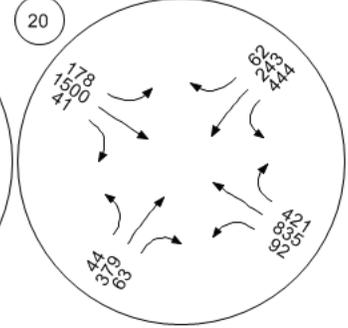
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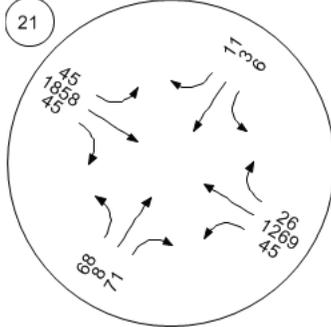
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Santa Cruz Ave



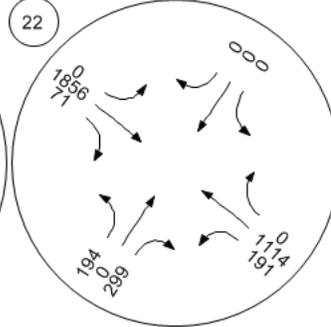
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Ravenswood Ave



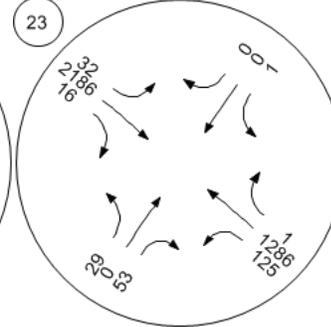
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Roble Ave



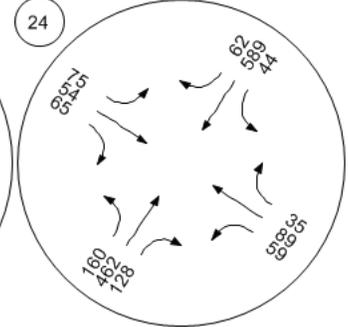
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Middle Ave



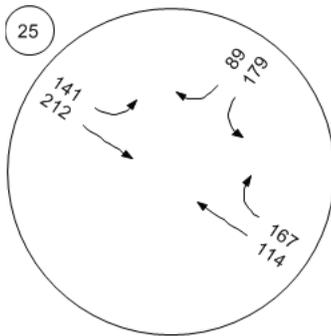
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Cambridge Ave



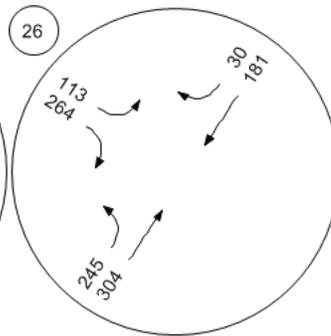
Valparaiso Ave/University Dr



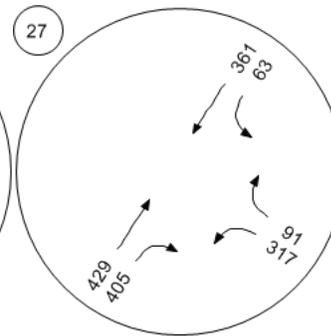
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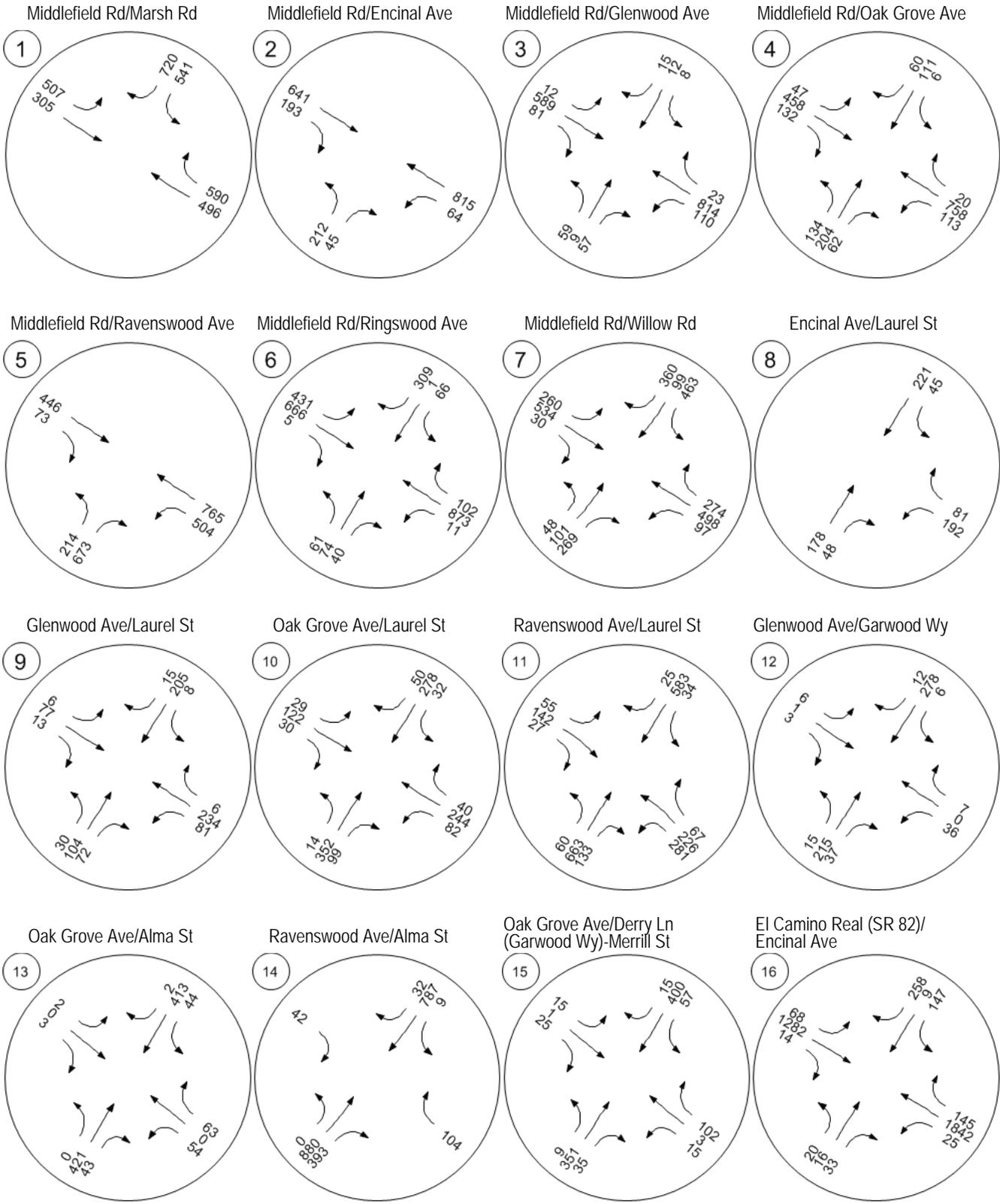


Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)



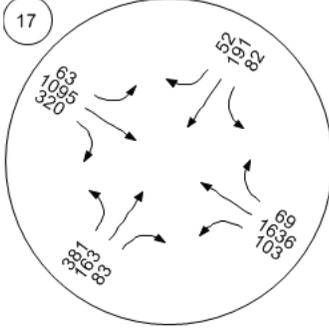


Source: W-Trans, 2015.

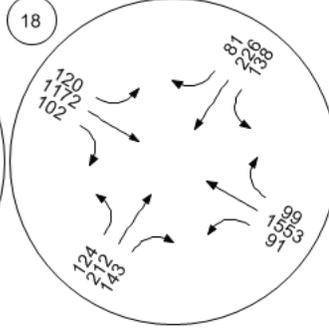


Figure 3.1-7A
Near Term PM Peak Volumes
 1300 El Camino Real Greenheart Project

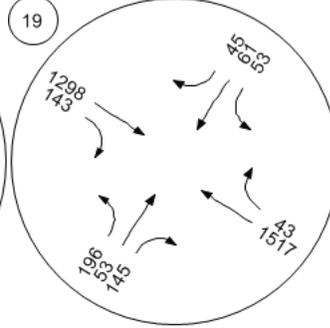
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Glenwood Ave



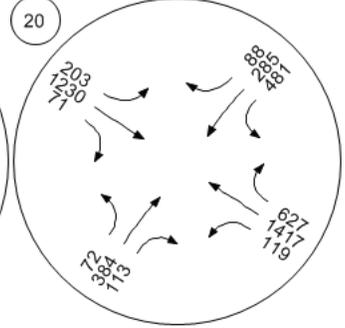
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Oak Grove Ave



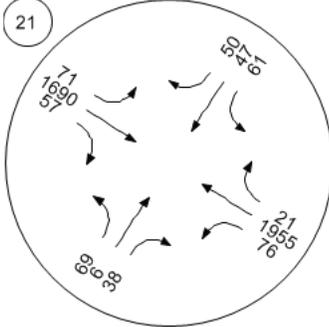
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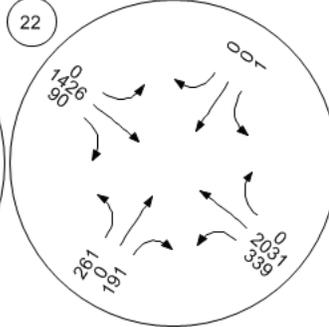
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Ravenswood Ave



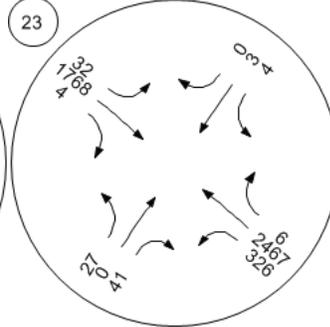
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Roble Ave



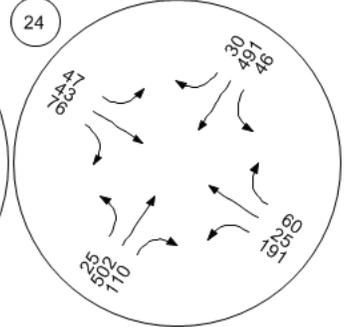
El Camino Real (SR 82)/
Middle Ave



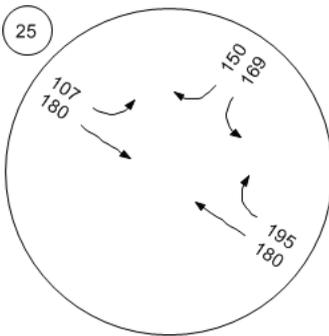
El Camino Real (SR 82)/
Cambridge Ave



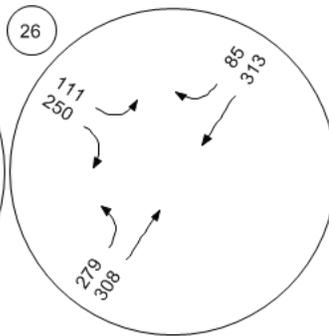
Valparaiso Ave/University Dr



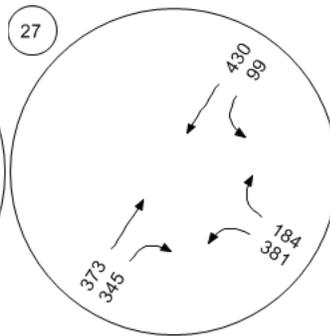
University Dr/Oak Grove Ave



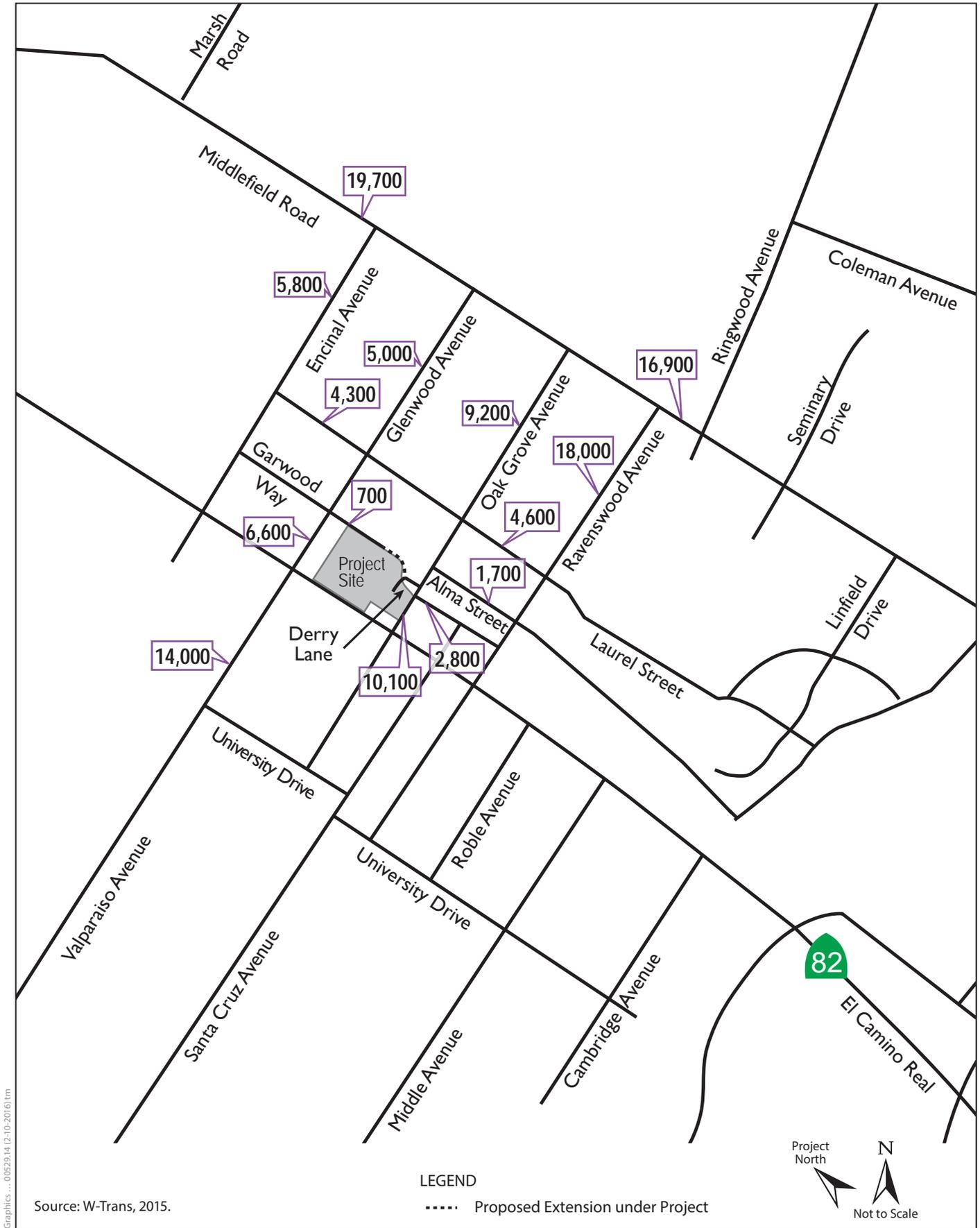
Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)



Source: W-Trans, 2015.



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Figure 3.1-8
Near Term Daily Volumes
 1300 El Camino Real Greenheart Project

Table 3.1-6. Near-Term Approved Developments in Project Vicinity

Project	Land Use	Size
1460 El Camino Real	Residential/Office	16 du/26,800 sf
702 Oak Grove Ave	Residential/Office	4 du/3,469 sf
555 Glenwood Ave	Hotel	138 rooms
1283 Willow Road	Office/Retail	3,800 sf/5,096 sf
Menlo Gateway	Office/Health Club/ Restaurant/Hotel	694,669 sf/68,964 sf/ 4,285 sf/230 rooms
Facebook West	Office	433,656 sf
Commonwealth Corporate Center	Office	259,920 sf
VA/Core	Residential	60 du
Anton Menlo	Residential	396 du
777 Hamilton	Residential	196 du
3645 Haven Ave	Residential	146 du

Note: sf = square feet; du = dwelling unit.

Programmed/Planned Transportation Facility Improvements

At the direction of the City of Menlo Park, the following programmed and planned improvements to study facilities were included in the Near-Term analysis:

- Signal phasing changes at Ravenswood Avenue/Laurel Street to incorporate split phasing on the Laurel Street approaches.
- Traffic signal timing improvements along Middlefield Road to coordinate traffic signals.
- At Willow Road/Middlefield Road, modifications to the northbound Middlefield Road approach to provide a left-turn lane and a through lane, shared through and right-turn lane, and right-turn lane. The existing channelizing right-turn island would be removed.

Transportation improvements along El Camino Real are currently being considered as part of the ongoing El Camino Real Corridor Study. The City Council has recently provided direction to pursue implementing a future bicycle lane alternative. The specifics of the bicycle lane design are expected at a future date. Approval and construction of the Project would not preclude development of the transportation improvement alternatives that are currently being considered.

Near-Term 2020 Conditions

Intersection operations under Near-Term conditions, without the addition of Project-generated traffic, are summarized in Table 3.1-7. Detailed results are provided in Appendix 3.1-C; calculations are provided in Appendix 3.1-D.

The following intersections are expected to operate at unacceptable levels of service:

1. Middlefield Road/Marsh Road
3. Middlefield Road/Glenwood Avenue-Linden Avenue
20. El Camino Real/Ravenswood Ave

Table 3.1-7. Near-Term Intersection LOS

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
1. Middlefield Rd/Marsh Rd	70.0	E	64.9	E
2. Middlefield Rd/Encinal Ave	47.1	D	20.2	C
3. Middlefield Rd/Glenwood Ave-Linden Ave*	>180**	F	>180**	F
4. Middlefield Rd/Oak Grove Ave	18.7	B	17.0	B
5. Middlefield Rd/Ravenswood Ave	26.1	C	32.7	C
6. Middlefield Rd/Ringwood Ave	32.4	C	36.9	D
7. Middlefield Rd/Willow Rd	50.5	D	49.3	D
8. Laurel St/Encinal Ave	24.6	C	11.6	B
9. Laurel St/Glenwood Ave	20.1	C	12.2	B
10. Laurel St/Oak Grove Ave	15.3	B	15.6	B
11. Ravenswood Ave/Laurel St	39.1	D	50.5	D
12. Glenwood Ave/Garwood Way*	15.5	C	14.6	B
13. Oak Grove Ave/Alma St*	20.8	C	22.7	C
14. Ravenswood Ave/Alma St*	12.7	B	18.4	C
15. Oak Grove Ave/Derry Ln (Garwood Way)-Merrill St*	21.9	C	18.4	C
16. El Camino Real/Encinal Ave	20.2	C	18.5	B
17. El Camino Real/Valparaiso Ave-Glenwood Ave	40.1	D	45.5	D
18. El Camino Real/Oak Grove Ave	31.4	C	30.0	C
19. El Camino Real/Santa Cruz Ave	12.3	B	14.3	B
20. El Camino Real/Ravenswood Ave	42.1	D	56.5	E
21. El Camino Real/Roble Ave	8.9	A	11.0	B
22. El Camino Real/Middle Ave	16.3	B	20.1	C
23. El Camino Real/Cambridge Ave	4.8	A	10.6	B
24. Valparaiso Ave/University Dr	23.4	C	23.8	C
25. Oak Grove Ave/University Dr	14.7	B	14.4	B
26. Santa Cruz Ave/University Dr (North)	14.6	B	18.5	C
27. Santa Cruz Ave/University Dr (South)	17.6	B	19.2	B

Source: W-Trans, 2015.

Notes:

Delay = average number of seconds per vehicle.

LOS = level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

** For calculated delays greater than 120 seconds, *Highway Capacity Manual* methodology does not provide an accurate representation of actual conditions. However, calculated delays greater between 120-180 seconds are reported for comparative purposes and used to determine the significance of an impact. Calculated delays greater than 180 seconds are shown as >180.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

Roadway Segments

Projected roadway segment traffic volumes under Near-Term conditions, without the addition of Project-generated traffic, are summarized in Table 3.1-8. This information is provided for reference purposes, with the projected Near-Term ADT volumes used as the basis for determining if Project-generated traffic would constitute a significant impact.

Table 3.1-8. Near-Term ADT Summary

Roadway Segment	Classification	Capacity	ADT
1. Middlefield Rd (Marsh Rd to Glenwood Ave)*	Minor Arterial	25,000	19,700
2. Middlefield Rd (Oak Grove Ave to Ravenswood Ave)*	Minor Arterial	25,000	16,900
3. Laurel St (Encinal Ave to Glenwood Ave)	Collector	10,000	4,300
4. Laurel St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	4,600
5. Ravenswood Ave (Laurel St to Middlefield Rd)	Minor Arterial	20,000	18,000
6. Encinal Ave (Laurel St to Middlefield Ave)*	Collector	10,000	5,800
7. Valparaiso Ave (University Dr to El Camino Real)	Minor Arterial	20,000	14,000
8. Glenwood Ave (El Camino Real to Laurel St)	Collector	10,000	6,600
9. Glenwood Ave (Laurel St to Middlefield Rd)*	Collector	12,000	5,000
10. Oak Grove Ave (El Camino Real to Laurel St)	Collector	10,000	10,100
11. Oak Grove Ave (Laurel St to Middlefield Rd)*	Collector	10,000	9,200
12. Alma St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	1,700
13. Garwood Way (Glenwood Ave to Oak Grove Ave)	Local	1,500	700
14. Merrill St (Oak Grove Ave to Ravenswood Ave)	Local	1,500	2,800

Source: W-Trans, 2015.

Notes:

* Part or all of the roadway segment located in the Town of Atherton.

Roadway capacities for each roadway classification are detailed in the City of Menlo Park Circulation System Assessment and the Town of Atherton General Plan (2002).

Data regarding existing volumes collected by the City of Menlo Park in 2014.

Routes of Regional Significance

Operations on Routes of Regional Significance under projected Near-Term conditions are summarized in Table 3.1-9. The following four Routes of Regional Significance are expected to operate at unacceptable levels of service under projected Near-Term conditions:

- Bayfront Expressway from University Avenue to Willow Road (westbound – AM Peak Hour)
- Bayfront Expressway from Willow Road to University Avenue (eastbound – PM Peak Hour)
- Willow Road between Bayfront Expressway to US 101 (southbound – AM Peak Hour)
- Willow Road between US 101 to Bayfront Expressway (northbound – PM Peak Hour)

Table 3.1-9. Routes of Regional Significance – Near-Term Conditions

Route	Segment	AM Peak Hour		PM Peak Hour	
		v/c	LOS	v/c	LOS
El Camino Real (SR 82)	North of Ravenswood Ave (NB)	0.40	A	0.72	C
	South of Ravenswood Ave (NB)	0.31	A	0.50	A
	North of Ravenswood Ave (SB)	0.70	B	0.58	A
	South of Ravenswood Ave (SB)	0.44	A	0.38	A
Bayfront Expressway (SR 84)	University Ave to Willow Rd (WB)	1.15	F	0.47	A
	County Line to University Ave (WB)	0.61	C	0.25	A
	Willow Rd to University Ave (EB)	0.42	A	1.16	F
	University Ave to County Line (EB)	0.20	A	0.61	C
Willow Rd (SR 114)	US 101 to Bayfront Expressway (NB)	0.75	C	1.25	F
	Bayfront Expressway to US 101 (SB)	1.04	F	0.91	E
US 101	North of Marsh Rd (NB)	0.79	D	0.93	E
	Willow Rd to Marsh Rd (NB)	0.78	D	0.85	D
	University Ave to Willow Rd (NB)	0.86	D	0.91	E
	South of University Ave (NB)	0.89	E	0.93	E
	North of Marsh Rd (SB)	0.98	E	0.76	D
	Marsh Rd to Willow Rd (SB)	0.88	D	0.74	D
	Willow Rd to University Ave (SB)	0.94	E	0.82	D
	South of University Ave (SB)	0.97	E	0.84	D

Source: W-Trans, 2015.

