4.14 TRAFFIC AND TRANSPORTATION

This section describes the regulatory framework and existing conditions in the project area related to traffic and transportation, the potential impacts of the proposed General Plan and Energy Conservation Action Strategy (ECAS) on the transportation system, and recommended mitigation measures. Detailed calculations for road segment and intersection capacity analysis are contained in Appendix G of this Draft EIR. As noted in Chapter 3, Project Description, impacts are determined by comparing the proposed General Plan and ECAS to existing conditions, rather than to the existing General Plan. The following evaluation is based on a quantitative analysis and examines whether the estimated traffic generation would conflict with applicable plans, ordinances, policies, or programs; result in a change in air traffic patterns; substantially increase hazards; or result in inadequate emergency access.

A. Regulatory Framework

The transportation system in Vacaville is regulated by a number of agencies on the federal, State, and local levels. The City of Vacaville is responsible for constructing and maintaining non-State and non-federal transportation facilities within the city, while the neighboring Solano County, City of Fairfield, and City of Dixon have jurisdiction over local roadways within their respective boundaries. Major federal, State, regional and County regulatory bodies pertinent to Vacaville's transportation system, as well as laws, policies, and regulations that apply to transportation and circulation in and around Vacaville, are described in this section. This information provides a context for the impact discussion related to the project's consistency with applicable regulatory conditions.

1. Federal Regulations and Policies

This section summarizes federal agencies and laws pertinent to transportation in Vacaville.

a. Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency of the United States Department of Transportation (DOT) responsible for the federally-funded roadway system, including the interstate highway network and portions of the primary State highway network, such as Interstate 80 (I-80). FHWA funding is provided through the Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 can be used to fund local transportation improvements in Vacaville, such as projects to improve the efficiency of existing roadways, traffic signal coordination, bikeways, and transit system upgrades.

b. Americans with Disabilities Act

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

The City's ADA Coordinator works out of the Public Works Department to manage the City's efforts in complying with applicable accessibility regulations. The City formed an ADA Advisory Committee in 2004 to serve as a liaison between residents with disabilities and the City.

2. State Agencies, Regulations, and Policies

This section summarizes State agencies, regulations, and policies that pertain to transportation in Vacaville.

a. California Department of Transportation

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. One of its duties is the construction and maintenance of the State highway system. Caltrans has established standards for roadway traffic flow and developed procedures to determine if State-controlled facilities require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects. Caltrans facilities within the Vacaville study area include Interstate 80 and Interstate 505, as well as the on- and off-ramps from these State facilities.

The following Caltrans procedures and directives are relevant to the project, particular State roadway facilities:

- **Level of Service Target.** Caltrans maintains a minimum level of service (LOS) at the transition between LOS C and LOS D for all of its facilities.[1] Where an existing facility is operating at less than the LOS C/D threshold, the existing measure of effectiveness should be maintained.[2]

- **Caltrans Project Development Procedures Manual.** This manual outlines pertinent statutory requirements, planning policies, and implementing procedures regarding transportation facilities. It is continually and incrementally updated to reflect changes in policy and procedures. For example, the most recent revision incorporates the Complete Streets policy from Deputy Directive 64-R1, which is detailed below.

- **Caltrans Deputy Directive 64.** This directive requires Caltrans to consider the needs of non-motorized travelers, including pedestrians, bicyclists, and persons with disabilities, in all programming, planning, maintenance, construction, operations, and project development activities and products. This includes incorporation of the best available standards in all of Caltrans' practices.

- **Caltrans Deputy Directive 64-RI.** This directive requires Caltrans to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans supports bicycle, pedestrian, and transit travel with a focus on "complete streets" that begins early in system planning and continues through project construction, maintenance, and operations.

- **Caltrans Director's Policy 22.** This policy establishes support for balancing transportation needs with community goals. Caltrans seeks to involve and integrate community goals in the planning, design, construction, and maintenance and operations processes, including accommodating the needs of bicyclists and pedestrians.