Notes: v/c = volume-to-capacity ratio; LOS = level of service; NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Project Conditions

Project Description

The Project would result in the removal of existing buildings on the site and construction of three mixed-use buildings on top of shared underground parking. The development would add up to 188,900 square feet (sf) of non-medical office space in two buildings, up to 202 apartment units, and up to 29,000 sf of community-serving retail/restaurant space located throughout the proposed office and residential buildings. The Project site plan is shown in Figure 3.1-12.

The City, as the lead agency for this California Environmental Quality Act (CEQA) document, is required to provide a reasonable worst-case scenario for the analysis of environmental impacts resulting from the Project.

The following sections describe the methodology used for the transportation analysis and rely on conservative assumptions regarding vehicle trip rates, alternative modes, and Transportation Demand Management (TDM) reductions to provide a reasonable worst-case scenario. However, in some cases, the Project, once built and occupied, may generate fewer vehicle trips than the number estimated in this analysis as a result of increased walking, biking, and transit use. If fewer vehicle trips are generated, then it is possible that some of the impacts described in this document may be reduced or eliminated. A more

detailed description of potential impact reductions is provided in the Impacts and Mitigation Measures section below.

Trip Generation

Anticipated trip generation was estimated by using the standard rates published by ITE in its *Trip Generation Manual*, ninth edition (2012), followed by trip reduction estimates, as noted below. The land use categories for Apartment (LU #220), General Office Building (LU #710), and Shopping Center (LU #820) were applied to this analysis. The land use category Specialty Retail Center (LU #826) was considered for the community serving retail portion of the Project. However, because the trip generation rates for Specialty Retail Center are lower than those for Shopping Center, the trip generation rates for Shopping Center were used to provide a conservative estimate of Project trip generation.

Trip Reductions

The data that have historically been used to develop the rates contained in ITE's *Trip Generation Manual* have typically been collected at isolated sites in suburban environments. Because of this, the trip generation rates do not account for significant use of alternative means of transportation. Therefore, the availability of transit services near the site as well as the mix of uses within the site were considered in determining whether a trip generation deduction was appropriate.

Transit

The farthest building on the 1300 El Camino Real site is located less than 0.25 mile (walking distance) of the Menlo Park Caltrain station, and the apartments' main entry is located less than 0.1 mile away from the Caltrain station. Also, SamTrans provides local and regional connecting bus service in the area. Given the proximity to both regional and local transit services, it is reasonable to expect that some Project site residents, employees, or visitors may use transit to complete their trips. The 1300 El Camino Real site is located within the El Camino Real North Area, which was analyzed as part of the *El Camino Real/Downtown Specific Plan: Transportation Impact Analysis* (Fehr & Peers 2010); however, the site itself was not identified as an opportunity site in the analysis. In the analysis, transit reduction rates for the Station Area were applied to sites adjacent to the Station Area, which includes the 1300 El Camino Real site. In the previous analysis, a transit reduction of 10 percent was applied to residential uses, 5 percent was applied to office uses, and 3 percent reduction was applied to retail uses. It is worth noting that the Project could result in higher transit usage compared with the level that was assumed under the previous analysis because of the site's proximity to the nearby Caltrain station. However, to be consistent with prior City of Menlo Park studies, the conservative transit reduction rates used in the previous analysis were applied to this analysis.

Mixed Use

Because there would be a mix of uses on the site, the potential exists for some trips to be internal trips within the development (e.g., residents patronizing adjacent retail and restaurant uses as well as office employees patronizing retail or restaurant uses). The majority of these trips would be walking trips. The few that would be made by automobile would be on-site and therefore would not affect the adjacent street network. ITE recently published a revised methodology in its *Trip Generation Handbook*, third edition (2014), which is based on research presented in National Cooperative Highway Research Program Report 684: Enhancing Internal Capture Estimation for Mixed-Use Developments (Transportation Research Board 2011). That methodology was applied to this analysis.

Pass-by Trip Reduction

Some portion of traffic associated with retail and restaurant uses is drawn from existing traffic on nearby streets. These vehicle trips are not considered “new” but instead are trips made by drivers who are already driving on the adjacent street system and choose to make an interim stop. These are referred to as “pass-by” trips. Per direction from the City, a 25 percent pass-by reduction (based on data published in the *ITE Trip Generation Handbook*) was applied to proposed retail uses on the site. The rates were deducted from the overall number of trips generated by the Project, after deducting internally captured trips. At the Project site, pass-by trips would, in essence, be captured from traffic on El Camino Real.

Overall Trip Generation Reductions

Previously, reductions for transit and mixed-use developments were calculated independently. However, by applying the recently published ITE methodology, reductions for transit and mixed-use developments can be calculated together. Trip generation is calculated on the basis of person-trips, which are broken down by mode (personal vehicle), alternative mode (transit, bicycle, walking), and internal capture. To calculate the number of vehicle trips, the number of person-trips completed by a personal vehicle is divided by vehicle occupancy. Average vehicle occupancy was estimated using data published by ITE for the various types of uses. This results in an effective transit and mixed-use development reduction of 18 percent during the AM Peak Hour and 26 percent during the PM Peak Hour. An average transit and mixed-use development reduction of 22 percent was applied to the daily trip generation projections. The results are summarized in the Trip Generation Summary section below. Copies of the trip reduction calculations are included in Appendix 3.1-F.

Existing Land Use

Currently, some portions of the site are occupied and generate traffic. To determine the net number of new trips that would be generated by the Project, the number of existing trips was subtracted from the number for estimated Project trip generation.

The following assumptions were applied to the various uses on the site to determine trip generation:

- **Car Wash, 550 Oak Grove Road** – ITE provides little data for self-service car washes, such as the one on the site. Therefore, to account for the use, observations were made on October 14, 2014, to capture actual peak-hour trip generation. During that time, the site generated five trips during the AM Peak Hour and 12 trips during the PM Peak Hour. For the sake of daily trip generation analysis, it was assumed that the highest peak hour represents 10 percent of daily trip generation.
- **Dance Studio, 562/564 Oak Grove Road** – The ITE land use category for Specialty Retail (#826) lists “dance studios” as one of the possible uses. It is noted that ITE has not published AM Peak-Hour trip generation data for Specialty Retail uses. However, a review of the dance studio’s web site (<http://www.mpaod.com/>) on October 14, 2014, indicates that no classes are scheduled during the weekday AM Peak Hour. Therefore, the site would generate a negligible amount of traffic, if any, during that period. Published data for Specialty Retail, including zero AM Peak-Hour trip generation, were applied to this site.

- Foster’s Freeze Fast-Food Restaurant, 580 Oak Grove Road** – Data published by ITE for the Fast-Food Restaurant without Drive-Through Window land use (#933) were applied to this use. It is noted that this land use does not include data for daily trip generation. Therefore, the daily trip generation rate was calculated by using Fast-Food Restaurant with Drive-Through Window as a base, then adjusting according to the ratio of the PM Peak-Hour trip generation rates for the categories (i.e., with or without drive-through windows). Before the business’ closure in late 2015, the restaurant opened at 10:00 a.m. on weekdays, which is outside of the AM Peak Hour. Because of this, there would be few, if any, trips generated during the AM Peak Hour. Therefore, to provide a conservative analysis, it was assumed that no trips are currently generated during the AM Peak Hour.
- Hardware Storage, 540/560 Derry Lane** – ITE does not provide data for storage areas, such as the one on the site. Therefore, to account for the use, observations were made on October 14, 2014, to capture actual peak-hour trip generation rates. During that time, it was found that the site generated one trip during the AM Peak Hour and no trips during the PM Peak Hour. For the purpose of daily trip generation analysis, it was assumed that the highest peak hour represents 10 percent of daily trip generation.

Trip Generation Summary

Application of the trip generation rates, assumptions, and deductions would result in a net Project-generated increase in the number of daily vehicle trips (an increase of approximately 3,740, of which 384 would occur during the AM Peak Hour and 401 during the PM Peak Hour) (Table 3.1-10). Full detailed calculations are provided in Appendix 3.1-F.

Table 3.1-10. Project Trip Generation

Description	Daily	AM Total	AM In	AM Out	PM Total	PM In	PM Out
Project							
Apartment	1,348	103	21	82	129	84	45
General Office Building	2,129	318	280	38	290	49	241
Shopping Center	3,037	73	45	28	261	125	136
Project Trips Sub-Total	6,514	494	346	148	680	258	422
Trip Reductions							
Internal Capture + Transit Reduction	-1,457	-91	-52	-39	-179	-80	-99
Retail Pass-By	-542	-13	-8	-5	-47	-24	-23
Trip Reduction Sub-Total	-1,999	-104	-60	-44	-226	-104	-122
Existing Uses							
Car Wash	-120	-5	-2	-3	-12	-7	-5
Dance Studio	-168	0	0	0	-10	-5	-5
Fast-Food Restaurant	-477	0	0	0	-31	-16	-15
Hardware/Storage Area	-10	-1	-1	-0	0	0	0
Existing Use Sub-Total	-775	-6	-3	-3	-53	-28	-25
Net New Trips	3,740	384	283	101	401	126	275

Source: W-Trans, 2015.

Trip Distribution

In the city of Menlo Park, trip distribution profiles are usually based on data presented in the City's Circulation System Assessment document. The Circulation System Assessment uses three distribution profiles, depending on the type of land use: residential, employment, or commercial. The City is divided into four areas, with the Project site located within the West Menlo/Downtown/El Camino Real area. The distribution profiles were developed by the City and based on travel surveys conducted for each of the three land use types as well as the locations of homes, businesses, and other origins and destinations.

The Circulation System Assessment distribution profiles for trips within the West Menlo/Downtown/El Camino Real area are shown in Table 3.1-11 as well as Figures 3.1-9, 3.1-10, and 3.1-11. Project trips for the residential, office, and retail uses were based on the distribution profiles for residential, employment, and commercial uses, respectively. Project-added traffic volumes at the study intersections are shown in Figures 3.1-13 and 3.1-14 for the AM and PM Peak Hours, respectively, and daily project-added traffic volumes at the study roadways are shown in Figure 3.1-15.

Table 3.1-11. Trip Distribution

Destination	Residential	Employment	Commercial
I-280 North	5%	12%	7%
I-280 South	9%	16%	3%
Sand Hill West	1%	1%	1%
SR 84 East	2%	20%	1%
US 101 South	9%	17%	3%
US 101 North	2%	4%	2%
Alameda North	6%	4%	4%
El Camino Real North	10%	7%	6%
Alpine South	0%	0%	0%
Junipero South	5%	3%	4%
Sand Hill East	3%	1%	3%
Middlefield South	0%	0%	0%
El Camino Real South	14%	7%	15%
Middlefield North	0%	0%	0%
Local Sharon Heights	5%	1%	8%
Local Downtown	26%	6%	38%
Local Willows	3%	1%	5%
Local Belle Haven	0%	0%	0%
Total Distribution	100%	100%	100%

Source: City of Menlo Park. 2004. *Circulation System Assessment*.

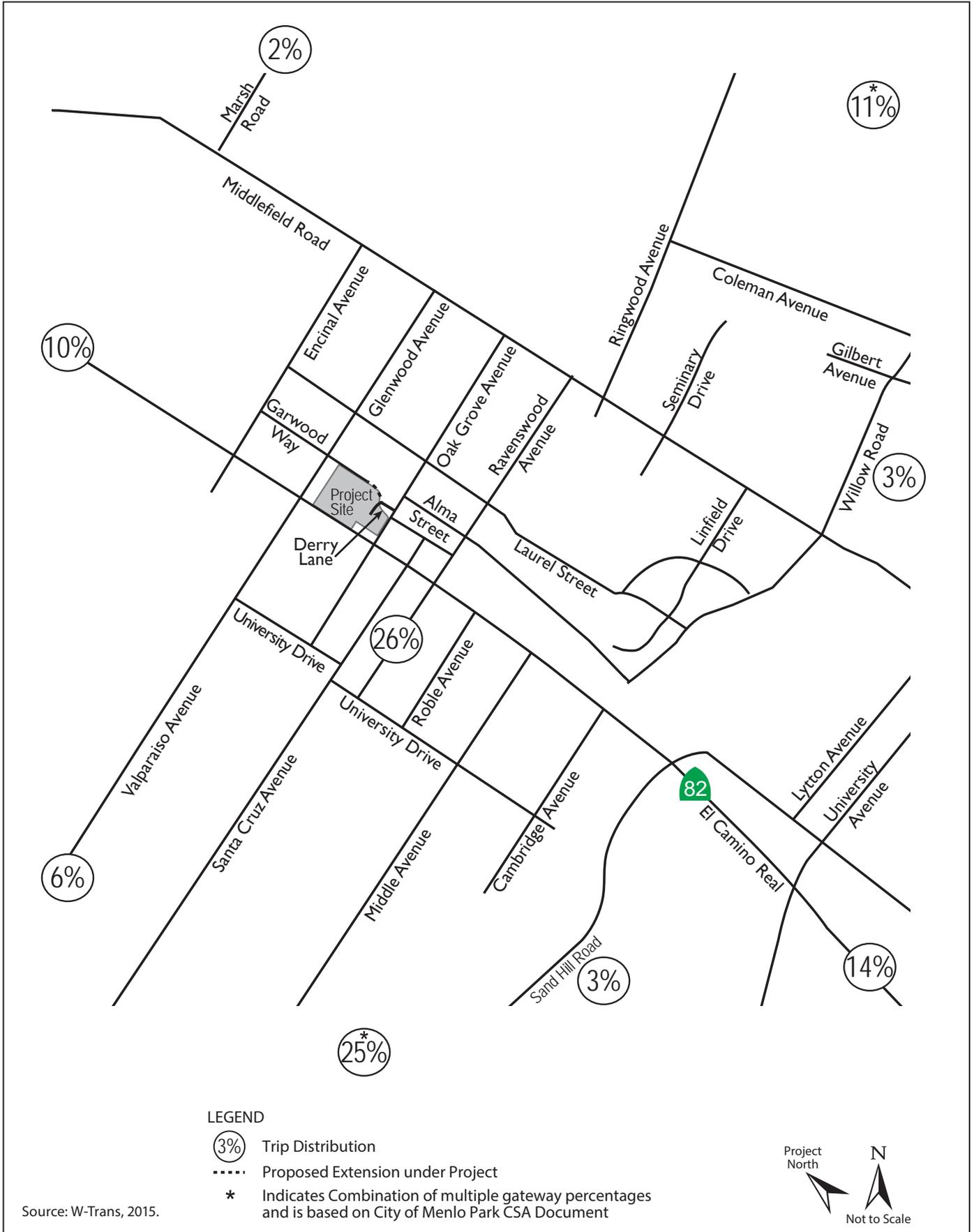


Figure 3.1-9
Project Trip Distribution (Residential Portion)
 1300 El Camino Real Greenheart Project

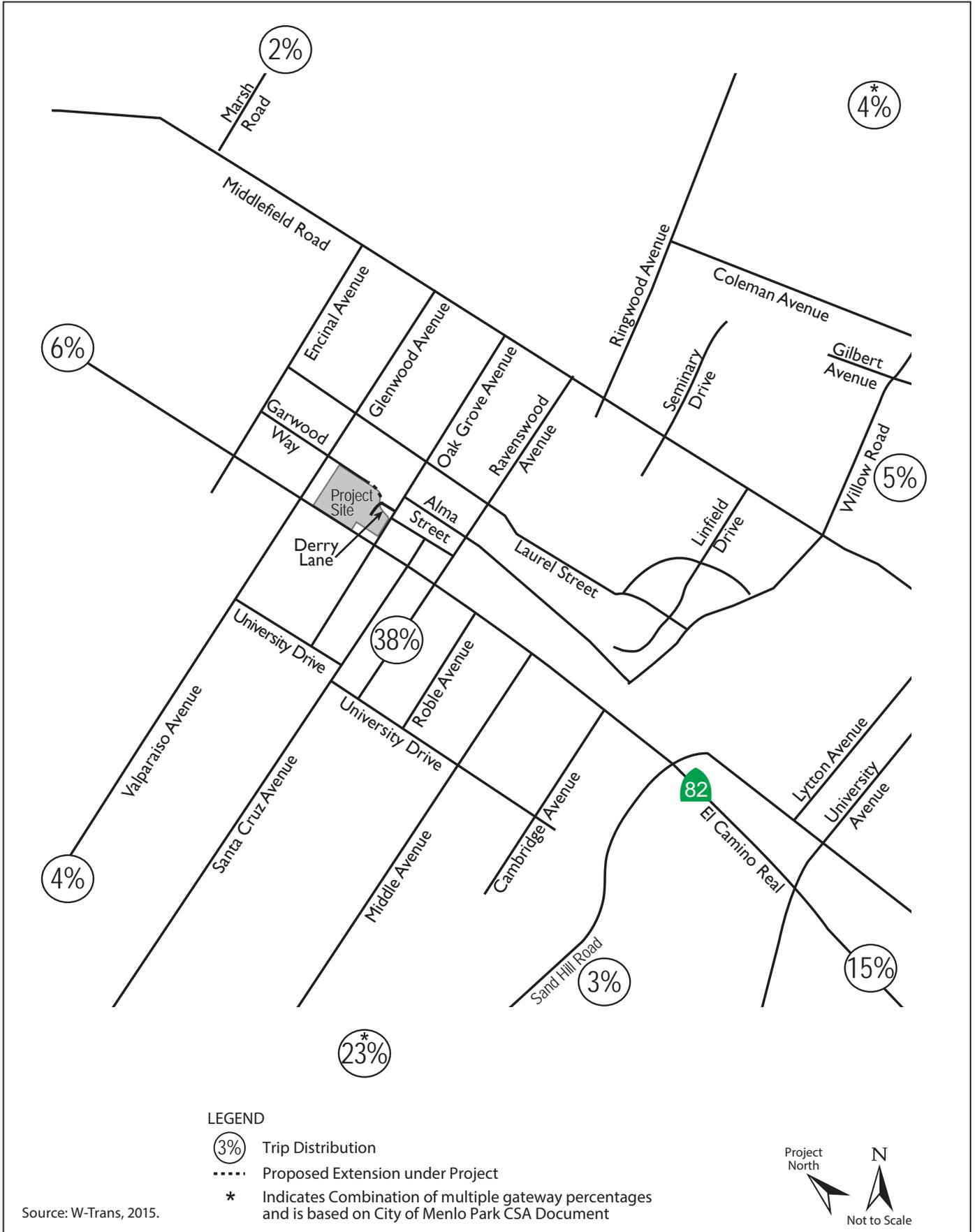


Figure 3.1-10
Project Trip Distribution (Commercial Portion)
 1300 El Camino Real Greenheart Project

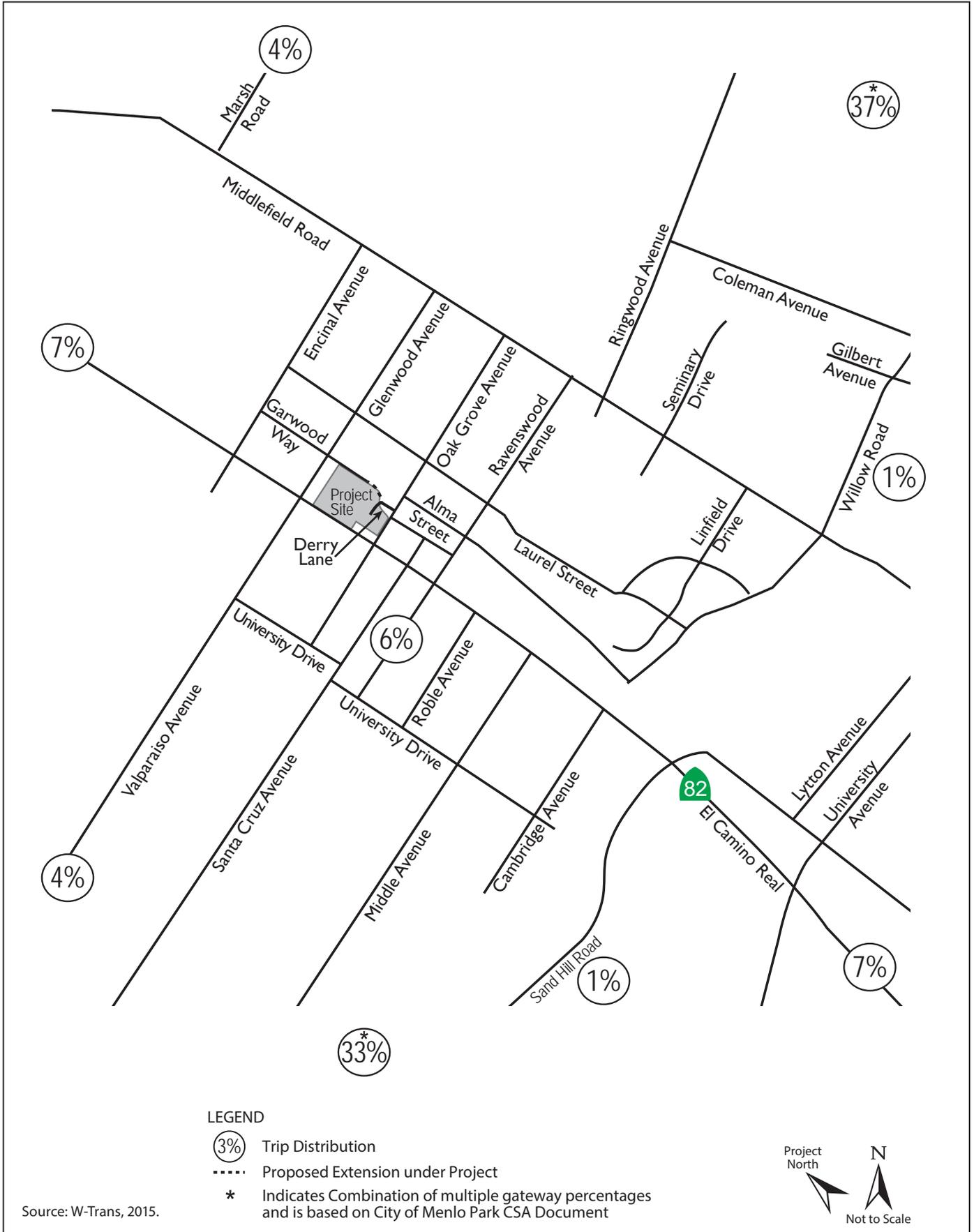
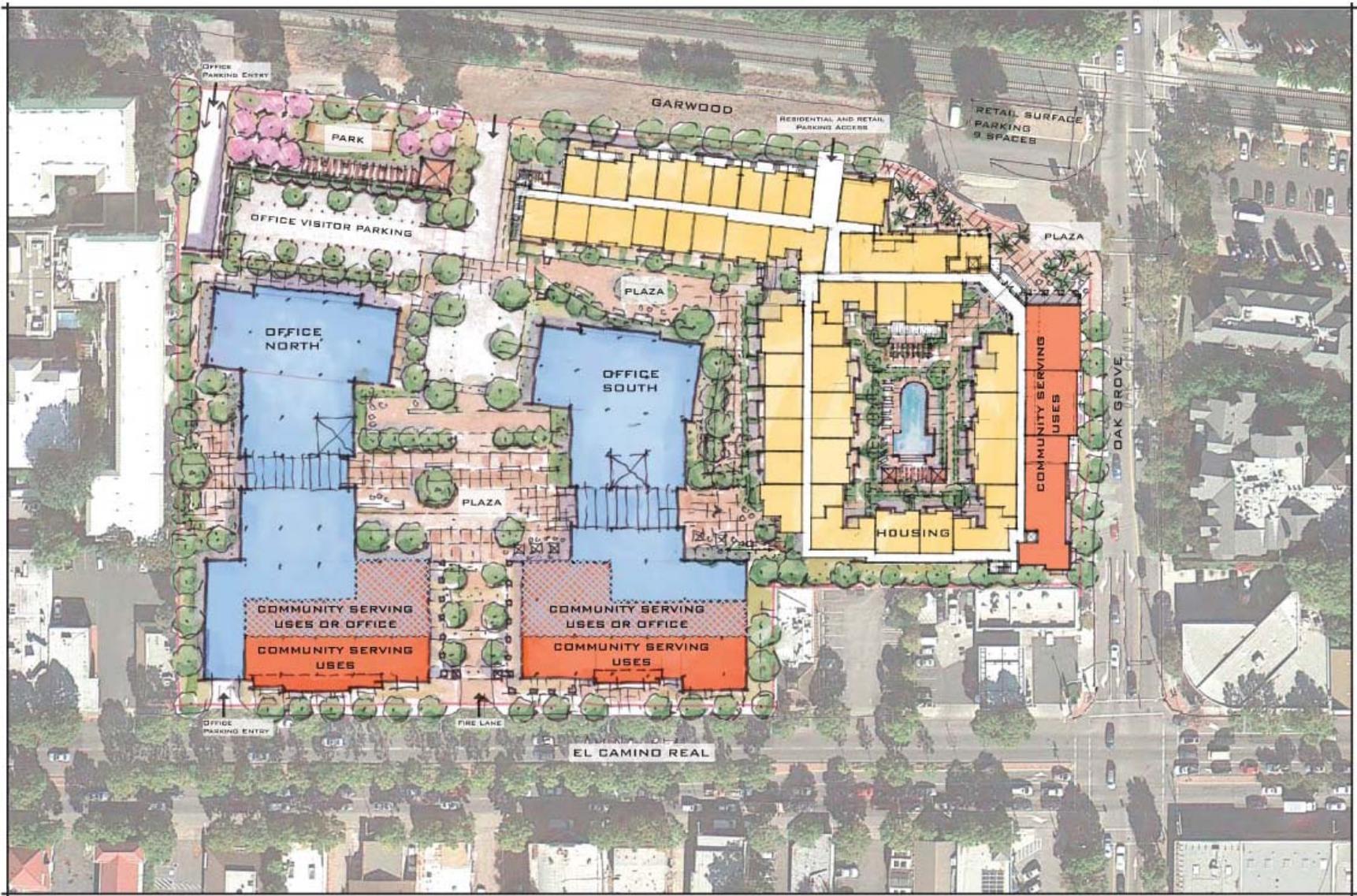


Figure 3.1-11
Project Trip Distribution (Retail Portion)
 1300 El Camino Real Greenheart Project





Note: Community Serving Uses include Restaurants, Retail, and Personal/Business Services.

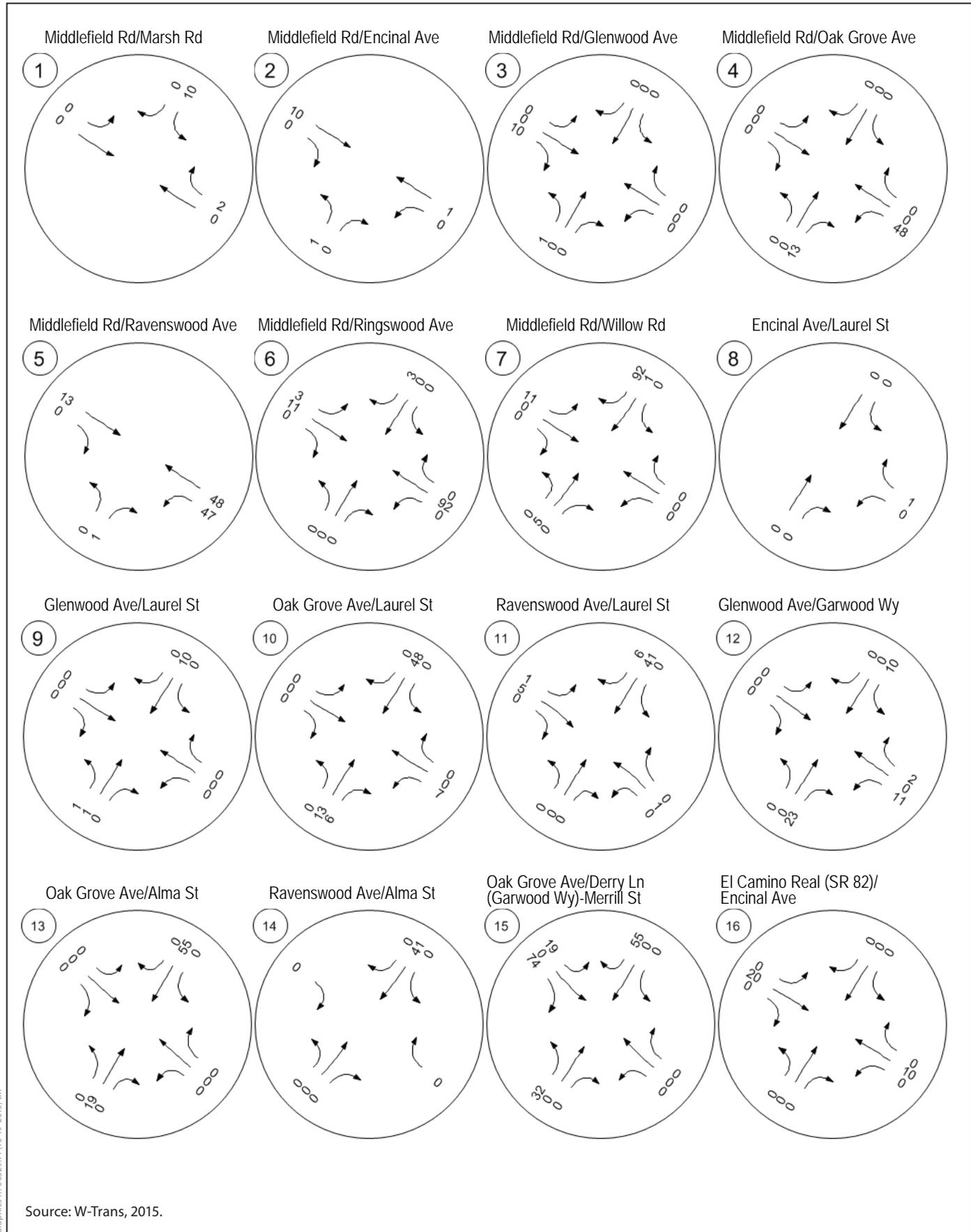


Source: Bar Architects, 2013; W-Trans, 2015.

Graphics ... 0052914 (10-19-2015) tm



Figure 3.1-12
Site Plan
1300 El Camino Real Greenheart Project

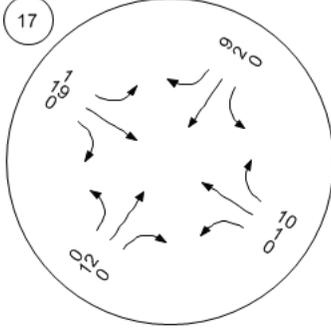


Graphics ... 0052914 (10-19-2015) tm

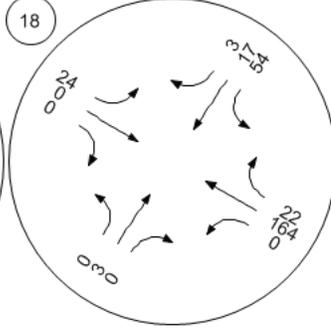


Figure 3.1-13A
Added AM Peak Project Volumes
 1300 El Camino Real Greenheart Project

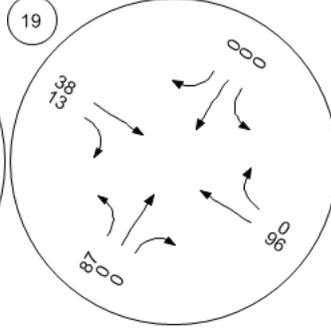
El Camino Real (SR 82)/
Glenwood Ave



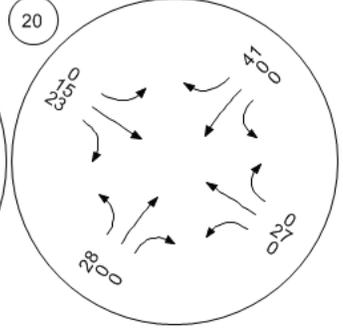
El Camino Real (SR 82)/
Oak Grove Ave



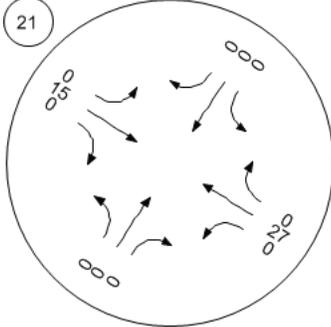
El Camino Real (SR 82)/
Santa Cruz Ave



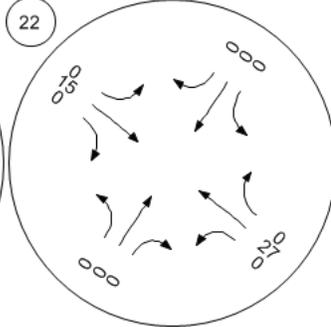
El Camino Real (SR 82)/
Ravenswood Ave



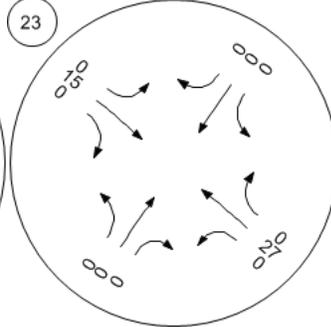
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Roble Ave



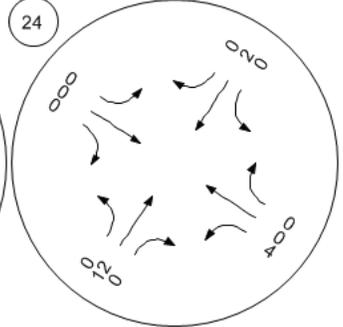
El Camino Real (SR 82)/
Middle Ave



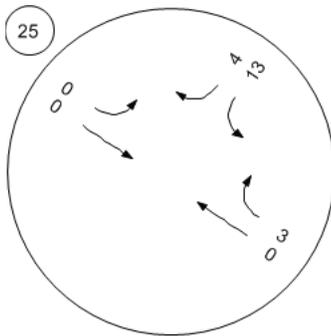
El Camino Real (SR 82)/
Cambridge Ave



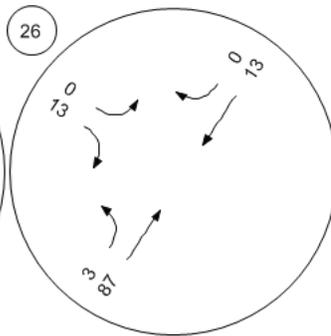
Valparaiso Ave/University Dr



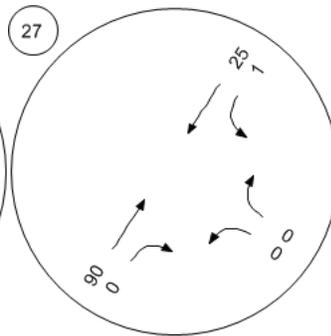
University Dr/Oak Grove Ave



Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)

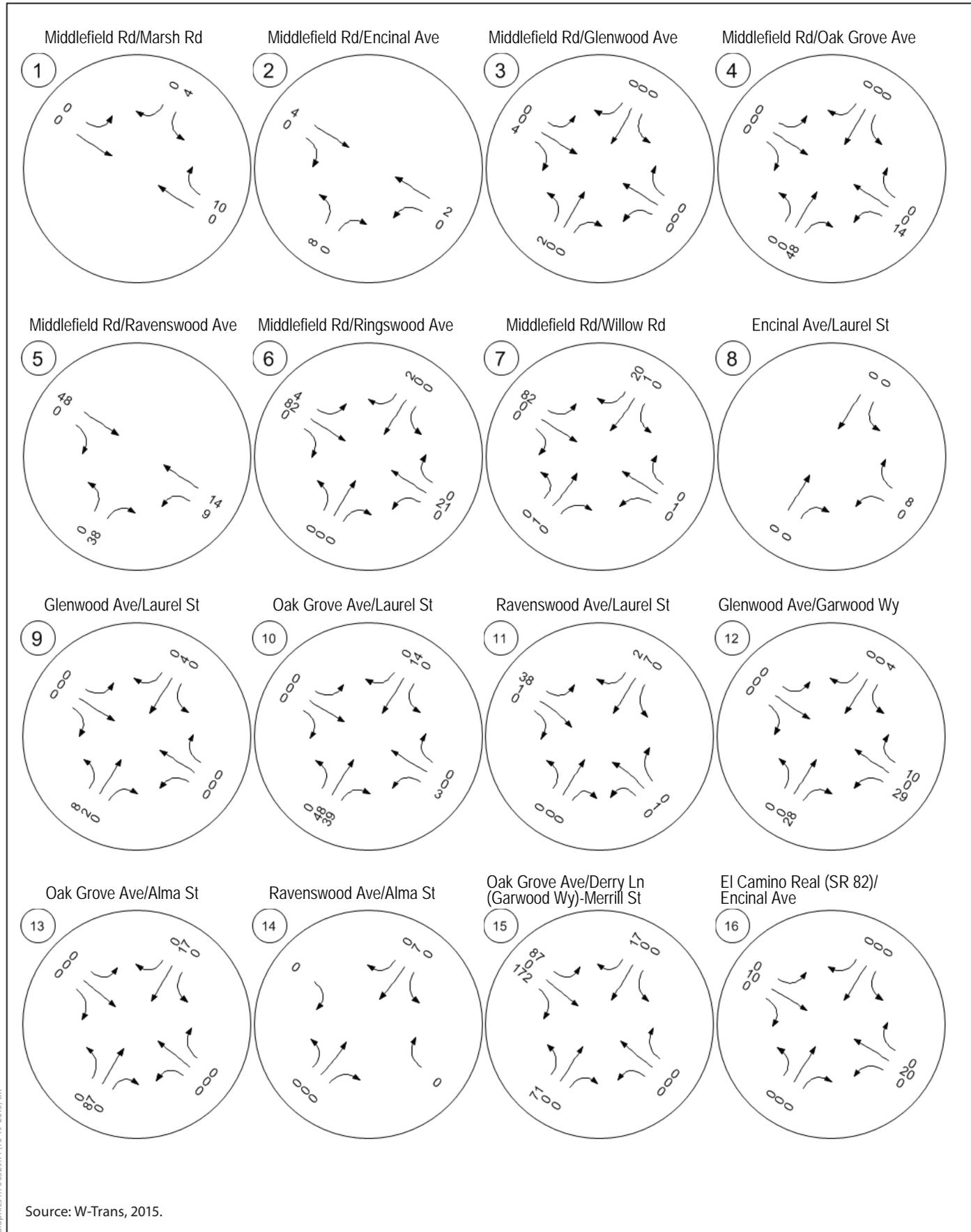


Graphics ... 0052914 (10-19-2015) tm

Source: W-Trans, 2015.



Figure 3.1-13B
Added AM Peak Project Volumes
 1300 El Camino Real Greenheart Project

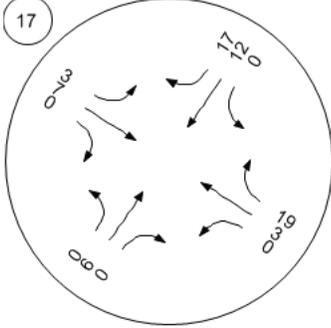


Graphics ... 0052914 (10-19-2015) tm

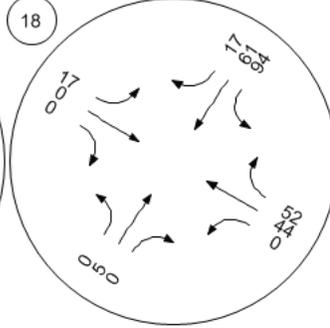


Figure 3.1-14A
Added PM Peak Project Volumes
 1300 El Camino Real Greenheart Project

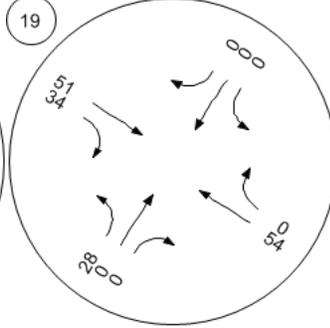
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Glenwood Ave



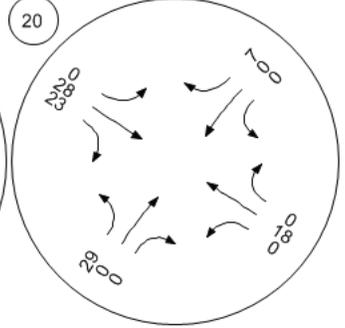
El Camino Real (SR 82)/
Oak Grove Ave



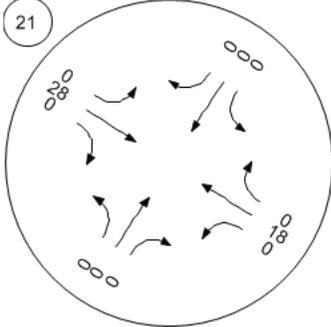
El Camino Real (SR 82)/
Santa Cruz Ave



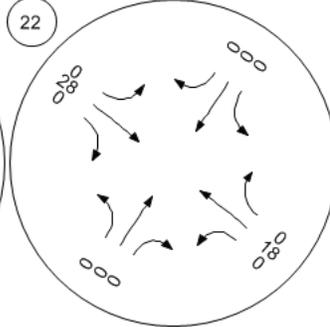
El Camino Real (SR 82)/
Ravenswood Ave



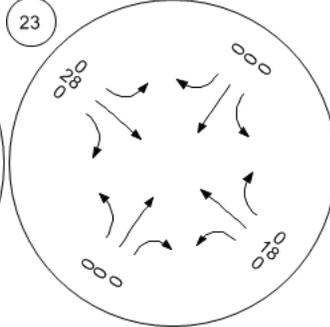
El Camino Real (SR 82)/
Roble Ave



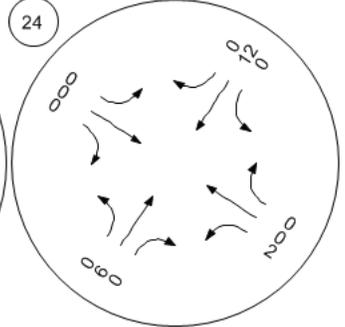
El Camino Real (SR 82)/
Middle Ave



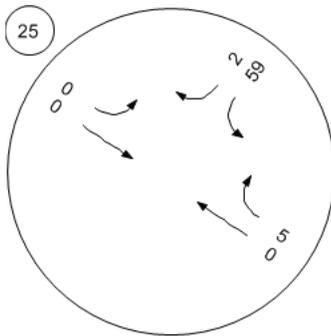
El Camino Real (SR 82)/
Cambridge Ave



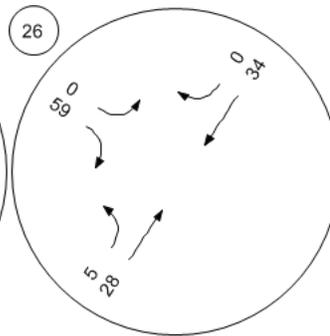
Valparaiso Ave/University Dr



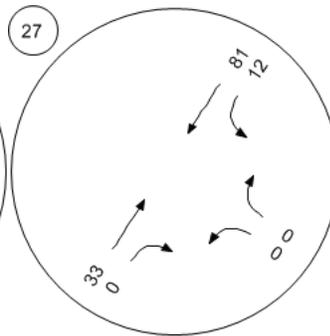
University Dr/Oak Grove Ave



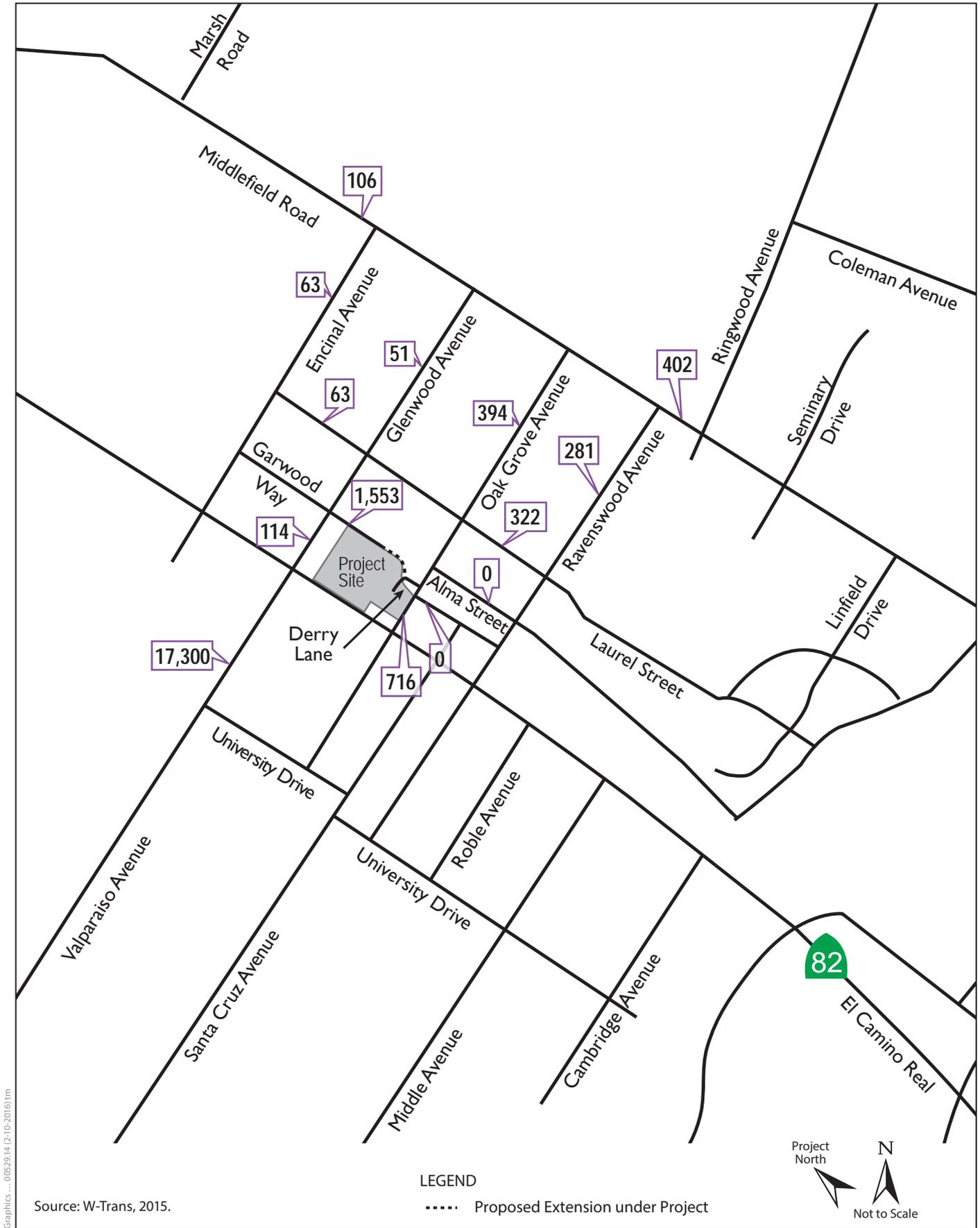
Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)



Source: W-Trans, 2015.



Graphics ... 0052914 (2-10-2016).tm



Figure 3.1-15
Project Added Daily Volumes
 1300 El Camino Real Greenheart Project

Transportation Demand Management Program

The purpose of a TDM program is to reduce the number of vehicle trips and lessen impacts on roadway segments and intersections. It is also used to reduce associated parking demand by encouraging the use of modes other than single-occupant vehicles for travel. New developments that generate more than 100 peak-hour trips, such as the Project, are required by C/CAG and the Specific Plan to either pay an impact fee or develop a TDM program.