- **Environmental Assessment Review and Comment.** Caltrans, as a responsible agency under the California Environmental Quality Act (CEQA), is available for early consultation on projects to provide guidance on applicable transportation analysis methodologies or other transportation related issues, and is responsible for reviewing traffic impact studies for errors and omissions pertaining to the State highway facilities. In relation to this role, Caltrans published the Guide for the Preparation of Traffic Impact Studies (December 2002), which establishes the Measures of Effectiveness as described under "Level of Service Target" above. The Measures of Effectiveness are used to determine significant impacts on State facilities. The Guide also mandates that traffic analyses include mitigation measures to lessen potential project impacts on State facilities and to meet each project's fair share responsibilities for the impacts. However, the ultimate mitigation measures and their

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

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

implementations are to be determined based on consultation between Caltrans, the City of Vacaville, and the project proponent.

b. Complete Streets Act of 2008

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

c. California Transportation Commission

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

3. Regional Agencies, Plans, and Policies

This section summarizes regional agencies, plans, and policies that pertain to transportation in Vacaville.

a. Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine counties in the Bay Area, including Solano County. It also functions as the federally mandated metropolitan planning organization (MPO) for the region. MTC authored the current regional transportation plan known as *Transportation 2035* that was adopted on April 22, 2009. *Transportation 2035* specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system, specifying how anticipated federal, State, and local transportation funds will be spent. The projects included in the 2035 Plan that will most directly affect the proposed Vacaville General Plan are:

- Construction of a new Fairfield/Vacaville Multi-Modal Train Station at the southeast corner of Peabody Road and Vanden Road in northeast Fairfield for the Capitol Corridor intercity rail service.
- Construction of a ten-bay bus carousel and a 220-space parking lot (Phase 1) and a 400-space parking garage (Phase 2) at the Vacaville Intermodal Station. (Status: Phase 1 of this project has been completed. A feasibility study is currently in progress for Phase 2.)
- Construction of Jepson Parkway from Route 12 to Interstate 80 at the Leisure Town Road Interchange. In Vacaville, Jepson Parkway will follow the Leisure Town Road alignment.

(Status: The initial phase of Jepson Parkway, which extends from the Fairfield city limits to Alamo Drive in Vacaville, is in design.)

- Widening of Interstate 80 to add an express lane in each direction from the Yolo County line to State Route 37.

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

To qualify for the current round of MTC's One Bay Area Grant (OBAG) program, jurisdictions had to adopt a Complete Street Resolution or adopt a General Plan that complies with the California Complete Streets Act of 2008 by January 31, 2013. The City of Vacaville adopted Complete Streets Resolution 2012-125 on December 11, 2012. In addition, the proposed Transportation Element is consistent with the Complete Streets Act.

b. Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) is the regional planning agency for the nine counties of the Bay Area, including Solano County. It primarily deals with land use, housing, environmental quality, and economic development issues, which are often closely connected to transportation. ABAG prepares forecasts of employment and population (ABAG *Projections*) approximately every two years. The ABAG Projections serve as the basis for regional travel forecasts and transportation programming.

c. Solano Transportation Authority

The Solano Transportation Authority (STA) has been designated as the Congestion Management Agency to address congestion issues in Solano County and the seven cities within the county, including Vacaville. It is responsible for countywide transportation planning, programming transportation funds, managing and providing transportation programs and services, delivering transportation projects, and setting transportation priorities. The STA Board of Directors adopted the Solano County Comprehensive Transportation Plan (CTP 2030)[3] in June 2005. The Plan envisions, directs, and prioritizes the transportation needs of Solano County through 2030.

[3] Solano Transportation Authority, *Solano Comprehensive Transportation Plan,* adopted June 8th 2005.

The Plan identifies a list of Routes of Regional Significance, which are roadways that carry significant through-traffic, connect two or more jurisdictions, serve major transportation hubs, or cross county lines. Since these routes are significant to the transportation network of the region, and serve more than local transportation needs, they are eligible for federal funding. The CTP is being updated. The new plan, 2009 CTP 2035 Update, will cover the 2009-2035 time period.

In addition to the CTP, STA has prepared other planning documents such as the Solano Countywide Bicycle Transportation Plan,[4] Solano Countywide Pedestrian Plan,[5] and the Vacaville Community-Based Transportation Plan[6] that also envisions a transportation network to serves the needs of all roadway users.

As the designated Congestion Management Agency, STA works with jurisdictions within the county, including Vacaville, to identify locations where periodic congestion monitoring would occur as required by the State's congestion management program (CMP) legislation. The major goals of the CMP are to maintain mobility on Solano County's streets and highways, and to ensure the County's transportation system operates effectively as part of the larger Bay Area and northern California transportation systems. State law requires that level of service standards be established as part of the CMP process. The purpose of setting level of service standards for the CMP system is to provide a quantitative tool to analyze the effects of land use changes and to the system's performance (i.e. congestion). CMP roadways are subject to biannual monitoring. If the actual system performance falls below the standard (i.e., congestion worsens to LOS F), actions must be taken to improve the level of service.