As currently proposed, the Project would include a TDM program with the following components:

- Free transit tickets (residential and office)
- Preferential parking for carpoolers
- Bicycle storage facilities (residential and office)
- Showers and changing rooms
- Car-share programs
- Bike-share programs

The range of effectiveness for each component of the proposed TDM program and its ability to reduce the number of Project-related vehicular trips was based on research conducted by the California Air Pollution Control Officers Association (CAPCOA) in *Quantifying Greenhouse Gas Mitigation Measures* (2010). Additional research found in the *TDM Encyclopedia*, published by the Victoria Transport Policy Institute, was also reviewed.

Free transit tickets would incentivize residents and workers who commute to the Project site to utilize transit as an alternative to traveling by automobile. The expected effectiveness of free transit tickets with respect to reducing the number of Project-related vehicular trips is between 0.3 and 20 percent of peak-hour office and residential trips.

Preferential parking for carpoolers would incentivize workers to commute to the Project site by carpool as an alternative to traveling in separate vehicles. The expected effectiveness of preferential parking for carpoolers is between 1 and 15 percent of peak-hour office trips.

Bicycle storage facilities, as well as showers and changing rooms, would be expected to reduce the number of vehicular Project-related trips by encouraging bicycling and providing amenities that would allow more office workers to travel by bicycle. The expected effectiveness of bicycle storage facilities with respect to reducing the number of Project-related vehicular trips is 0.625 percent of daily office trips, and the expected effectiveness for showers and changing rooms is 2 to 5 percent of commute office trips.

Car-sharing and bike-sharing programs would provide residents with options with respect to car ownership. In addition, these programs would provide additional flexibility by allowing office workers who commute by transit to use other means of transportation for short trips from the office during the business day. These trips would have otherwise required workers to commute by private automobile for the purpose of a short trip from the office. The expected effectiveness of a car-sharing program is between 0.4 and 0.7 percent of peak-hour office and residential trips. Although bike-sharing programs would be expected to reduce the number of vehicular trips at the Project site, its effectiveness is not yet known.

The combination of these trip reduction strategies would be expected to reduce the number of Project-related trips by 43 to 665 per day, including seven to 96 trips during the AM Peak Hour and four to 73 trips during the PM Peak Hour. This would result in a range of effectiveness of 2 to 30 percent with respect to reducing the number of peak-hour trips. It should be noted that under the C/CAG guidelines, this Project

would be expected to receive up to 426 daily trip credits for the TDM program. However, because the efficacy of the TDM program cannot be predicted reliably, to provide a conservative analysis, and to be consistent with other Menlo Park traffic studies for similar projects, no further trip reductions were applied to the analysis in relation to the proposed TDM program.

Site Access

Site Access and Circulation

Access to the site would be provided by driveways on Garwood Way and El Camino Real. As part of the Project, Garwood Way would be extended south, connecting Glenwood Avenue to Oak Grove Avenue. The intersection of Oak Grove Avenue and the newly extended Garwood Way would be at Merrill Street, approximately 30 feet west of the existing Derry Lane alignment.

El Camino Real

Two driveways would be provided on El Camino Real. The northern driveway would provide one-way inbound-only access to the shared underground parking area, while the southern driveway would be limited to emergency vehicle access only.

Garwood Way

Three driveways would be constructed on Garwood Way. The northern driveway would provide access to the shared underground parking area, the southern driveway would connect to the residential and retail areas, and the mid-frontage driveway would provide access to the plaza area and surface parking only. All three driveways would have full access, with all turning movements allowed at each location. Additionally, at the southern end of the site, on the east side of Garwood Way, there would be a small surface parking lot for retail uses, subject to City approval. Patrons of the retail uses who drive to the site could park in the small surface parking lot and walk along Oak Grove Avenue and El Camino Real to reach the retail destination. However, there are no marked facilities on the latest site plan for pedestrians who wish to cross Garwood Way at the north leg of the future Oak Grove Avenue/Garwood Way intersection.

Bicycle and Pedestrian Access

Bicycle and pedestrian access to the Project site would be provided at the mid-frontage driveway on Garwood Way, the southern access on El Camino Real, and the plaza at the northwest corner of the Oak Grove Avenue/Derry Lane intersection.

The access point at the future Oak Grove Avenue/Garwood Way intersection would provide employees, residents, and patrons with the shortest possible route between the Project site and the Menlo Park Caltrain station. The additional access points would provide connectivity to adjacent land uses along the perimeter of the Project site.

Continuous sidewalks would remain along the perimeter of the Project site; implementation of the Project would not modify existing bicycle or pedestrian facilities along the perimeter.

Upon more detailed development of the site plan, the Project should include connections for bicyclists and pedestrians to accommodate travel within the site between the parking garages, surface parking lots, and other on-site destinations.

Garwood Way Extension

Currently, Garwood Way terminates along the Project site's frontage. The Project would extend Garwood Way to the south, connecting to Oak Grove Avenue across from Merrill Street. However, to extend Garwood Way, Derry Lane would need to be removed so that Garwood Way could align with Merrill Street. Both Garwood Way and Merrill Street would continue to be stop controlled on their approaches to Oak Grove Avenue.

Impacts and Mitigation Measures

Near-Term 2020 plus-Project Conditions

The Near-Term plus-Project scenario considers traffic that would be generated by implementation of the Project in addition to Near-Term traffic volumes. A summary of the intersection analysis is provided in Table 3.1-12. Detailed results are provided in Appendix 3.1-C, and calculations are provided in Appendix 3.1-D.

Impact TRA-1: Impacts on Intersections under Near-Term 2020 plus-Project Conditions. Increases in traffic associated with the Project under Near-Term 2020 plus-Project conditions would result in increased peak-hour delays at five intersections. Intersection impacts at the four of the five intersections would remain significant and unavoidable because improvements would require obtaining additional rights-of-way, would violate existing City/town policies, or would be outside the City's jurisdiction. (SU)

The following study intersections would experience a potentially significant increase in delay as a result of the Project, resulting in a *potentially significant* impact:

3. Middlefield Road/Glenwood Avenue-Linden Avenue
11. Ravenswood Avenue/Laurel Street
13. Oak Grove Avenue/Alma Street
15. Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street
20. El Camino Real/Ravenswood Avenue-Menlo Avenue

MITIGATION MEASURES. Intersection improvements at Ravenswood Avenue/Laurel Street are needed to mitigate the impact of Near-Term 2020 plus-Project conditions to a *less-than-significant* level.

TRA-1.1: Implement Intersection Improvements to Address Near-Term 2020 plus-Project Effects. Operations at Ravenswood Avenue/Laurel Street (#11) could be improved by modifying the intersection geometry to provide additional capacity. Impacts on this intersection were noted in the Specific Plan's Environmental Impact Report (EIR). Acceptable operations could be achieved at the intersection of Ravenswood Avenue/Laurel Street by reconfiguring the southbound Laurel Street approach to have a left-turn lane and a shared through/right-turn lane. This mitigation measure was not specified in the Specific Plan EIR. Conceptual schematics of the recommended feasible mitigation measures are provided in Appendix 3.1-G. A summary of the intersection analysis with mitigation measures is provided in Table 3.1-13. It may be possible to implement this mitigation measure within the existing right-of-way while maintaining the bicycle lanes, but it would require removal of on-street parking and 10-foot-wide travel lanes. With this mitigation measure, the impact would be reduced to a less-than-significant level.

Table 3.1-12. Near-Term and Near-Term plus-Project Intersection LOS

Study Intersection	Near-Term Conditions				Near-Term plus-Project Conditions					
	AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
	Delay	LOS	Delay	LOS	Delay	LOS	Potentially Significant Impact	Delay	LOS	Potentially Significant Impact
1. Middlefield Rd/Marsh Rd	70.0	E	64.9	E	71.5	E	No ^a	65.6	E	No ^a
2. Middlefield Rd/Encinal Ave	47.1	D	20.2	C	48.8	D	No	21.0	C	No
3. Middlefield Rd/Glenwood Ave-Linden Ave*	>180**	F	>180**	F	>180**	F	Y	>180**	F	Yes
4. Middlefield Rd/Oak Grove Ave	18.7	B	17.0	B	18.8	B	No	18.1	B	No
5. Middlefield Rd/Ravenswood Ave	26.1	C	32.7	C	28.1	C	No	37.3	D	No
6. Middlefield Rd/Ringwood Ave	32.4	C	36.9	D	32.4	C	No	36.8	D	No
7. Middlefield Rd/Willow Rd	50.5	D	49.3	D	50.6	D	No	49.2	D	No
8. Laurel St/Encinal Ave	24.6	C	11.6	B	24.7	C	No	11.7	B	No
9. Laurel St/Glenwood Ave	20.1	C	12.2	B	20.8	C	No	12.4	B	No
10. Laurel St/Oak Grove Ave	15.3	B	15.6	B	15.8	B	No	16.4	B	No
11. Ravenswood Ave/Laurel St	39.1	D	50.5	D	39.7	D	No	56.5	E	Yes
12. Glenwood Ave/Garwood Way*	15.5	C	14.6	B	16.8	C	No	16.0	C	No
13. Oak Grove Ave/Alma St*	20.8	C	22.7	C	23.3	C	No	28.0	D	Yes
14. Ravenswood Ave/Alma St*	12.7	B	18.4	C	12.7	B	No	18.4	C	No
15. Oak Grove Ave/Derry Ln (Garwood Way)- Merrill St*	21.9	C	18.4	C	28.4	D	Yes	138.7**	F	Yes
16. El Camino Real/Encinal Ave	20.2	C	18.5	B	20.3	C	No	18.6	B	No
17. El Camino Real/Valparaiso Ave-Glenwood Ave	40.1	D	45.5	D	42.1	D	No	48.8	D	No
18. El Camino Real/Oak Grove Ave	31.4	C	30.0	C	34.5	C	No	37.9	D	No
19. El Camino Real/Santa Cruz Ave	12.3	B	14.3	B	13.6	B	No	14.9	B	No
20. El Camino Real/Ravenswood Ave	42.1	D	56.5	E	43.0	D	No	58.6	E	Yes
21. El Camino Real/Roble Ave	8.9	A	11.0	B	8.8	A	No	10.8	B	No
22. El Camino Real/Middle Ave	16.3	B	20.1	C	16.0	B	No	21.7	C	No
23. El Camino Real/Cambridge Ave	4.8	A	10.6	B	4.8	A	No	10.7	B	No

Study Intersection	Near-Term Conditions				Near-Term plus-Project Conditions					
	AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
	Delay	LOS	Delay	LOS	Delay	LOS	Potentially Significant Impact	Delay	LOS	Potentially Significant Impact
24. Valparaiso Ave/University Dr	23.4	C	23.8	C	24.1	C	No	24.0	C	No
25. Oak Grove Ave/University Dr	14.7	B	14.4	B	15.3	C	No	16.8	C	No
26. Santa Cruz Ave/University Dr (North)	14.6	B	18.5	C	17.8	C	No	23.3	C	No
27. Santa Cruz Ave/University Dr (South)	17.6	B	19.2	B	18.0	B	No	19.8	B	No

Source: W-Trans, 2015.

Notes:

^a Increase in delay on critical movements does not exceed the standards of significance.

Delay = average number of seconds per vehicle; LOS = level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

** For calculated delays greater than 120 seconds, *Highway Capacity Manual* methodology does not provide an accurate representation of actual conditions. However, calculated delays between 120-180 seconds are reported for comparative purposes and used to determine the significance of an impact. Calculated delays greater than 180 seconds are shown as >180.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

Table 3.1-13. Near-Term plus-Project Intersection LOS with Mitigation Measures

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
3. Middlefield Rd/Glenwood Ave-Linden Ave	9.9	A	8.9	A
11. Ravenswood Ave/Laurel St	30.6	C	50.8	D
20. El Camino Real/Ravenswood Ave	42.2	D	49.0	D

Source: W-Trans, 2015.

Notes:

Delay = average number of seconds per vehicle.

LOS = Level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

Intersection improvements are needed at the other four intersections to mitigate or reduce the impact of the Near-Term 2020 plus-Project conditions. However, each impact would remain **significant and unavoidable** because the intersection is not under the City's jurisdiction, or due to other factors as noted below.

TRA-1.2: Implement Intersection Improvements to Address Near-Term 2020 plus-Project Effects. Operations at four intersections could be improved by modifying intersection geometry to provide additional capacity. Some of these modifications may require additional rights-of-way to add travel lanes. Conceptual schematics of the recommended feasible mitigation measures are provided in Appendix 3.1-G. A summary of the intersection analysis with mitigation measures is provided in Table 3.1-13.

a. Middlefield Road/Glenwood Avenue-Linden Avenue (#3)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at Middlefield Road/Glenwood Avenue-Linden Avenue with signalization of the intersection. This mitigation measure would be consistent with the mitigation measure noted in the Specific Plan -EIR. No additional mitigation measures beyond those identified in the Specific Plan EIR would be required to achieve acceptable operations at this intersection. This mitigation measure is specified in the Supplemental Transportation Impact Fee.

Although traffic volumes at this intersection would not satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section, the impact would be reduced to a less-than-significant level with implementation of this mitigation measure. However, this mitigation measure may require the acquisition of additional rights-of-way to install traffic signal equipment and modify the Glenwood Gate, a physical gate at the east Linden Avenue leg of the intersection that restricts the Linden Avenue approach to a two-way, one-lane road. Additionally, because the measure would require approval from the Town of Atherton, its implementation cannot be guaranteed; therefore, the impact would be significant and unavoidable. The Project is required to contribute a fair share financial contribution toward a traffic signal at this location, based the percentage of project-generated trips compared to the total number of trips passing through the intersection. The funds would be available to the

Town of Atherton for a 5-year period. The Project's fair share contribution would be 3.7 percent of the cost of the improvement, as shown in Appendix 3.1-H.

b. Oak Grove Avenue/Alma Street (#13)

Acceptable operations would be achieved at the intersection of Oak Grove Avenue/Alma Street with implementation of Mitigation Measure TRA-1.2.c at Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street. The mitigation measure includes a southbound peak-hour left-turn restriction at Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street, which would reduce the amount of traffic entering eastbound Oak Grove Avenue at Alma Street. However, the City's experience has found that turn restrictions are ineffective because turn restrictions are ignored by drivers. Consequently, they would not mitigate the impact. Installation of a traffic signal at this intersection was not considered because traffic volumes at this intersection would not satisfy peak-hour signal warrant criteria, as discussed in the Traffic Signal Warrants section. Additionally, a traffic signal at this intersection is infeasible because of the immediate proximity of the Caltrain railroad tracks to the east and the potential for queuing to extend onto the tracks. Grade separation for the railroad tracks and Oak Grove Avenue would modify the Alma Street intersection and may mitigate this impact. However, grade separation is a large-scale, long-term project. It is not expected that it would be funded by one development. In addition, a design is still to be completed. Therefore, this impact would remain significant and unavoidable.

A partial mitigation measure to reduce the impact on this intersection would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and the east city limits. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue. The Project is required to implement the Class II bicycle lanes on Oak Grove Avenue as a partial mitigation measure.

c. Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street (#15)

Although traffic volumes at this intersection would satisfy peak-hour signal warrant criteria, as discussed in the Traffic Signal Warrants section, a traffic signal is not recommended. It is infeasible because of the immediate proximity of the Caltrain railroad tracks to the east and the potential for queuing to extend onto the tracks. Acceptable operations could be achieved at the intersection of Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street with implementation of southbound left-turn restrictions during the morning peak period (7:00–9:00 a.m.) and the afternoon peak period (4:00–6:00 p.m.). The City's experience has found that turn restrictions are ineffective because turn restrictions are ignored by drivers, and they would not mitigate the impact. As part of the Garwood Way extension, the Project would provide a two-lane approach at the Oak Grove Avenue intersection. While this widening would reduce the delay expected at this intersection, the impact would remain significant.

As discussed in TRA-1.2b, although it may mitigate this impact, grade separation is considered a large-scale, long-term project. It is not expected that it would be funded by one development. Therefore, the impact would remain significant and unavoidable.

A partial mitigation measure to reduce the impact on this intersection would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and the east city limits. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue. As noted in TRA 1.2b, the Project is required to implement the Class II bicycle lanes on Oak Grove Avenue as a partial mitigation measure.

d. El Camino Real/Ravenswood Avenue-Menlo Avenue (#20)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at El Camino Real/Ravenswood Avenue-Menlo Avenue with the addition of a third northbound through travel lane along El Camino Real; this mitigation measure is consistent with the mitigation measure noted in the Specific Plan EIR. This improvement is specified in the City's Transportation Impact Fee (TIF) program. The measure is consistent with one of the alternatives that is currently being considered in the El Camino Real Corridor Study and would not preclude implementation of potential alternatives. However, widening would likely require removal of some of the trees located at the southeast corner and affect access to the 1000 El Camino Real property. The applicant is required to pay traffic impact fees per the current TIF schedule.

This measure would have potentially significant secondary effects on bicyclists because they would be required to cross additional lanes of traffic to make a left turn or proceed through the intersection. This improvement would also affect pedestrians by increasing the crossing distance, exacerbating the multiple-threat scenario (where vehicles block sight lines between drivers in adjacent lanes and crossing pedestrians), and increasing their exposure time to vehicles.

Because the intersection is controlled by Caltrans, this measure would require coordination with and approval by Caltrans, which cannot be guaranteed. Furthermore, because of the mitigation measures' secondary and access impacts, it is considered infeasible. There are no other feasible mitigation measures that would fully mitigate the impact on the intersection of El Camino Real/Ravenswood Avenue-Menlo Avenue.

TRA-1.3: Implement Transportation Demand Management Program to Partially Reduce Near-Term 2020 plus Project Effects. Several intersections would experience a significant and unavoidable impact under Near-Term 2020 plus-Project conditions.

To partially alleviate the effects of the Project, the applicant would be required to implement a TDM program, as required by the Specific Plan. A partial mitigation measure, to reduce the impacts of the Project at several intersections under the Near-Term 2020 plus-Project conditions, would be to implement a TDM program, as required by the Specific Plan. The proposed TDM program could reduce peak-hour and daily trip generation. However, although the TDM program could reduce the number of vehicular trips by 2 to 30 percent and reduce the intersection impacts, the effectiveness of the TDM program cannot be reliably predicted. Furthermore, the maximum 30 percent would not be enough to reduce impacts to a less-than-significant level. Therefore, the impacts would remain significant and unavoidable.

Roadway Segments

Impact TRA-2: Impacts on Roadway Segments under Near-Term 2020 plus-Project Conditions. Increases in traffic associated with the Project under Near-Term 2020 plus-Project conditions would result in increased ADT volumes on area roadway segments. (SU)

Roadway segment operations with the addition of Project-generated traffic are summarized in Table 3.1-14. With the addition of Project-generated traffic, the following roadway segments are expected to experience an unacceptable increase in traffic volumes, resulting in **potentially significant** impacts:

5. Ravenswood Avenue between Laurel Street and Middlefield Road
10. Oak Grove Avenue west of Laurel Street
11. Oak Grove Avenue east of Laurel Street
13. Garwood Way south of Glenwood Avenue

MITIGATION MEASURE. Roadway improvements are needed to mitigate impacts of the Project on study roadways under Near-Term 2020 plus-Project conditions. A typical mitigation measure would be to widen the roadway and add travel lanes and capacity to accommodate the increase in the net number of daily trips. However, increasing the capacity of the roadway would require additional rights-of-way, which would affect local property owners. This is considered infeasible. Also, widening can lead to other effects, such as induced travel demand (e.g., more vehicles on the roadway due to increased capacity on a particular route), air quality degradation, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). Wider roadways also result in the degradation of bicycle and pedestrian facilities as well as increased intersection crossing times. There is also a quality-of-life aspect to roadway planning because congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees, and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, although traffic may increase on certain roadways by varying percentages, the increase should be viewed as more than an LOS or traffic operation issue.

Additional lanes would not mitigate the impacts on the roadway segments because the thresholds are based on baseline and added Project traffic volumes. Therefore, impacts on the following roadway segments would remain **significant and unavoidable**:

5. Ravenswood Avenue between Laurel Street and Middlefield Road
10. Oak Grove Avenue between El Camino Real and Laurel Street
11. Oak Grove Avenue between Laurel Street and Middlefield Road
13. Garwood Way between Glenwood Avenue and Oak Grove Avenue

Partial mitigation measures are identified to reduce the impacts of the Project on daily roadway segment operations under Near-Term 2020 plus-Project conditions. The Project includes a TDM program that could reduce the number of Project-related peak-hour and daily trips. The identified bicycle lane improvements on Oak Grove Avenue could encourage bicycling and possibly reduce traffic volumes if drivers shift mode from personal vehicles to bicycles with the availability of additional bicycle routes. However, because the reduction cannot be quantified, and it is not anticipated that this would fully mitigate impacts on these segments by reducing trips to the extent that the impact would be less than significant, the impacts are considered **significant and unavoidable**.

Table 3.1-14. Near-Term and Near-Term plus-Project ADT Summary

Roadway Segment	Classification	Capacity	ADT			Potentially Significant Impact
			Near Term	Added	Near Term plus Project	
Middlefield Rd (Marsh Rd to Glenwood Ave)*	Minor Arterial	25,000	19,700	106	19,806	No
Middlefield Rd (Oak Grove Ave to Ravenswood Ave)*	Minor Arterial	25,000	16,900	402	17,302	No
Laurel St (Encinal Ave to Glenwood Ave)	Collector	10,000	4,300	63	4,363	No
Laurel St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	4,600	322	4,922	No
Ravenswood Ave (Laurel St to Middlefield Rd)	Minor Arterial	20,000	18,000	281	18,281	Yes
Encinal Ave (Laurel St to Middlefield Ave)*	Collector	10,000	5,800	63	5,863	No
Valparaiso Ave (University Dr to El Camino Real)	Minor Arterial	20,000	14,000	181	14,181	No
Glenwood Ave (El Camino Real to Laurel St)	Collector	10,000	6,600	114	6,714	No
Glenwood Ave (Laurel St to Middlefield Rd)*	Collector	12,000	5,000	51	5,051	No
Oak Grove Ave (El Camino Real to Laurel St)	Collector	10,000	10,100	716	10,816	Yes
Oak Grove Ave (Laurel St to Middlefield Rd)*	Collector	10,000	9,200	394	9,594	Yes
Alma St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	1,700	0	1,700	No
Garwood Way (Glenwood Ave to Oak Grove Ave)	Local	1,500	700	1,553	2,253	Yes
Merrill St (Oak Grove Ave to Ravenswood Ave)	Local	1,500	2,800	0	2,800	No

Source: W-Trans, 2015.

Notes:

* Part or all of the roadway segment is located in the Town of Atherton.

Roadway capacities for each roadway classification are detailed in the City of Menlo Park Circulation System Assessment and the Town of Atherton General Plan (2002).

Data regarding existing volumes collected by the City of Menlo Park in 2014.

TRA-2.1: Implement Roadway Segment Improvements to Address Near-Term 2020 plus-Project Effects. The mitigation measures below are recommended to reduce potentially significant impacts on study area roadway segments.

a. Oak Grove Avenue between El Camino Real and Laurel Street (#10)

A partial mitigation measure to reduce the impact on this roadway segment would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and Laurel Street. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue.

b. Oak Grove Avenue between Laurel Street and Middlefield Road (#11)

A partial mitigation measure to reduce the impact on this roadway segment would be to construct Class II bicycle lanes on Oak Grove Avenue between Laurel Street and the east city limits. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue.

c. Garwood Way between Glenwood Avenue and Oak Grove Avenue (#13)

A partial mitigation measure to reduce the impact on this roadway segment would be to sign a Class III bicycle route on Garwood Way between Glenwood Avenue and Oak Grove Avenue. This improvement was identified in the City's Specific Plan.

d. Transportation Demand Management

Impacts on roadway segments would be partially reduced by implementing the trip reduction measures proposed in the Project's TDM program, as required by the Specific Plan. The TDM program could reduce the number of vehicular trips by 2 to 30 percent, but even at the maximum of 30 percent, impacts on the four segments, although reduced, would still remain significant and unavoidable.

Routes of Regional Significance

Impact TRA-3: Impacts on Routes of Regional Significance under Near-Term 2020 plus-Project Conditions. Increases in traffic associated with the Project under Near-Term 2020 plus-Project conditions could result in significant impacts on several Routes of Regional Significance. (SU)

As summarized in Table 3.1-15, with the addition of Project-generated traffic, the following Routes of Regional Significance are expected to experience a *potentially significant* impact:

- Willow Road – US 101 to Bayfront Expressway (northbound)
- Willow Road – Bayfront Expressway to US 101 (southbound)
- Bayfront Expressway – University Avenue to Willow Road (westbound)
- Bayfront Expressway – Willow Road to University Avenue (eastbound)

Table 3.1-15. Routes of Regional Significance – Near-Term Conditions and Near-Term plus-Project Conditions

Route	Segment	Near Term				Near Term plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		v/c	LOS	v/c	LOS	v/c	LOS	Potentially Significant Impact?	v/c	LOS	Potentially Significant Impact?
El Camino Real (SR 82)	North of Ravenswood Ave (NB)	0.40	A	0.72	C	0.48	A	No	0.76	C	No
	South of Ravenswood Ave (NB)	0.31	A	0.50	A	0.31	A	No	0.51	A	No
	North of Ravenswood Ave (SB)	0.70	B	0.58	A	0.72	C	No	0.62	B	No
	South of Ravenswood Ave (SB)	0.44	A	0.38	A	0.44	A	No	0.39	A	No
Bayfront Expressway (SR 84)	University Ave to Willow Rd (WB)	1.15	F	0.47	A	1.16	F	Yes	0.48	A	No
	County Line to University Ave (WB)	0.61	C	0.25	A	0.61	C	No	0.25	A	No
	Willow Rd to University Ave (EB)	0.42	A	1.16	F	0.42	A	No	1.17	F	Yes
	University Ave to County Line (EB)	0.20	A	0.61	C	0.22	A	No	0.62	C	No
Willow Rd (SR 114)	US 101 to Bayfront Expressway (NB)	0.75	C	1.25	F	0.75	C	No	1.27	F	Yes
	Bayfront Expressway to US 101 (SB)	1.04	F	0.91	E	1.07	F	Yes	0.92	E	No
US 101	North of Marsh Rd (NB)	0.79	D	0.93	E	0.79	D	No	0.93	E	No
	Willow Rd to Marsh Rd (NB)	0.78	D	0.85	D	0.78	D	No	0.85	D	No
	University Ave to Willow Rd (NB)	0.86	D	0.91	E	0.87	D	No	0.91	E	No
	South of University Ave (NB)	0.89	E	0.93	E	0.90	E	No	0.93	E	No
	North of Marsh Rd (SB)	0.98	E	0.76	D	0.98	E	No	0.76	D	No
	Marsh Rd to Willow Rd (SB)	0.88	D	0.74	D	0.88	D	No	0.74	D	No
	Willow Rd to University Ave (SB)	0.94	E	0.82	D	0.94	E	No	0.82	D	No
	South of University Ave (SB)	0.97	E	0.84	D	0.97	E	No	0.84	D	No

Source: W-Trans, 2015.

Notes: v/c = volume-to-capacity ratio; LOS = level of service; NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

MITIGATION MEASURES. Roadway improvements are needed to mitigate impacts of the Project under Near-Term 2020 plus-Project conditions on Routes of Regional Significance. A typical mitigation measure would be to widen the road to add travel lanes and capacity. However, impacts on Routes of Regional Significance would remain **significant and unavoidable** because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects, which add lanes, are planned and funded on a regional scale, and would be too costly for a single project.

TRA-3.1: Implement Routes of Regional Significance Improvements to Address Near-Term 2020 plus-Project Effects. The mitigation measures below were considered to reduce potentially significant impacts on Regional Routes of Significance.

Routes of Regional Significance could be widened to add travel lanes; however, the routes are under the jurisdiction of Caltrans. Although adding a travel lane would increase capacity, constructing additional lanes is not a feasible mitigation measure because of right-of-way constraints. Therefore, impacts at the following locations would remain significant and unavoidable:

- Willow Road – US 101 to Bayfront Expressway (northbound)
- Willow Road – Bayfront Expressway to US 101 (southbound)
- Bayfront Expressway – University Avenue to Willow Road (westbound)
- Bayfront Expressway – Willow Road to University Avenue (eastbound)

Partial mitigation measures are identified to reduce impacts of the Project on Routes of Regional Significance under Near-Term 2020 plus-Project conditions. The Project includes a TDM program that could reduce its peak-hour and daily trip totals. Impacts on Routes of Regional Significance would be partially reduced by implementing the trip reduction measures proposed in the Project's TDM program, as required by the Specific Plan. The TDM program could reduce the number of vehicular trips by 2 to 30 percent, but even at the maximum of 30 percent, impacts on three of the four segments, although reduced, would still remain significant. With a full 30 percent trip reduction, the TDM program would reduce the impact on northbound Willow Road between US 101 and Bayfront Expressway to a less-than-significant level. However, because the reduction cannot be quantified and the effectiveness of the TDM program is uncertain, impacts to all four of the roadway segments would remain significant and unavoidable, as described below.

Cumulative 2040 Conditions

Cumulative Approved/Planned Development Projects

The cumulative scenario includes an analysis of projected traffic volumes for the horizon year of 2040. This scenario includes traffic that would be generated by approved developments that were identified in the Near-Term scenario, traffic that would be generated by developments that are currently pending approval, as well as a growth rate of 1 percent per year to account for growth in regional traffic. A list of these developments was provided by the City of Menlo Park. Table 3.1-16 provides a summary that shows approved projects that are already identified in the Near-Term scenario as well as pending projects that are not yet approved.

Table 3.1-16. Cumulative Pending and Approved Developments in Project Vicinity

Project	Land Use	Size	Approval Status
1460 El Camino Real	Residential/Office	16 du/26,800 sf	Approved
333 Ravenswood (SRI)	R&D Campus	3,000 Employees	Pending
500 El Camino Real	Residential/Office/Retail	170 du/199,500 sf/10,000 sf	Pending
840 Menlo Ave	Residential/Office	3 du/6,300 sf	Pending
Menlo Atherton HS Facilities Plan Update	High School	460 student increase	Pending
702 Oak Grove Ave	Residential/Office	4 du/3,469 sf	Approved
1295 El Camino Real	Residential/Commercial	15 du/1,906 sf	Pending
133 Encinal Avenue	Residential	26 du	Pending
555 Glenwood Ave	Hotel	138 rooms	Approved
1283 Willow Road	Office/Retail	3,800 sf/5,096 sf	Approved
Menlo Gateway	Office/Health Club/ Restaurant/Hotel	694,669 sf/68,964 sf/ 4,285 sf/230 rooms	Approved
Facebook West	Office	433,656 sf	Approved
Commonwealth Corporate Center	Office	259,920 sf	Approved
VA/Core	Residential	60 du	Approved
Anton Menlo	Residential	396 du	Approved
777 Hamilton	Residential	196 du	Approved
3645 Haven Ave	Residential	146 du	Approved

Note: sf = square feet; du = dwelling unit.

Detailed information, including information on the land uses that are being replaced, is provided in Appendix 3.1-E. The traffic volumes that would be generated by these pending projects were developed from data published by ITE in its Trip Generation Manual. Cumulative traffic volumes are shown in Figures 3.1-16 and 3.1-17 for the AM and PM Peak Hours, respectively. Daily traffic volumes on roadway segments are shown in Figure 3.1-18.

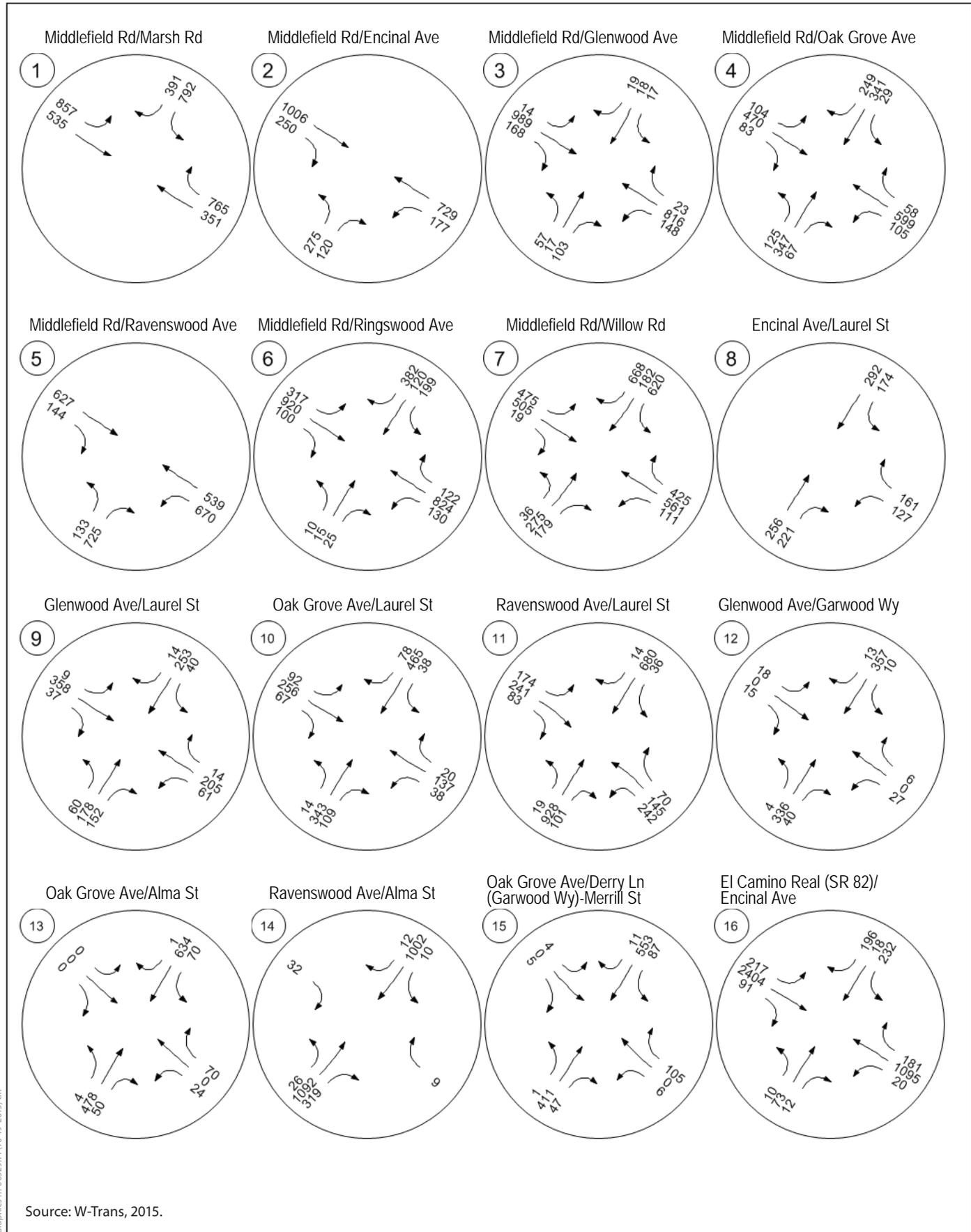
Programmed/Planned Transportation Facility Improvements

The planned improvements included in the Near-Term scenario were also included in the cumulative scenario. For reference, the improvements included in the Near-Term conditions scenario included:

- Traffic signal timing improvements to coordinate traffic signals along Willow Road, Middlefield Road, and Marsh Road.
- Modification of the northbound approach to Willow Road/Middlefield Road to provide a left-turn lane and through, shared through and right-turn, and right-turn lanes. The existing channelizing right-turn island would be removed.

In addition, the following lane configuration was assumed in the cumulative scenario:

- It is assumed that a southbound left-turn lane and new westbound approach from the 500 El Camino Real site will be added at El Camino Real/Middle Avenue as part of pending development on an adjacent property.

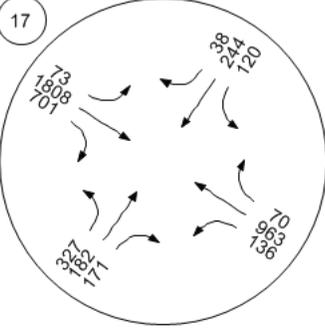


Source: W-Trans, 2015.

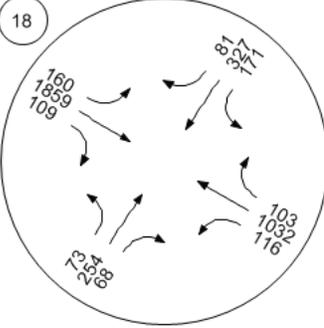


Figure 3.1-16A
Cumulative AM Peak Volumes
 1300 El Camino Real Greenheart Project

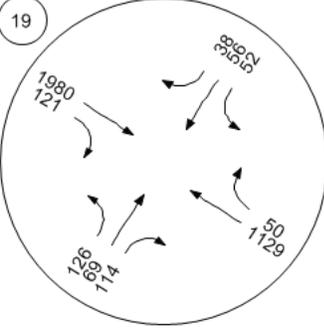
El Camino Real (SR 82)/
Glenwood Ave



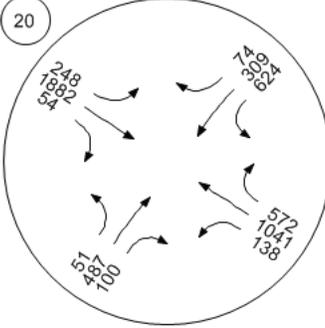
El Camino Real (SR 82)/
Oak Grove Ave



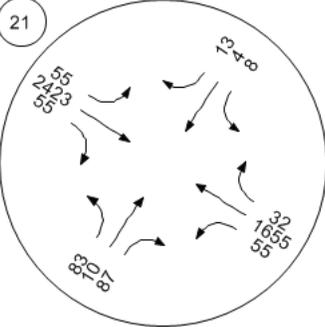
El Camino Real (SR 82)/
Santa Cruz Ave



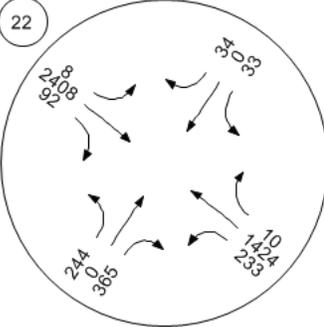
El Camino Real (SR 82)/
Ravenswood Ave



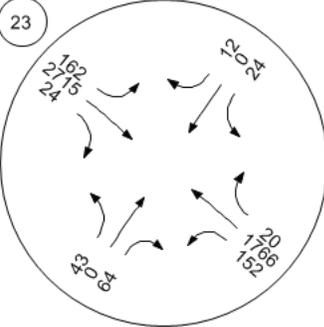
El Camino Real (SR 82)/
Roble Ave



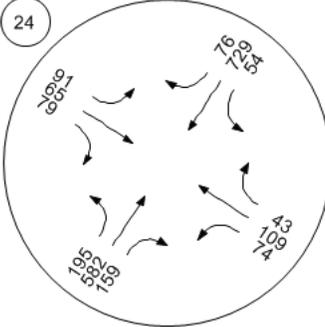
El Camino Real (SR 82)/
Middle Ave



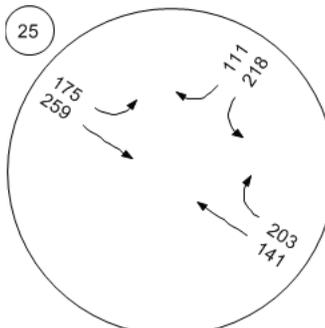
El Camino Real (SR 82)/
Cambridge Ave



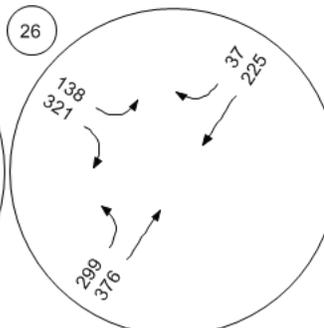
Valparaiso Ave/University Dr



University Dr/Oak Grove Ave



Santa Cruz Ave/University Dr (N)



Santa Cruz Ave/University Dr (S)

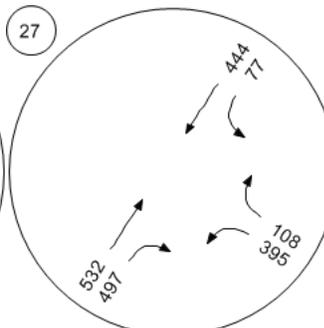
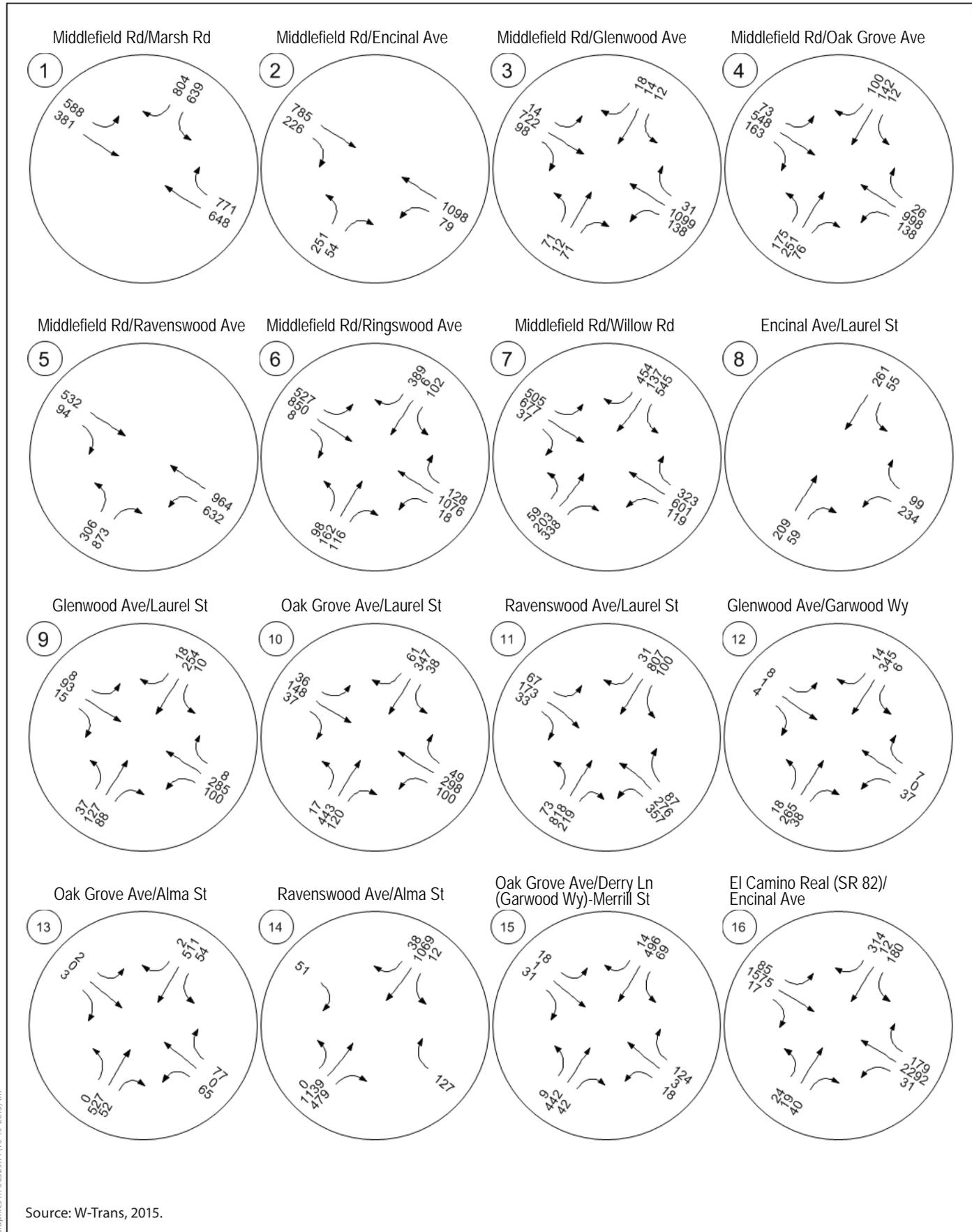


Figure 3.1-16B
Cumulative AM Peak Volumes
1300 El Camino Real Greenheart Project



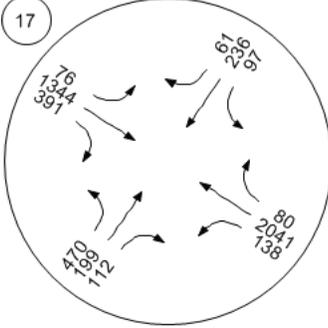
Source: W-Trans, 2015.

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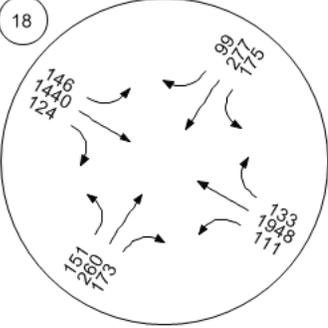


Figure 3.1-17A
Cumulative PM Peak Volumes
 1300 El Camino Real Greenheart Project

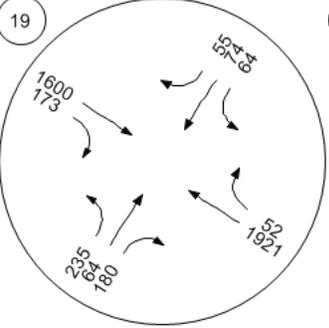
17 El Camino Real (SR 82)/
Glenwood Ave



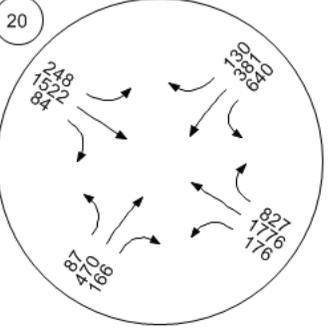
18 El Camino Real (SR 82)/
Oak Grove Ave



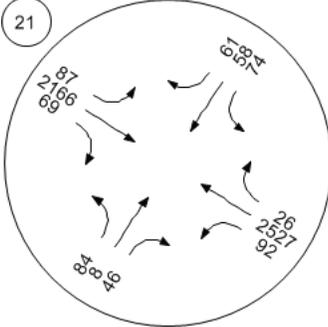
19 El Camino Real (SR 82)/
Santa Cruz Ave



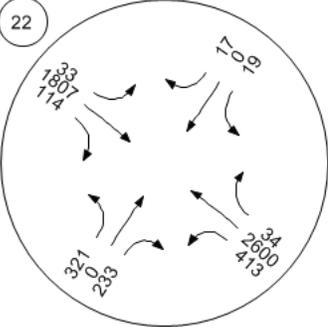
20 El Camino Real (SR 82)/
Ravenswood Ave



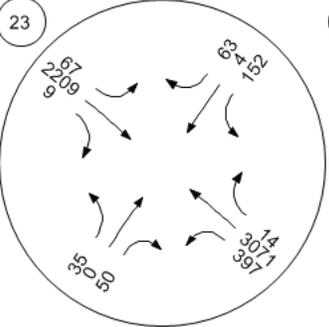
21 El Camino Real (SR 82)/
Roble Ave



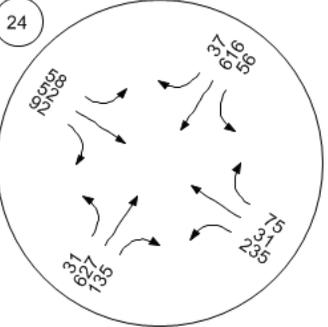
22 El Camino Real (SR 82)/
Middle Ave



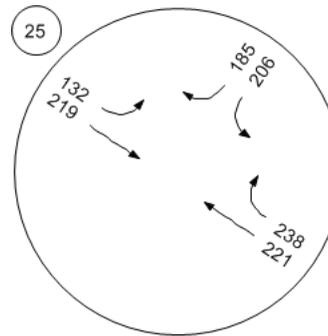
23 El Camino Real (SR 82)/
Cambridge Ave



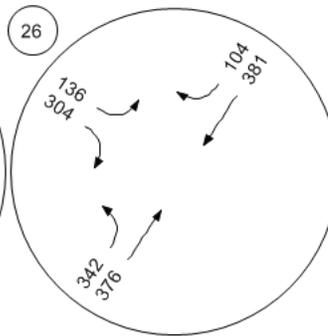
24 Valparaiso Ave/University Dr



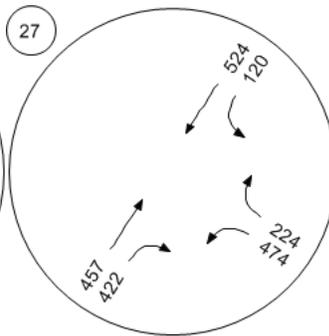
25 University Dr/Oak Grove Ave



26 Santa Cruz Ave/University Dr (N)

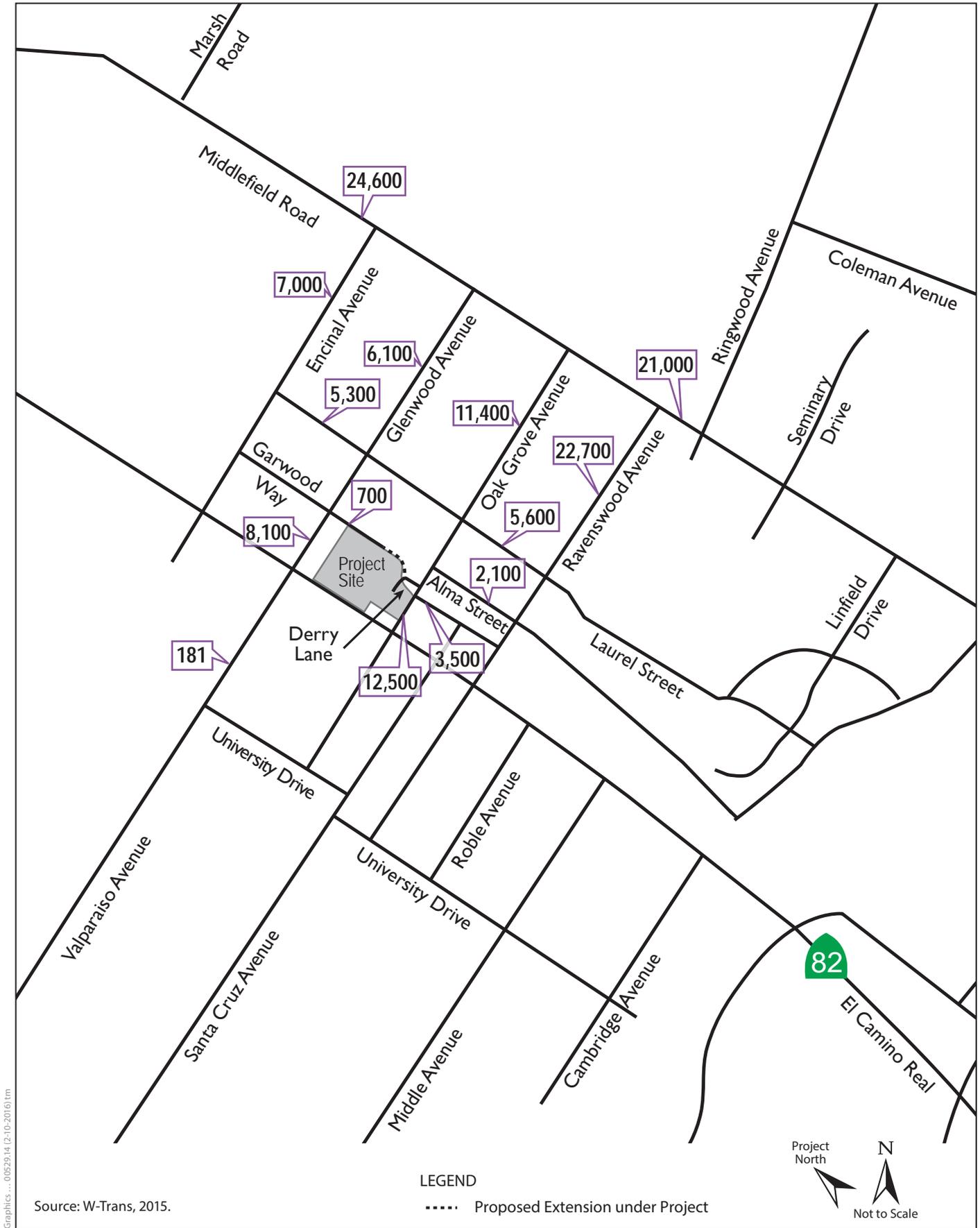


27 Santa Cruz Ave/University Dr (S)



Source: W-Trans, 2015.

Figure 3.1-17B
Cumulative PM Peak Volumes
1300 El Camino Real Greenheart Project



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Figure 3.1-18
Cumulative Daily Volumes
 1300 El Camino Real Greenheart Project

Cumulative Traffic Volumes and Levels of Service

Intersection operations under cumulative conditions and without the addition of Project-generated traffic are summarized in Table 3.1-17. Detailed results are provided in Appendix 3.1-C, and calculations are provided in Appendix 3.1-D. The following 13 intersections are expected to operate at unacceptable levels of service:

1. Middlefield Road/Marsh Road
2. Middlefield Road/Encinal Avenue
3. Middlefield Road/Glenwood Avenue-Linden Avenue
5. Middlefield Road/Ravenswood Avenue
7. Middlefield Road/Willow Road
8. Laurel Street/Encinal Avenue
9. Laurel Street/Glenwood Avenue
11. Ravenswood Avenue/Laurel Street
13. Oak Grove Avenue/Alma Street
15. Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street
16. El Camino Real/Encinal Avenue
17. El Camino Real/Glenwood Avenue-Valparaiso Avenue
20. El Camino Real/Ravenswood Avenue-Menlo Avenue

Table 3.1-17. Cumulative Intersection LOS

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
1. Middlefield Rd/Marsh Rd	127.0**	F	118.9**	F
2. Middlefield Rd/Encinal Ave	127.0**	F	39.2	D
3. Middlefield Rd/Glenwood Ave-Linden Ave*	>180**	F	>180**	F
4. Middlefield Rd/Oak Grove Ave	26.8	C	30.6	C
5. Middlefield Rd/Ravenswood Ave	67.5	E	77.9	E
6. Middlefield Rd/Ringwood Ave	39.3	D	52.5	D
7. Middlefield Rd/Willow Rd	62.7	E	59.5	E
8. Laurel St/Encinal Ave	63.6	F	14.4	B
9. Laurel St/Glenwood Ave	67.0	F	16.8	C
10. Laurel St/Oak Grove Ave	19.3	B	19.6	B
11. Ravenswood Ave/Laurel St	101.0	F	87.3	F
12. Glenwood Ave/Garwood Way*	18.8	C	17.2	C
13. Oak Grove Ave/Alma St*	39.2	E	44.1	E
14. Ravenswood Ave/Alma St*	15.2	C	29.0	D
15. Oak Grove Ave/Derry Ln (Garwood Way)-Merrill St*	35.2	E	26.9	D
16. El Camino Real/Encinal Ave	25.7	C	39.9	D
17. El Camino Real/Valparaiso Ave-Glenwood Ave	75.0	E	90.4	F
18. El Camino Real/Oak Grove Ave	45.9	D	49.0	D
19. El Camino Real/Santa Cruz Ave	16.6	B	21.0	C
20. El Camino Real/Ravenswood Ave	92.3	F	121.4**	F
21. El Camino Real/Roble Ave	9.9	A	13.9	B
22. El Camino Real/Middle Ave	47.7	D	50.4	D
23. El Camino Real/Cambridge Ave	8.6	A	27.6	C
24. Valparaiso Ave/University Dr	51.5	D	34.3	C
25. Oak Grove Ave/University Dr	24.8	C	23.4	C
26. Santa Cruz Ave/University Dr (North)	20.5	C	32.8	D
27. Santa Cruz Ave/University Dr (South)	22.1	C	23.6	C

Source: W-Trans, 2015.

Notes:

Delay = average number of seconds per vehicle.

LOS = level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

** For calculated delays greater than 120 seconds, *Highway Capacity Manual* methodology does not provide an accurate representation of actual conditions. However, calculated delays between 120-180 seconds are reported for comparative purposes and used to determine the significance of an impact. Calculated delays greater than 180 seconds are shown as >180.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

Roadway Operations

Projected roadway segment ADT volumes under cumulative conditions are summarized in Table 3.1-18. Although there is no service level standard for roadways, these volumes provide the basis for an evaluation of Project impacts in terms of the anticipated increase in traffic.

Table 3.1-18. Cumulative ADT Summary

Roadway Segment	Classification	Capacity	ADT
1. Middlefield Rd (Marsh Rd to Glenwood Ave)*	Minor Arterial	25,000	24,600
2. Middlefield Rd (Oak Grove Ave to Ravenswood Ave)*	Minor Arterial	25,000	21,000
3. Laurel St (Encinal Ave to Glenwood Ave)	Collector	10,000	5,300
4. Laurel St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	5,600
5. Ravenswood Ave (Laurel St to Middlefield Rd)	Minor Arterial	20,000	22,700
6. Encinal Ave (Laurel St to Middlefield Ave)*	Collector	10,000	7,000
7. Valparaiso Ave (University Dr to El Camino Real)	Minor Arterial	20,000	17,300
8. Glenwood Ave (El Camino Real to Laurel St)	Collector	10,000	8,100
9. Glenwood Ave (Laurel St to Middlefield Rd)*	Collector	12,000	6,100
10. Oak Grove Ave (El Camino Real to Laurel St)	Collector	10,000	12,500
11. Oak Grove Ave (Laurel St to Middlefield Rd)*	Collector	10,000	11,400
12. Alma St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	2,100
13. Garwood Way (Glenwood Ave to Oak Grove Ave)	Local	1,500	700
14. Merrill St (Oak Grove Ave to Ravenswood Ave)	Local	1,500	3,500

Source: W-Trans, 2015.

Notes:

* Part or all of the roadway segment is located in the Town of Atherton.

Roadway capacities for each roadway classification are detailed in the City of Menlo Park Circulation System Assessment and the Town of Atherton General Plan (2002).

Data regarding existing volumes collected by the City of Menlo Park in 2014.

Routes of Regional Significance

Operation of Routes of Regional Significance under projected cumulative conditions are summarized in Table 3.1-19. The following four Routes of Regional Significance are expected to operate at unacceptable levels of service under projected cumulative 2040 conditions:

- Bayfront Expressway from University Avenue to Willow Road (westbound – AM Peak Hour)
- Bayfront Expressway from Willow Road to University Avenue (eastbound – PM Peak Hour)
- Willow Road between Bayfront Expressway to US 101 (southbound – AM and PM Peak Hour)
- Willow Road between US 101 to Bayfront Expressway (northbound – PM Peak Hour)

Table 3.1-19. Routes of Regional Significance – Cumulative Conditions

Route	Segment	AM Peak Hour		PM Peak Hour	
		v/c	LOS	v/c	LOS
El Camino Real (SR 82)	North of Ravenswood Ave (NB)	0.49	A	0.91	E
	South of Ravenswood Ave (NB)	0.40	A	0.65	B
	North of Ravenswood Ave (SB)	0.89	D	0.71	C
	South of Ravenswood Ave (SB)	0.58	A	0.50	A
Bayfront Expressway (SR 84)	University Ave to Willow Rd (WB)	1.41	F	0.58	A
	County Line to University Ave (WB)	0.74	D	0.31	B
	Willow Rd to University Ave (EB)	0.51	A	1.43	F
	University Ave to County Line (EB)	0.27	A	0.75	D
Willow Rd (SR 114)	US 101 to Bayfront Expressway (NB)	0.87	D	1.59	F
	Bayfront Expressway to US 101 (SB)	1.33	F	1.08	F
US 101	North of Marsh Rd (NB)	0.96	E	1.13	F
	Willow Rd to Marsh Rd (NB)	0.93	E	1.03	F
	University Ave to Willow Rd (NB)	1.05	F	1.10	F
	South of University Ave (NB)	1.08	F	1.13	F
	North of Marsh Rd (SB)	1.19	F	0.92	E
	Marsh Rd to Willow Rd (SB)	1.07	F	0.89	E
	Willow Rd to University Ave (SB)	1.15	F	0.99	E
	South of University Ave (SB)	1.18	F	1.02	F

Source: W-Trans, 2015.

Notes: v/c = volume-to-capacity ratio; LOS = level of service; NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Cumulative 2040 Plus-Project Traffic Volumes and Levels of Service

Intersection Operations

The cumulative 2040 plus-Project scenario includes traffic that would be generated by implementing the Project in addition to projected cumulative 2040 traffic volumes. A summary of the intersection analysis is provided in Table 3.1-20. Detailed results are provided in Appendix 3.1-C, and calculations are provided in Appendix 3.1-D.

Table 3.1-20. Cumulative and Cumulative plus-Project Intersection LOS

Study Intersection	Cumulative Conditions				Cumulative plus-Project Conditions					
	AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
	Delay	LOS	Delay	LOS	Delay	LOS	Potentially Significant Impact	Delay	LOS	Potentially Significant Impact
1. Middlefield Rd/Marsh Rd	127.0**	F	118.9	F	129.0**	F	No ^a	119.7	F	No ^a
2. Middlefield Rd/Encinal Ave	127.0**	F	39.2	D	129.5**	F	Yes	40.9	D	No
3. Middlefield Rd/Glenwood Ave-Linden Ave*	>180**	F	>180**	F	>180**	F	Yes	>180**	F	Yes
4. Middlefield Rd/Oak Grove Ave	26.8	C	30.6	C	27.2	C	No	32.3	C	No
5. Middlefield Rd/Ravenswood Ave	67.5	E	77.9	E	78.6	E	No ^a	93.7	F	Yes
6. Middlefield Rd/Ringwood Ave	39.3	D	52.5	D	40.0	D	No	53.7	D	No
7. Middlefield Rd/Willow Rd	62.7	E	59.5	E	63.4	E	Yes	61.1	E	Yes
8. Laurel St/Encinal Ave	63.6	F	14.4	B	64.0	F	No ^a	14.6	B	No
9. Laurel St/Glenwood Ave	67.0	F	16.8	C	70.1	F	Yes	17.2	C	No
10. Laurel St/Oak Grove Ave	19.3	B	19.6	B	20.5	C	No	22.5	C	No
11. Ravenswood Ave/Laurel St	101.0	F	87.3	F	101.9	F	Yes	98.1	F	Yes
12. Glenwood Ave/Garwood Way*	18.8	C	17.2	C	21.0	C	No	19.5	C	No
13. Oak Grove Ave/Alma St*	39.2	E	44.1	E	48.4	E	Yes	63.7	F	Yes
14. Ravenswood Ave/Alma St*	15.2	C	29.0	D	15.2	C	No	29.0	D	No
15. Oak Grove Ave/Derry Ln (Garwood Way)- Merrill St*	35.2	E	26.9	D	68.1	F	Yes	>180**	F	Yes
16. El Camino Real/Encinal Ave	25.7	C	39.9	D	25.9	C	No	41.5	D	No
17. El Camino Real/Valparaiso Ave-Glenwood Ave	75.0	E	90.4	F	79.3	E	Yes	99.1	F	Yes
18. El Camino Real/Oak Grove Ave	45.9	D	49.0	D	52.9	D	No	67.7	E	Yes
19. El Camino Real/Santa Cruz Ave	16.6	B	21.0	C	19.7	B	No	24.0	C	No
20. El Camino Real/Ravenswood Ave	92.3	F	121.4**	F	96.5	F	No ^a	126.4**	F	Yes
21. El Camino Real/Roble Ave	9.9	A	13.9	B	9.9	A	No	13.5	B	No
22. El Camino Real/Middle Ave	47.7	D	50.4	D	48.8	D	No	52.4	D	No
23. El Camino Real/Cambridge Ave	8.6	A	27.6	C	8.6	A	No	28.2	C	No

Study Intersection	Cumulative Conditions				Cumulative plus-Project Conditions					
	AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
	Delay	LOS	Delay	LOS	Delay	LOS	Potentially Significant Impact	Delay	LOS	Potentially Significant Impact
24. Valparaiso Ave/University Dr	51.5	D	34.3	C	52.2	D	No	35.0	C	No
25. Oak Grove Ave/University Dr	24.8	C	23.4	C	26.5	D	Yes	31.0	D	Yes
26. Santa Cruz Ave/University Dr (North)	20.5	C	32.8	D	29.2	D	No	44.1	E	Yes
27. Santa Cruz Ave/University Dr (South)	22.1	C	23.6	C	23.2	C	No	24.7	C	No

Source: W-Trans, 2015.

Notes:

a. Increase in delay on critical movements does not exceed the standards of significance.

Delay = average number of seconds per vehicle; LOS = level of service.

Bold indicates intersections with unacceptable LOS

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

** For calculated delays greater than 120 seconds, *Highway Capacity Manual* methodology does not provide an accurate representation of actual conditions. However, calculated delays greater between 120-180 seconds are reported for comparative purposes and used to determine the significance of an impact. Calculated delays greater than 180 seconds are shown as >180.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

Impact C-TRA-4: Impacts on Intersections under Cumulative 2040 plus-Project Conditions. Increases in traffic associated with the Project under cumulative 2040 plus-Project conditions would result in increased peak-hour delays at 13 intersections. Intersection impacts at nine of the intersections would be significant and unavoidable because improvements would require obtaining additional rights-of-way, would violate existing City/town policies, or would be outside the City's jurisdiction. (SU)

The following study intersections would experience a *potentially significant* increase in delay as a result of the Project:

2. Middlefield Road/Encinal Avenue
3. Middlefield Road/Glenwood Avenue-Linden Avenue
5. Middlefield Road/Ravenswood Avenue
7. Middlefield Road/Willow Road
9. Laurel Street/Glenwood Avenue
11. Ravenswood Avenue/Laurel Street
13. Oak Grove Avenue/Alma Street
15. Oak Grove Avenue/Derry Lane (Garwood Way)-Merrill Street
17. El Camino Real/Glenwood Avenue-Valparaiso Avenue
18. El Camino Real/Oak Grove Avenue
20. El Camino Real/Ravenswood Avenue-Menlo Avenue
25. Oak Grove Avenue/University Drive
26. Santa Cruz Avenue/University Drive (N)

MITIGATION MEASURES. Intersection improvements are needed to mitigate or reduce impacts under cumulative 2040 plus-Project conditions to a *less-than-significant* level.

C-TRA-4.1: Implement Intersection Improvements to Mitigate Cumulative 2040 plus-Project Effects. Operations at several intersections could be improved by modifying intersection geometry to provide additional capacity. Some of these modifications may be made by restriping the existing roadway. Conceptual schematics of the recommended feasible mitigation measures are provided in Appendix 3.1-G. A summary of the intersection analysis with mitigation measures is provided in Table 3.1-21.

Table 3.1-21. Cumulative plus-Project Intersection LOS with Mitigation Measures

Study Intersection	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
2. Middlefield Rd/Encinal Ave	39.2	D	21.2	C
3. Middlefield Rd/Glenwood Ave-Linden Ave	22.8	C	13.0	B
5. Middlefield Rd/Ravenswood Ave	29.7	C	39.6	D
7. Middlefield Rd/Willow Rd	50.5	D	53.0	D
9. Laurel St/Glenwood Ave	17.3	B	15.5	B
11. Ravenswood Ave/Laurel St	69.6	E	73.9	E
17. El Camino Real/Glenwood Ave-Valparaiso Ave	68.8	E	79.5	E
20. El Camino Real/Ravenswood Ave	84.2	E	80.7	F
25. Oak Grove Ave/University Dr	22.8	C	21.6	C
26. Santa Cruz Ave/University Dr (N)	10.3	B	15.5	B

Source: W-Trans, 2015.

Notes:

Delay = average number of seconds per vehicle.

LOS = level of service.

* For two-way, stop-controlled intersections, results are reported for the approach with the highest delay.

See Appendix 3.1-A for definitions of LOS for signalized and unsignalized intersections.

a. Oak Grove Avenue/University Drive (#25)

Acceptable operations could be achieved at the intersection of Oak Grove Avenue/University Drive by reconfiguring the westbound Oak Grove approach to have one exclusive left-turn lane and one exclusive right-turn lane. It may be possible to implement this mitigation measure within the existing right-of-way, but it would require removing on-street parking. This mitigation measure would not affect planned bike lanes along Oak Grove Avenue. However, removal of several parking spaces on the south side of Oak Grove Avenue would be required to incorporate both this mitigation measure and planned bike lanes at the Oak Grove Avenue approach to this intersection. With this mitigation measure, the impact would be reduced to a less-than-significant level. The Project would be required to contribute a fair share toward lane reconfigurations at this location. The Project's fair share would be 16.3 percent of the total cost of improvements, as determined in Appendix 3.1-H.

b. Santa Cruz Avenue/University Drive (North) (#26)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations would be achieved at Santa Cruz Avenue/University Drive (North) with signalization of the intersection. This mitigation measure is consistent with the mitigation measure noted in the Specific Plan EIR. No additional mitigation measures beyond those identified in the Specific Plan EIR would be required to achieve acceptable operations at this intersection. This mitigation measure is also specified in the Supplemental Transportation Impact Fee.

It is noted that traffic volumes at this intersection would satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. Because of the proximity of the

nearby traffic signal at Santa Cruz Avenue/University Drive (South), the two signals should be interconnected, and coordinated timing should be implemented.

It may be possible to implement this mitigation measure within the existing right-of-way. The design locations for signal equipment, such as poles and controller cabinets, cannot be determined until the intersection has been potholed, which would typically occur during the preliminary engineering phase of the Project. However, the City's recent traffic signal installation and modification projects did not require additional rights-of-way, were built within the public right-of-way, and were not restricted by underground utilities. Therefore, it may reasonably be concluded that the experience would be similar at this location. With this mitigation measure, the impact would be reduced to a less-than-significant level. The Project is required to contribute a fair share toward a traffic signal at this location. The Project's fair share would be 32.6 percent of the total cost of improvements, as determined in Appendix 3.1-H.

Improvements to the following intersection are needed to mitigate or reduce impacts under cumulative 2040 plus-Project conditions. However, impacts to these intersections would remain **significant and unavoidable** because the improvements would require obtaining additional rights-of-way, and some intersections are not under the City's jurisdiction.

C-TRA-4.2: Implement Intersection Improvements to Reduce Cumulative 2040 plus-Project Effects.

Operations at several intersections could be improved by modifying intersection geometry to provide additional capacity. Some of these modifications may require additional rights-of-way to add travel lanes. However, impacts would remain significant and unavoidable because the improvements would require obtaining additional rights-of-way, and some intersections are not under the City's jurisdiction. Conceptual schematics of the recommended feasible mitigation measures are provided in Appendix 3.1-G. A summary of the intersection analysis with mitigation measures is provided in Table 3.1-21.

a. Middlefield Road/Encinal Avenue (#2)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at the intersection of Middlefield Road/Encinal Avenue with an additional right-turn lane on the southbound Middlefield Road and eastbound Encinal Avenue approaches. The additional right-turn lane on the eastbound Encinal Avenue approach is consistent with the mitigation measure noted in the Specific Plan EIR. However, the additional right-turn lane on southbound Middlefield Road is beyond what was identified in the Specific Plan EIR as necessary to maintain acceptable operations. Although the impact would be reduced to a less-than-significant level with implementation of this intersection improvement, acquisition of additional rights-of-way would be required. Furthermore, because construction of the improvement would require approval from the Town of Atherton, its implementation cannot be guaranteed; therefore, the impact remains significant and unavoidable. The Project is required to pay the Supplemental Transportation Impact Fee and contribute a fair share toward the additional right-turn lanes on the southbound Middlefield Road and approach at this location which was not identified in the Specific Plan EIR mitigation measure.. The funds would be available to the Town of Atherton for a 5-year period. The Project's fair share contribution would be 1.6 percent of the cost of the improvement, as shown in Appendix 3.1-H.

b. Middlefield Road/Glenwood Avenue-Linden Avenue (#3)

It is noted that, for this scenario, traffic volumes at this intersection satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. The peak-hour warrant would not be satisfied under Near-Term 2020 plus-Project conditions (see TRA-1.1.a, which is paraphrased below for reference).

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at the intersection with signalization. This mitigation measure is consistent with the mitigation measure noted in the Specific Plan EIR. No additional mitigation measures beyond those identified in the Specific Plan EIR are required to achieve acceptable operations at this intersection. This mitigation measure is also specified in the Supplemental Transportation Impact Fee.

Although signalization would reduce the impact to a less-than-significant level, this mitigation measure may require the acquisition of additional rights-of-way to install traffic signal equipment and modify the Glenwood Gate. Additionally, because the measure would require approval from the Town of Atherton, its implementation cannot be guaranteed; therefore, the impact would be significant and unavoidable. The Project is required to contribute a fair share toward a traffic signal at this location. The funds would be available to the Town of Atherton for a 5-year period. The Project's fair-share contribution would be 3.7 percent of the cost of the improvement, as noted in TRA-1.2.a and as shown in Appendix 3.1-H.

c. Middlefield Road/Ravenswood Avenue (#5)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at Middlefield Road/Ravenswood Avenue with the addition of a second northbound left-turn lane and a corresponding receiving lane on the west leg. This measure would require coordination with the Town of Atherton. Although this mitigation measure differs from the mitigation measures noted in the Specific Plan EIR, this measure is specified in the City's TIF program. The applicant should pay traffic impact fees per the current TIF schedule.

This measure has potentially significant secondary effects on bicyclists because it would require them to cross additional lanes of traffic to make a left turn or proceed through the intersection. This improvement would also affect pedestrians by increasing the crossing distance, exacerbating the multiple-threat scenario (where vehicles block sight lines between drivers in adjacent lanes and crossing pedestrians), and increasing their exposure time to vehicles. This improvement would therefore be required to include enhancements to bicycle and pedestrian infrastructure. These enhancements would include adding a "jughandle" left turn for bikes on the east side of the intersection, adding a bicycle signal for crossing Middlefield Road, and making modifications to signal timing to provide adequate time for crossings. The modifications would also include warning signs and markings to comply with the CA-MUTCD. The Project is required to contribute a fair share toward enhancements to bicycle and pedestrian infrastructure noted above, which are not included in the City's TIF program. The Project's fair share contribution would be 12 percent of the cost of the improvement, as shown in Appendix 3.1-H.

The impact would be reduced to a less-than-significant level with this measure. However, this measure would require coordination with and approval by the Town of Atherton, which cannot be guaranteed. Therefore, this intersection would experience a significant and unavoidable impact.

d. Middlefield Road/Willow Road (#7)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at Middlefield Road/Willow Road with the following improvements:

- Widening the eastbound Willow Road approach to provide an additional through lane.
- Widening the westbound Willow Road approach to provide an additional left-turn lane and re-striping the existing shared through/left-turn lane to a through-only lane.
- Widening the southbound Middlefield Road approach to include an exclusive through lane and re-striping the existing shared through/left-turn lane to a through-only lane.

This mitigation measure is consistent with the mitigation measure noted in the Specific Plan EIR. Although the improvements to the westbound and eastbound approaches are beyond the scope of the mitigation measures identified in the Specific Plan, these improvements are specified in the City's TIF program. The applicant should pay traffic impact fees per the current TIF schedule.

This measure would have potentially significant secondary effects on bicyclists because it would require them to cross additional lanes of traffic to make a left turn or proceed through the intersection. This improvement would also affect pedestrians by increasing the crossing distance, exacerbating the multiple-threat scenario (where vehicles block sight lines between drivers in adjacent lanes and crossing pedestrians), and increasing their exposure time to vehicles. This improvement would therefore be required to include enhancements to bicycle and pedestrian infrastructure. These enhancements would include modifications to signal timing to provide adequate time for crossings as well as the installation of warning signs and markings to comply with the CA-MUTCD.

e. Laurel Street/Glenwood Avenue (#9)

Acceptable operations would be achieved at Laurel Street/Glenwood Avenue by signaling the intersection. It is noted that traffic volumes at this intersection would satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. The Project is required to provide a fair-share contribution toward a traffic signal at this location. The Project's fair share contribution would be 1.4 percent of the cost of the improvement, as shown in Appendix 3.1-H. Because this measure would require coordination with and approval by Town of Atherton, its implementation cannot be guaranteed. No other mitigation measure was identified that would fully mitigate the impact. Therefore, this impact would be significant and unavoidable.

f. Ravenswood Avenue/Laurel Street (#11)

Impacts on this intersection were noted in the Specific Plan EIR. Improvements noted in TRA-1.1, which include reconfiguring the southbound Laurel Street approach to have a left-turn lane and a shared through/right-turn lane, would only partially mitigate the impact at Ravenswood Avenue/Laurel Street. No feasible mitigations would fully mitigate the impact. Therefore, this impact would be significant and unavoidable.

g. Oak Grove Avenue/Alma Street (#13)

(See TRA-1.2.b, which is paraphrased below for reference).

It is noted that, for the cumulative 2040 plus-Project scenario, traffic volumes at this intersection would satisfy peak-hour traffic signal warrant criteria, as discussed in the Traffic Signal Warrants section. However, the peak-hour warrant would not be satisfied at this intersection under Near-Term 2020 plus-Project conditions

Although traffic volumes at this intersection would satisfy peak-hour signal warrant criteria, as discussed in the Traffic Signal Warrants section, a traffic signal is not recommended because it is infeasible given the immediate proximity of the Caltrain railroad tracks to the west and potential for queuing to extend onto the tracks. Acceptable operations could be achieved at the intersection of Oak Grove Avenue/Alma Street with the implementation of peak-hour left-turn restrictions on northbound Alma Street from 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. (as is currently being done on a trial basis along Ravenswood Avenue with use of a temporary median). However, as noted in TRA-1.2b, the City's experience has found that turn restrictions are ineffective because turn restrictions are ignored by drivers. Consequently, they would not mitigate the impact. Grade separation for the railroad tracks and Oak Grove Avenue would modify the Alma Street intersection and may mitigate this impact. However, grade separation is a large-scale, long-term project. It is not expected to be funded by one development. In addition, a design is still to be completed. No other feasible mitigation measures were identified that would fully mitigate the impact. Therefore, this impact would remain significant and unavoidable.

A partial mitigation measure to reduce the impact on this intersection would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and the east city limits. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue.

h. Oak Grove Avenue/Garwood Way-Merrill Street (#15)

Although traffic volumes at this intersection would satisfy peak-hour signal warrant criteria, as discussed in the Traffic Signal Warrants section, a traffic signal is not recommended because it is infeasible given the immediate proximity of Caltrain railroad tracks 90 feet to the east and potential for queuing to extend onto the tracks.

Acceptable operations could be achieved at the intersection of Oak Grove Avenue/Garwood Way-Merrill Street with implementation of southbound left-turn restrictions on Garwood Way at Oak Grove Avenue, as noted in Mitigation Measure TRA-1-1.c. However, the City has found turn restrictions to be ineffective because turn restrictions are ignored by drivers. Additionally, the mitigation measure is not recommended under cumulative 2040 conditions because the increase in vehicular traffic that would be turning right at southbound Garwood Way would result in additional traffic at nearby intersections on El Camino Real. These intersections are expected to operate unacceptably under cumulative 2040 plus Project conditions.

As discussed in TRA-1.2c, the Garwood Way extension would have a two-lane approach at the Oak Grove Avenue intersection. While this widening would reduce the delays at this intersection, the impact would not be reduced to less than significant.

As discussed in TRA-1.2c, although it may mitigate this impact, grade separation is a large-scale, long-term project. It is not expected that it would be funded by one development. No other feasible mitigation measures were identified that would fully mitigate the impact. Therefore, this impact would be significant and unavoidable.

A partial mitigation measure to reduce the impact on this intersection would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and the east city limits. This improvement was identified in the City's Specific Plan. It could require parking spaces to be removed along Oak Grove Avenue.

i. El Camino Real/Glenwood Avenue-Valparaiso Avenue (#17)

Impacts to this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at El Camino Real/Glenwood Avenue-Valparaiso Avenue with the following improvements:

- Widening the westbound Glenwood Avenue approach to provide an exclusive right-turn lane,
- Changing the northbound and southbound right-turn lanes to shared through/right-turn lanes, and
- Widening El Camino Real to provide additional receiving lanes in both the northbound and southbound directions.

This improvement would conflict with the Specific Plan goals to provide enhanced pedestrian crossing and sidewalks along El Camino Real by increasing the crossing distance, exacerbating the multiple threat scenario (where vehicles block sight lines between drivers in adjacent lanes and crossing pedestrians), increasing exposure time to vehicle traffic, and placing pedestrians closer to moving vehicle traffic. These improvements would have secondary effects on bicyclists because they would be required to cross additional lanes of traffic to make a left-turn or proceed through the intersection. The improvements would also preclude a future bicycle lane on El Camino Real.

Improvements that would partially mitigate the impact at El Camino Real/Glenwood Avenue-Valparaiso Avenue include widening the westbound Glenwood Avenue approach to provide an exclusive right-turn lane. This improvement is identified in the City's TIF program and payment of the TIF would be used for construction. Because the intersection is controlled by Caltrans, this measure would require coordination with and approval by Caltrans, which cannot be guaranteed. Therefore, this intersection would experience a significant and unavoidable impact.

j. El Camino Real/Oak Grove Avenue (#18)

Acceptable operations could be achieved at the intersection of El Camino Real/Oak Grove Avenue by reconfiguring the northbound right-turn lane into a shared through/right-turn lane and adding a corresponding receiving lane. Although the impact would be reduced to a less than significant level with the implementation of this improvement, this measure would have secondary impacts to bicyclists by increasing the crossing distance and precluding a future bicycle lane on El Camino Real. In addition, this measure would conflict with the Specific Plan goals to provide enhanced pedestrian crossings and sidewalks along El Camino Real. Furthermore, the measure would require coordination with and approval from Caltrans, which

cannot be guaranteed. No other feasible mitigation measures were identified that would fully mitigate the impact. Therefore, the impact would be significant and unavoidable.

k. El Camino Real/Ravenswood Avenue-Menlo Avenue (#17)

Impacts on this intersection were noted in the Specific Plan EIR. Acceptable operations could be achieved at El Camino Real/Ravenswood Avenue-Menlo Avenue with the following improvements:

- Widening the eastbound Menlo Avenue approach to provide an exclusive left-turn lane,
- Widening the northbound El Camino Real approach to provide an additional through lane,
- Widening the northbound El Camino Real approach to provide an additional left-turn lane and widening Menlo Avenue to provide an additional receiving lane,
- Widening the southbound El Camino Real approach to provide an additional left-turn lane, and
- Re-striping the existing southbound El Camino Real right-turn lane to become a through/right-turn lane.

Although the additional northbound left-turn lane and corresponding receiving lane is not identified as part of the mitigation measure noted in the Specific Plan EIR, the improvement was identified in the City's TIF program as required in order to achieve acceptable operation, but is not feasible due to right-of-way constraints on northbound El Camino Real and eastbound Menlo Avenue. All other improvements listed above are consistent with the mitigation measure noted in the Specific Plan EIR and specified in the City's TIF program. The applicant is required to pay fees per the current TIF schedule.

These measures would have potentially significant secondary effects on bicyclists because they would be required to cross additional lanes of traffic to make a left turn or proceed through the intersection and also preclude a future bicycle lane on El Camino Real. This improvement conflicts with the Specific Plan goals to provide enhanced crossings and sidewalks along El Camino Real by increasing the crossing distance, exacerbating the multiple-threat scenario (where vehicles block sight lines between drivers in adjacent lanes and crossing pedestrians), increasing their exposure time to vehicles, and placing pedestrians closer to moving vehicle traffic.

In addition, significantly widening the northbound El Camino Real approach would likely require removal of the trees located at the southeast corner of the intersection and affect access to the 1000 El Camino Real property.

Because the intersection is controlled by Caltrans, this measure would require coordination with and approval by Caltrans, which cannot be guaranteed. Furthermore, because of the mitigation measures' secondary impacts and right-of-way acquisition needs, it is considered infeasible. There are no other feasible mitigation measures that would fully mitigate the impact on the intersection of El Camino Real/Ravenswood Avenue-Menlo Avenue, and this impact remains significant and unavoidable.

Several intersections would experience a **significant and unavoidable** impact under Cumulative 2040 plus-Project conditions. To partially alleviate the effects of the Project, the applicant would be required to implement a TDM program, as required by the Specific Plan.

C-TRA-4.3: Implement Transportation Demand Management Program to Partially Reduce Cumulative 2040 plus Project Effects. A partial mitigation measure, to reduce the impacts of the Project at several intersections under the Cumulative 2040 plus-Project conditions, would be to implement a TDM program, as required by the Specific Plan. The proposed TDM program could reduce peak-hour and daily trip generation. However, although the TDM program could reduce the number of vehicular trips by 2 to 30 percent and reduce the intersection impacts, the effectiveness of the TDM program cannot be reliably predicted. Furthermore, the maximum 30 percent would not be enough to reduce impacts to a less-than-significant level. Therefore, the impacts would remain significant and unavoidable.

Roadway Segment Operations

Impact C-TRA-5: Impacts on Roadway Segments under Cumulative 2040 plus-Project Conditions. Increases in traffic associated with the Project under the cumulative 2040 plus-Project conditions would result in increased daily traffic volumes on area roadway segments. (SU)

As summarized in Table 3.1-22, with the addition of Project-generated traffic, the following roadway segments would be expected to experience unacceptable increases in traffic volumes, resulting in a *potentially significant* impact:

5. Ravenswood Avenue between Laurel Street and Middlefield Road
10. Oak Grove Avenue between El Camino Real and Laurel Street
11. Oak Grove Avenue between Laurel Street and Middlefield Road
13. Garwood Way between Glenwood Avenue and Oak Grove Avenue

MITIGATION MEASURE. Roadway improvements would be needed to mitigate impacts of the Project on study area roadways under cumulative plus-Project conditions. A typical mitigation measure would be to widen the road and add travel lanes and increase capacity to accommodate new daily trips. However, increasing the capacity of the roadway typically requires additional rights-of-way, which would affect local property owners. This is considered infeasible. Also, widening roadways can lead to induced travel demand (e.g., more vehicles on the roadway because of increased capacity), air quality degradation, increases in noise associated with motor vehicles, and reductions in transit use (less congestion or reduced driving time may make driving more attractive than transit travel). Wider roadways also result in a degradation of bicycle and pedestrian facilities, including increased intersection crossing times. There is also a quality-of-life aspect to roadway planning because congestion, mobility, air quality, and noise impacts affect the quality of life for local residents, commuters, employees, and businesses in the area. Neighborhoods as well as commercial business centers are affected by roadway projects. Thus, although traffic may increase on certain roadways by varying percentages, the increase should be viewed as more than an LOS or traffic operation issue.

An additional lane would not mitigate the impacts on the roadway segments because the roadway segment significance thresholds are based on baseline and added Project traffic volumes. Therefore, impacts on the roadway segments would remain *significant and unavoidable*.

Table 3.1-22. Cumulative and Cumulative plus-Project ADT Summary

Roadway Segment	Classification	Capacity	ADT			Potentially Significant Impact
			Cumulative	Added	Cumulative plus Project	
1. Middlefield Rd (Marsh Rd to Glenwood Ave)*	Minor Arterial	25,000	24,600	106	24,706	No
2. Middlefield Rd (Oak Grove Ave to Ravenswood Ave)*	Minor Arterial	25,000	21,000	402	21,402	No
3. Laurel St (Encinal Ave to Glenwood Ave)	Collector	10,000	5,300	63	5,363	No
4. Laurel St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	5,600	322	5,922	No
5. Ravenswood Ave(Laurel St to Middlefield Rd)	Minor Arterial	20,000	22,700	281	22,981	Yes
6. Encinal Ave (Laurel St to Middlefield Ave)*	Collector	10,000	7,000	63	7,063	No
7. Valparaiso Ave (University Dr to El Camino Real)	Minor Arterial	20,000	17,300	181	17,481	No
8. Glenwood Ave (El Camino Real to Laurel St)	Collector	10,000	8,100	114	8,214	No
9. Glenwood Ave (Laurel St to Middlefield Rd)*	Collector	10,000	6,100	51	6,151	No
10. Oak Grove Ave (El Camino Real to Laurel St)	Collector	10,000	12,500	716	13,216	Yes
11. Oak Grove Ave (Laurel St to Middlefield Rd)*	Collector	10,000	11,400	394	11,794	Yes
12. Alma St (Oak Grove Ave to Ravenswood Ave)	Collector	10,000	2,100	0	2,100	No
13. Garwood Way (Glenwood Ave to Oak Grove Ave)	Local	1,500	3,500	0	3,500	No
14. Merrill St (Oak Grove Ave to Ravenswood Ave)	Local	1,500	700	1,553	2,253	Yes

Source: W-Trans, 2015.

Notes:

* Part or all of the roadway segment is located in the Town of Atherton.

Roadway capacities for each roadway classification are detailed in the City of Menlo Park Circulation System Assessment and the Town of Atherton General Plan (2002).

Data regarding existing volumes collected by the City of Menlo Park in 2014.

Partial mitigation measures have been identified to reduce the impact of the Project on roadway segment operations under cumulative 2040 plus-Project conditions. The Project includes a TDM program that could reduce the number of peak-hour and daily Project-related trips. The identified bicycle route improvements on Oak Grove Avenue could encourage bicycling and possibly reduce traffic volumes if drivers shift from personal vehicles to bicycles given the availability of additional bicycle routes. However, because the effectiveness of the TDM program cannot be reliably predicted, and it is not anticipated that this would fully mitigate impacts on these segments, the impacts are considered **significant and unavoidable**.

C-TRA-5.1: Implement Roadway Segment Improvements to Address Cumulative 2040 plus-Project Effects. The mitigation measures below are recommended to reduce potentially significant impacts on study area roadway segments.

a. Oak Grove Avenue between El Camino Real and Laurel Street (#10)

(See TRA-2.1.a, which is paraphrased below for reference).

A partial mitigation measure to reduce the impact on this roadway segment would be to construct Class II bicycle lanes on Oak Grove Avenue between El Camino Real and Laurel Street. This improvement was identified in the City's Specific Plan. However, it could require on-street parking spaces to be removed along Oak Grove Avenue

b. Oak Grove Avenue between Laurel Street and Middlefield Road (#11)

(See TRA-2.1.b, which is paraphrased below for reference)

A partial mitigation measure to reduce the impact on this roadway segment would be to construct Class II bicycle lanes on Oak Grove Avenue between Laurel Street and the east city limits. This improvement was identified in the City's Specific Plan. However, it could require on-street parking spaces to be removed along Oak Grove Avenue.

c. Garwood Way between Glenwood Avenue and Oak Grove Avenue (#13)

(See TRA-2.1.c, which is paraphrased below for reference).

A partial mitigation measure to reduce the impact on this roadway segment would be to sign a Class III bicycle route on Garwood Way between Glenwood Avenue and Oak Grove Avenue. This improvement was identified in the City's Specific Plan

d. Transportation Demand Management

Implementation of the trip reduction measures proposed in the Project's TDM program would partially reduce impacts on the roadway segments. The TDM program could reduce the number of vehicular trips by 2 to 30 percent. At the maximum of 30 percent, the impacts on the four local roadway segments, although reduced, would still remain significant.

Routes of Regional Significance

Impact C-TRA-6: Impacts on Routes of Regional Significance under Cumulative 2040 plus-Project Conditions. Increases in traffic associated with the Project under cumulative 2040 plus-Project conditions would result in significant impacts on several Routes of Regional Significance. (SU)

As summarized in Table 3.1-23, with the addition of Project-generated traffic, the following Routes of Regional Significance would be expected to experience a **potentially significant** impact:

- Willow Road – US 101 to Bayfront Expressway (northbound)
- Willow Road – Bayfront Expressway to US 101 (southbound)
- Bayfront Expressway – University Avenue to Willow Road (westbound)
- Bayfront Expressway – Willow Road to University Avenue (eastbound)

MITIGATION MEASURE. Roadway improvements would be necessary to mitigate impacts of the Project on Routes of Regional Significance under cumulative 2040 plus-Project conditions. A typical mitigation measure would be to widen the road and add travel lanes and increase capacity. However, impacts on Routes of Regional Significance would remain **significant and unavoidable** because these roadways are not under the jurisdiction of the City. In addition, freeway improvement projects that add travel lanes are planned and funded on a regional scale and would be too costly for a single project to fund.

C-TRA-6.1: Implement Routes of Regional Significance Improvements to Address Cumulative 2040 plus-Project Effects. The mitigation measures below were considered to reduce potentially significant impacts on Regional Routes of Significance.

Routes of Regional Significance could be widened to add travel lanes; however, the routes are under the jurisdiction of Caltrans. Adding a travel lane would increase capacity, but such projects are considered infeasible due to right-of-way constraints. Therefore, the impacts on the following Routes of Regional Significance would remain significant and unavoidable:

- Willow Road – US 101 to Bayfront Expressway (northbound)
- Willow Road – Bayfront Expressway to US 101 (southbound)
- Bayfront Expressway – University Avenue to Willow Road (westbound)
- Bayfront Expressway – Willow Road to University Avenue (eastbound)

Partial mitigation measures have been identified to reduce the impacts of the Project on Routes of Regional Significance under cumulative 2040 plus-Project conditions. The Project includes a TDM program that could reduce the number of trips generated during the peak periods and on a daily basis. To partially reduce impacts on Routes of Regional Significance, implementation of the trip reduction measures proposed in the Project's TDM program is recommended. The TDM program could reduce the number of vehicular trips by 2 to 30 percent. At the maximum of 30 percent, impacts on three of the four segments would be reduced but still significant. The TDM program at the maximum range of effectiveness could reduce the impact on northbound Willow Road from US 101 to Bayfront Expressway to a less-than-significant level. However, because the reduction cannot be quantified, and it is not anticipated that this would fully mitigate impacts on these segments, the impacts are considered significant and unavoidable.

Table 3.1-23. Routes of Regional Significance – Cumulative Conditions and Cumulative plus-Project Conditions

Route	Segment	Cumulative				Cumulative plus Project					
		AM Peak Hour		PM Peak Hour		AM Peak Hour			PM Peak Hour		
		v/c	LOS	v/c	LOS	v/c	LOS	Potentially Significant Impact?	v/c	LOS	Potentially Significant Impact?
El Camino Real (SR 82)	North of Ravenswood Ave (NB)	0.49	A	0.91	E	0.57	A	No	0.95	E	No
	South of Ravenswood Ave (NB)	0.40	A	0.65	B	0.41	A	No	0.66	B	No
	North of Ravenswood Ave (SB)	0.89	D	0.71	C	0.91	E	No	0.75	C	No
	South of Ravenswood Ave (SB)	0.58	A	0.50	A	0.59	A	No	0.51	A	No
Bayfront Expressway (SR 84)	University Ave to Willow Road (WB)	1.41	F	0.58	A	1.42	F	Yes	0.58	A	No
	County Line to University Ave (WB)	0.74	D	0.31	B	0.74	D	No	0.31	B	No
	Willow Road to University Ave (EB)	0.51	A	1.43	F	0.51	A	No	1.44	F	Yes
	University Ave to County Line (EB)	0.27	A	0.75	D	0.27	A	No	0.76	D	No
Willow Rd (SR 114)	US 101 to Bayfront Expressway (NB)	0.87	D	1.59	F	0.88	D	No	1.61	F	Yes
	Bayfront Expressway to US 101 (SB)	1.33	F	1.08	F	1.35	F	Yes	1.08	F	No
US 101	North of Marsh Rd (NB)	0.96	E	1.13	F	0.96	E	No	1.13	F	No
	Willow Rd to Marsh Rd (NB)	0.93	E	1.03	F	0.93	E	No	1.03	F	No
	University Ave to Willow Rd (NB)	1.05	F	1.10	F	1.05	F	No	1.10	F	No
	South of University Ave (NB)	1.08	F	1.13	F	1.08	F	No	1.13	F	No
	North of Marsh Rd (SB)	1.19	F	0.92	E	1.19	F	No	0.92	E	No
	Marsh Rd to Willow Rd (SB)	1.07	F	0.89	E	1.07	F	No	0.89	E	No
	Willow Rd to University Ave (SB)	1.15	F	0.99	E	1.15	F	No	0.99	E	No
South of University Ave (SB)	1.18	F	1.02	F	1.18	F	No	1.02	F	No	

Source: W-Trans, 2015.

Notes: v/c = volume-to-capacity ratio; LOS = level of service; NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Bicycle and Pedestrian Facilities

Impact TRA-7: Impacts on Bicycle and Pedestrian Facilities. Increased bicycle and pedestrian traffic in the vicinity of the Project would result in added demand for additional bicycle and pedestrian facilities. (LTS/M)

Although pedestrian traffic would increase as a result of the Project, the proposal includes wide sidewalks on El Camino Real (15 feet minimum) and Oak Grove Avenue (12 feet minimum), in compliance with the Specific Plan's design standards. These sidewalks would be significantly wider than the current conditions of approximately four to six feet, and would address the increased demand.

There is an existing gap in bicycle facilities on Oak Grove Avenue and Garwood Way. In the Specific Plan, bicycle lanes are planned on Oak Grove Avenue between University Drive and the east city limits, and a signed bicycle route is planned on Garwood Way between Glenwood Avenue and Oak Grove Avenue.

MITIGATION MEASURE. Improvements that would expand bicycle facilities are needed to mitigate or reduce the impacts on bicycle facilities to a *less-than-significant* level.

TRA-7.1: Implement Improvements to Address Impacts on Bicycle Facilities. Gaps in bicycle infrastructure should be closed on Oak Grove Avenue and Garwood Way by constructing bike lanes along Oak Grove Avenue between University Drive and the east city limits as well as a bicycle route along Garwood Way between Glenwood Avenue and Oak Grove Avenue. This mitigation measure is consistent with Mitigation Measures TRA-2.1.a, TRA-2.1.b, and TRA-2.1.c.

Impact TRA-8: Consistency with Existing Bicycle and Pedestrian Policies. The Project would be consistent with established policies pertaining to bicycle and pedestrian facilities. (LTS)

The Project would be subject to the City's established policies pertaining to bicycle and pedestrian facilities. Relevant City policies established in the City's General Plan and Downtown Specific Plan, as well as the Project's consistency with each policy, is shown in Table 3.1-24. Based on a review of the City's policies, specifically the City's General Plan; the Downtown Specific Plan; and Chapter 2, *Project Description*, the Project would be consistent with established policies pertaining to bicycle and pedestrian facilities. In addition, the Project would not preclude the construction of any of the alternatives presented in the El Camino Real Corridor Study. Therefore, the impact would be *less than significant*.

Table 3.1-24. Consistency with Relevant City Bicycle and Pedestrian Policies

Document	Policy	Project Consistency
General Plan	Policy II-D-4: The City shall require new commercial industrial development to provide secure bicycle storage facilities on-site.	Project would provide underground bicycle storage for employees and visitors.
General Plan	Policy II-E-1: The city shall require all new development to incorporate safe and attractive pedestrian facilities on-site.	Project would widen sidewalks along project frontage. On-site pedestrian paths would be provided to serve on-site pedestrian circulation as shown on the site plan in Figure 3.1-12.
Downtown Specific Plan	Standard F.5.01: Outside downtown, new commercial and residential development shall provide secure bicycle storage facilities for long-term occupants (e.g., employees and residents) on-site.	Project would provide secure bicycle lockers to residents. Project would provide underground bicycle storage for employees.
Downtown Specific Plan	Standard F.5.02: Outside downtown, new commercial and residential development shall provide bicycle parking spaces for long-term occupants and short-term visitors (e.g., employees and guests, respectively), per the requirements in Table F1.	Project would provide underground bicycle storage for employees and visitors.

Transit Facilities

Impact TRA-9: Impacts on Transit Facilities. The Project would result in added demand to transit facilities; however, it is expected that existing transit services would adequately serve the Project's demand. (LTS)

The Project would result in added transit demand. The Project would be expected to generate 29 transit trips in the AM Peak Hour and 31 transit trips in the PM Peak Hour. As discussed under Project Conditions, the Project's transit demand was estimated using rates consistent with prior studies. However, it is possible that the Project would generate more transit riders given the close proximity of the nearby Menlo Park Caltrain station. It is expected that the majority of transit riders would be traveling by Caltrain, with less transit service demand on SamTrans bus lines. In addition, Project-related transit demand would be spread across multiple trains.

Based on Caltrain ridership data published in the February 2014 Caltrain Annual Passenger Counts, current average daily ridership at the Menlo Park Caltrain station is approximately 1,668. The capacity of the trains varies throughout the day based on the size of the trains, and passenger load factors vary throughout the day as well (some trains are more full while others are not as full). Given the number of project-generated passengers, whose transit trips would be spread across multiple trains arriving at and departing the Menlo Park Caltrain station, it is expected that existing transit service would adequately serve the Project's transit service demand and potential additional demand. Also, the Caltrain Modernization Program will electrify the trains and increase train capacity by 2020. Therefore, the impact would be *less than significant*.

Railroad Crossing

Impact TRA-10: Impacts on Railroad Crossings. The Project would result in added traffic to railroad crossings which would result in conflicts and safety concerns. (SU)

Within the study area, there are existing at-grade railroad crossings on Glenwood Avenue just east of Garwood Way, on Oak Grove Avenue just east of Derry Lane-Merrill Street, and on Ravenswood Avenue just west of Alma Street. Caltrain operates passenger rail service along the railroad, with up to 10 trains per hour crossing these locations during peak commute traffic times. In addition, freight service also operates along the railroad. During the AM and PM Peak Hours, this can result in additional queuing on these three streets.

The effect of railroad gate downtime is that drivers are delayed as they wait to cross the tracks and vehicle queues form on the streets. After the railroad gates are lifted, downstream traffic signals experience a surge in traffic, which may not get served within one or two signal cycles, resulting in queues that could back up toward the railroad tracks. During peak commute times when there are more trains, there is increased potential for conflicts and safety concerns associated with vehicles, bicyclists, and pedestrians, which must stay clear of the tracks. This problem is exacerbated by the existing railroad equipment, which lowers the railroad gates twice per train at each intersection downstream from the station. Gates are lowered when trains arrive at the Menlo Park station and lowered again when trains leave the station. Modernization of the railroad signal and gate systems would result in gates being lowered once per train. Modernization of the railroad signals and gates in Menlo Park is currently being implemented and expected to be complete in 2016.

The numbers of daily Project-generated trips on Glenwood Avenue, Oak Grove Avenue, and Ravenswood Avenue are 114, 716 and 141, respectively. An increase in the number vehicular trips on these roads would result in additional queuing at the railroad gates and surges in traffic at downstream signals. The added traffic would result in increased potential for conflicts and safety concerns as noted above, resulting in a **potentially significant** impact.

MITIGATION MEASURE. Grade separation for the railroad tracks and the cross streets of Glenwood Avenue, Oak Grove Avenue, and Ravenswood Avenue, with the crossing at Ravenswood Avenue being the highest priority, would be needed to mitigate the projects' impacts to the railroad crossings. However, as noted in TRA-1.2b, grade separation is a large-scale, long-term project. It is not expected that it would be funded by one development project. In addition, a design is still to be completed. Therefore, this impact would remain **significant and unavoidable**.

Partial mitigation measures have been identified to reduce the impact of the Project on railroad crossings.

TRA-10.1: Implement railroad crossing improvements to address Near-Term 2020 plus-Project and Cumulative 2040 Plus-Project Effects. The mitigation measures below are recommended to reduce potential significant impacts on the railroad crossings.

a. Ravenswood Avenue railroad crossing

Partial mitigations to reduce the impact at the Ravenswood Avenue crossing include:

- Extension of time-of-day turn restrictions on the northbound and southbound Alma Street approaches to Ravenswood Avenue.
- Roadway improvements to improve the visibility of "keep clear" zones when approaching the railroad tracks. The Project shall maintain the "keep clear" visibility zone.

It is worth noting that a median along Ravenswood Avenue, which restricts left turns on the northbound and southbound Alma Street approaches to Ravenswood Avenue, is currently installed as a trial project. Upon analysis of the effects of the median, the City shall determine whether the median along Ravenswood Avenue should remain.

b. Oak Grove Avenue and Glenwood Avenue railroad crossings.

Partial mitigations to reduce the impact at the Oak Grove Avenue and Glenwood Avenue railroad crossings, include maintaining the visibility of the “keep clear” zones, including roadway striping, lighting, and landscape maintenance. The Project shall maintain the “keep clear” visibility zone.

Mitigation Measure Summary

The tables provided below summarize the proposed mitigation measures for the Project. Table 3.1-25 provides a summary of the potential mitigation measures for study intersections, Table 3.1-26 provides a summary of roadway segment mitigation measures, Table 3.1-27 provides a summary of mitigation measures for Routes of Regional Significance, Table 3.1-28 provides a summary of mitigation measures for bicycle facilities, and Table 3.1-29 provides a summary of mitigation measures for railroad crossings.

Table 3.1-25. Summary of Potential Mitigation Measures for Study Intersections

Intersection	Significant Impact?		Jurisdiction?	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Other Agency Approval/Coordination Needed?	Remains Significant and Unavoidable Impact?	Developer's Responsibility if any
	Near Term plus Project	Cumulative plus Project							
Middlefield Rd/Encinal Ave (#2)		Yes – AM (4.2.a)	Atherton	SB Middlefield Rd: install SB RT lane EB Encinal Ave: install EB RT lane	Yes	No	Yes	Yes	Fair share payment and Supplemental TIF payment
Middlefield Rd/Glenwood Ave-Linden Ave (#3)	Yes – AM/PM (1.2.a)	Yes – AM/PM (4.2.b)	Atherton	Signalize	Yes	No	Yes	Yes	Fair share payment
Middlefield Rd/Ravenswood Rd (#5)		Yes – PM (4.2.c)	Menlo Park and Atherton	NB Middlefield Rd: install second LT lane	Yes	Yes	Yes	Yes	TIF payment
Middlefield Rd/Willow Rd (#7)		Yes – AM/PM (4.2.d)	Menlo Park	SB Middlefield Rd: reconfigure to have two LT lanes, a through lane, and a shared through and RT lane	Yes	Yes	Yes	Yes	TIF payment
Laurel St/Glenwood Ave (#9)		Yes – AM (4.2.e)	Menlo Park and Atherton	Signalize	Yes	Yes	Yes	Yes	Fair share payment
Ravenswood Ave/Laurel St (#11)	Yes – PM (1.1)		Menlo Park	SB Laurel St: reconfigure to have a LT lane and a shared through and RT lane	Yes	Yes	No	No	Required to construct
Ravenswood Ave/Laurel St (#11)		Yes – AM/PM (4.2.f)	Menlo Park	SB Laurel St: reconfigure to have a LT lane and a shared through and RT lane	Yes	No	No	Yes	n/a
Oak Grove Ave/Alma St (#13)	Yes – PM (1.2.b)	Yes – AM/PM (4.2.g)	Menlo Park	Grade separation of Oak Grove Avenue and railroad tracks	Yes	No	Yes	Yes	Required to construct partial mitigation: bike lanes

Intersection	Significant Impact?		Jurisdiction?	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Other Agency Approval/Coordination Needed?	Remains Significant and Unavoidable Impact?	Developer's Responsibility if any
	Near Term plus Project	Cumulative plus Project							
Oak Grove Ave/Garwood Way-Merrill St (#15)	Yes – AM/PM (1.2.c)	Yes – AM/PM (4.2.h)	Menlo Park	Grade separation of Oak Grove Avenue and railroad tracks	Yes	No	Yes	Yes	Required to construct partial mitigation: bike lanes
El Camino Real/Glenwood Ave-Valparaiso Ave (#17)		Yes – AM/PM (4.2i)	Menlo Park/Caltrans	WB: add exclusive RT lane	No	Yes	Yes	Yes	TIF payment
El Camino Real/Oak Grove Ave (#18)		Yes – PM (4.2.j)	Menlo Park/Caltrans	Partial mitigation from TDM program (no full mitigation identified)	No	Yes	No	Yes	n/a
El Camino Real/Ravenswood Ave-Menlo Ave (#20)	Yes – AM (1.2.d)		Menlo Park/Caltrans	NB: add a third through lane	Yes	Yes	Yes	Yes	TIF Payment
El Camino Real/Ravenswood Ave-Menlo Ave (#20)		Yes – AM (4.2.k)	Menlo Park/Caltrans	NB: add a third through lane WB: add exclusive LT lane and restripe shared LT and through lane to exclusive through lane	No	No	Yes	Yes	TIF Payment
Oak Grove Ave/University Dr (#25)		Yes – AM/PM (4.1.a)	Menlo Park	WB: add exclusive RT lane	Yes	Yes	No	No	Fair share payment
Santa Cruz Ave/University Dr (N) (#26)		Yes – PM (4.1.b)	Menlo Park	Signalize and interconnect signal with existing signal at Santa Cruz Ave/University Dr (S)	Yes	Yes	No	No	Fair share payment

Source: W-Trans, 2015.

Notes: NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turn; RT = right-turn.

Table 3.1-26. Summary of Potential Mitigation Measures for Study Roadway Segments

Segment	Significant Impact?		Potential Mitigation	Fully Mitigates Impact?	Feasible?	Remains Significant and Unavoidable Impact?	Developer's Responsibility, if any
	Near Term plus Project	Cumulative plus Project					
Middlefield Rd north of Glenwood Ave (#1)	Yes (2.1)	Yes (5.1)	Add an additional travel lane	No	No	Yes	n/a
Middlefield Rd south of Oak Grove Ave (#2)	No	Yes (5.1)	Add an additional travel lane	No	No	Yes	n/a
Ravenswood Ave east of Laurel St (#5)	Yes (2.1)	Yes (5.1)	Add an additional travel lane	No	No	Yes	n/a
Oak Grove Ave west of Laurel St (#10)	Yes (2.1)	Yes (5.1)	Add an additional travel lane	No	No	Yes	Required to construct partial mitigation: bike lanes
Oak Grove Ave east of Laurel St (#11)	Yes (2.1)	Yes (5.1)	Add an additional travel lane	No	No	Yes	Required to construct partial mitigation: bike lanes
Garwood Way south of Glenwood Ave (#13)	Yes (2.1)	Yes (5.1)	Add an additional travel lane	No	No	Yes	Required to construct partial mitigation: bike route

Source: W-Trans, 2015.

Table 3.1-27. Summary of Potential Mitigation Measures for Study Routes of Regional Significance

Segment	Significant Impact?		Jurisdiction	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Other Agency Approval/Coordination Needed?	Remains Significant and Unavoidable Impact?	Developer's Responsibility, if any
	Near Term plus Project	Cumulative plus Project							
Bayfront Expressway – University Ave to Willow Rd (WB)	Yes	Yes	Caltrans	Add an additional travel lane	Yes	No	Yes	Yes	n/a
Bayfront Expressway – Willow Rd to University Ave (EB)	Yes	Yes	Caltrans	Add an additional travel lane	Yes	No	Yes	Yes	n/a
Willow Rd – Bayfront Expressway to US 101 (SB)	Yes	Yes	Caltrans	Add an additional travel lane	Yes	No	Yes	Yes	n/a
Willow Rd – US 101 to Bayfront Expressway (NB)	Yes	Yes	Caltrans	Add an additional travel lane	Yes	No	Yes	Yes	n/a

Source: W-Trans, 2015.

Notes: NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Table 3.1-28. Summary of Potential Mitigation Measures for Bicycle Facilities

Facilities	Significant Impact	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Remains Significant and Unavoidable Impact?	Developer's Responsibility, if any
Oak Grove Ave - University Ave to East City Limits	*	Add bicycle lanes	Yes	Yes	No	Required to construct
Garwood Way – Glenwood Ave to Oak Grove Ave	*	Add bicycle route	Yes	Yes	No	Required to construct

Source: W-Trans, 2015.

* There is no significance threshold for bicycle facilities. However, as the Project would add bicyclists and, mitigation measures have been recommended.

Table 3.1-29. Summary of Potential Mitigation Measures for Railroad Crossings

Facilities	Significant Impact	Potential Mitigation	Fully Mitigates Impact?	Feasible?	Remains Significant and Unavoidable Impact?	Developer's Responsibility, if any
Ravenswood Avenue Railroad Crossing	*	Maintain “Keep Clear” markings	No	Yes	Yes	Required to construct
Oak Grove Avenue and Glenwood Avenue Railroad Crossings	*	Maintain “Keep Clear” markings	No	Yes	Yes	Required to construct

Source: W-Trans, 2015.

* There is no significance threshold for railroad crossings. However, as the Project would add vehicular traffic to railroad crossings, , mitigation measures have been recommended.

Other non-CEQA Traffic-Related Issues

Traffic Signal Warrants

The traffic signal warrant criteria presented in the CA-MUTCD were reviewed to determine if it may be beneficial to signalize currently unsignalized Project intersections. For the purposes of this study, Warrant 3, the peak-hour volume warrant, which determines the need for signalization based on the highest volume hour of the day, was used as an initial indication of traffic control needs. The use of this peak-hour signal warrant is common practice for planning studies.

Table 3.1-30 provides a summary of peak-hour traffic signal warrant results. Signal warrant calculations are provided in Appendix 3.1-I.

Table 3.1-30. Peak-Hour Traffic Signal Warrant

Analysis Scenario	Middlefield Ave/ Glenwood Ave- Linden Ave	Laurel St/ Glenwood Ave	Oak Grove Ave/ Alma St	Oak Grove Ave/ Garwood Way- Merrill St	Santa Cruz Ave/University Ave (N)
Existing	No	No	No	No	Yes
Near Term	No	No	No	No	Yes
Near Term plus Project	No	No	No	Yes	Yes
Cumulative	Yes	Yes	No	No	Yes
Cumulative plus Project	Yes	Yes	Yes	Yes	Yes

Source: W-Trans, 2015.

Notes: Peak-hour signal warrant is indicated as met (“Yes”) if the warrant threshold is met for either the AM or PM Peak Hour.

Vehicle Miles Traveled Analysis

Introduction and Definition of Vehicle Miles Traveled

In anticipation of the expected implementation of Senate Bill 743, which allows vehicle miles traveled (VMT) analysis as an alternative to LOS, a qualitative analysis of the Project’s expected VMT has been completed. VMT is a measure of the number of miles traveled associated with a proposed development or area. VMT per capita is the VMT of the development or the area divided by the population and the number of jobs of the development or area. Furthermore, reducing VMT per capita is a stated target in Plan Bay Area, a policy document adopted by the Association of Bay Area Governments and the MTC in July 2013. VMT is an important metric in the evaluation and management of travel and congestion, both on a regional as well as a local level. For example, VMT influences the analysis of transportation GHG emissions because the level of travel activity is correlated with fuel consumption. Furthermore, to address GHG policy goals, an analysis of VMT associated with development activity may be a more relevant analysis tool than intersection or roadway LOS. The combination of VMT and LOS analysis allows agencies to address issues related to congestion, traffic operations, as well as GHG.

Under Senate Bill 743, automobile LOS would not be a required significance criterion for determining traffic impacts under CEQA but could still be used for planning purposes. Instead, traffic impacts would be based on a comparison of a project’s VMT per capita with the VMT per-capita average for the region. Cities may still rely on local impact criteria, in addition to VMT per-capita averages, based on community

goals and local policies. Menlo Park's required criteria are currently being reviewed and evaluated through the City's general plan update process (i.e., ConnectMenlo).

VMT Calculation Methodology

VMT projections are typically estimated with use of a travel forecast model. As part of the ConnectMenlo process, the City is developing a focused travel forecast model that will forecast traffic demand and estimate VMT. This model is currently in the development process and not ready for use in this document. In general, VMT is expected to be reduced when developments place land uses close to areas that are served by transit or employment and retail uses near residential uses, resulting in the average trip lengths being shorter. The Project's land uses would include a mix of retail, office, and residential uses that would be located near the Menlo Park Caltrain station. Given the nature of the Project and its location near transit services, it is likely that the Project's VMT would be similar to lower than the regional average.

Summary

As noted above, the City's General Plan, adopted in 1994, is currently being updated. The 1994 general plan does not include references to VMT as a metric for a proposed development's traffic impact. However, draft circulation policies identified in July 2015 for the updated general plan, ConnectMenlo, include VMT as a measure of a development's impact on the efficiency of the circulation system. These policies, when adopted, would update the general plan to be consistent with Senate Bill 743. As such, VMT information is presented to provide consistency with the ConnectMenlo document.

Parking

City Parking Requirements

The Project is within the boundaries of the Specific Plan's Station Area Sphere of Influence, given its proximity to the Menlo Park Caltrain station. Typically, Menlo Park City Code provides rates, based on land use, for the required number of parking spaces, but such rates are not appropriate for developments that are so close to a major public transit station where people are likely to ride a bicycle, walk, or utilize public transit to access the Project site. Therefore, parking rates from the following sources were analyzed in the Specific Plan to come up with more appropriate rates for developments in the Station Area Sphere of Influence:

- City of Menlo Park Municipal Code, Title 16 Zoning, Chapter 16.72
- City of Menlo Park Parking Reduction Policy
- ITE's *Parking Generation*, third edition (2004)
- Urban Land Institute's (ULI's) *Shared Parking*, second edition (2005)
- MTC's *Reforming Parking Policies to Support Smart Growth* (2007)

The ULI rates were used as the basis for the Specific Plan area rates, except for residential and restaurant uses. Residential developments were set at a minimum rate of one space per unit. The minimum of one space per unit is appropriate for the Project because the residential component would be on the southeast corner of the Project site, across the street from the Menlo Park Caltrain station.

Table 3.1-31 shows the required number of parking spaces, based on the proposed land uses. The Project as planned would provide approximately 1,000 parking spaces.

Table 3.1-31. Project Parking Requirements

Land Use	Size	Specific Plan Rates	Spaces Required
Multi-Family Dwelling	202 units	1 space/unit	202
General Office	188.9 ksf	3.8 spaces/ksf	718
Retail and Personal Service	29 ksf	4 spaces/ksf	116
Total Spaces Required			1,036
Proposed Parking Supply			Approximately 1,000
Note: ksf = thousand square feet.			

Shared Parking Demand

In addition to a review of the parking requirements set forth in the Specific Plan, a shared-use parking demand analysis was conducted by Fehr and Peers in August 2015. It used the shared parking model developed by ULI and applied parking rates from the Specific Plan. The shared parking model estimates parking activity according to land use by time of day and day of the week and then determines the peak parking demand given the mix of land uses. Per the Specific Plan, a ULI shared parking study may be used to establish the parking requirement for a mixed-use project.

The shared parking analysis in Appendix 3.1-J shows that the Project would have a maximum demand of 1,006 shared parking spaces. The results are summarized in Table 3.1-32. The Project as planned would provide approximately 1,000 parking spaces, which would meet the shared parking demand.

Table 3.1-32. Project Shared Parking Demand

Land Use	Size	Spaces Required
Multi-Family Dwelling	202 units	259
General Office	188.9 ksf	647
Retail and Personal Service	29 ksf	100
Shared Parking		1,006
Proposed Parking Supply		Approximately 1,000
Note: ksf = thousand square feet.		

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