STA also maintains a Solano/Napa Travel Demand Model to evaluate and project future traffic growth in the region. Traffic volume forecasts from the Solano/Napa Model are used to analyze regional transportation projects. The Solano/Napa Model maintains consistency with the population, housing, and employment projections developed by ABAG.

The Land Use Impact Analysis of the CMP specifies that general plan amendments must be evaluated using the Solano/Napa Travel Demand Model.

d. Air Quality Districts

There are two air quality districts that address air pollution in the Vacaville study area. Since a primary source of air pollution in the Vacaville region is from motor vehicles, the district regulations affect transportation planning in the study area. The Yolo-Solano Air Quality Management District (YSAQMD), established by a joint powers agreement between Yolo and Solano Coun-

[4] Solano Transportation Authority, *Solano Countywide Bicycle Transportation Plan*, adopted December 14, 2011.

[5] Solano Transportation Authority, *Solano Countywide Pedestrian Plan*, adopted January 11, 2012.

[6] Solano Transportation Authority, 2010. *Vacaville Community-Based Transportation Plan*.

ties, is responsible for protecting human health and property from the harmful effects of air pollution throughout the majority of the Vacaville study area. The Bay Area Air Quality Management District (BAAQMD) is a public agency tasked with regulating air pollution in the nine-county Bay Area, including the southwest portion of Solano County. BAAQMD's goals include reducing health disparities due to air pollution, achieving and maintaining air quality standards, and implementing exemplary regulatory programs and compliance with federal, State, and regional regulations.

4. Local Policies and Regulations

This section summarizes City policies and regulations that pertain to transportation in Vacaville.

a. Intersection Level of Service

The City's current practice for calculating level of service[7] (LOS) at intersections for planning studies is based on the Planning Method from the Transportation Research Board's Circular 212.[8] This methodology compares traffic demands on critical conflicting movements[9] to the available capacity at a street intersection to determine the volume to capacity ratio (V/C). It then assigns a level of service based on the V/C.

Through the proposed General Plan process, the City assessed the operational analysis methodology in the Transportation Research Board's Highway Capacity Manual (HCM)[10] as an alternative to the Circular 212 Planning Method that the City currently uses to perform intersection level of service analysis. The HCM operational analysis procedures, a more commonly-used method for determining level of service, calculates an average stopped delay per vehicle at a signalized intersection, or an average total delay per vehicle for each controlled movement at an unsignalized intersection. A level of service designation is assigned based upon the length of delay, which is measured in seconds. Because the results are expressed in the length of delay, they can better reflect the motorist's actual experience. The HCM operational method for signalized intersections also provides a calculation of the V/C of the critical movements at the intersection. Depending on the signal phasing and geometries of an intersection, a HCM operational analysis may yield better or worse LOS results than a Circular 212 Planning Method analysis of the same intersection.

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

[8] Transportation Research Board, 1980. *Interim Materials on Highway Capacity,* Transportation Research Circular 212, Washington, D.C.

[9] Conflicting movements are traffic movements from opposite directions at an intersection that do not move independently from each other. For example, left-turn movement conflicts with approaching through movement. Critical conflicting movements refer to the conflicting movements that result in the longest delay during a given signal phase.

[10] Transportation Research Board, 2000. *Highway Capacity Manual,* Washington, D.C.

An HCM analysis allows for more subtle modifications, such as signal timing changes, to improve the intersection service level, rather than relying mainly on physical changes, such as adding turn lanes. The proposed General Plan establishes that the City will use the delay-based HCM operational methodology to calculate level of service in the future. The City Council unanimously approved a resolution establishing the delay-based Highway Capacity Manual methods as the standard for transportation congestion analysis at its March 26, 2013 meeting. Application of this methodology is consistent with Caltrans' Guide for the Preparation of Traffic Impact Studies[11] and the current trend in transportation planning practice.

b. Vacaville Municipal Code

The City's Municipal Code includes regulations that govern the transportation system. Regulations that are of particular relevance to the General Plan Transportation and Circulation Update are summarized below. In addition to the regulations described below, the Land Use and Development Code establishes a comprehensive truck route network and identifies off-street parking requirements for each type of land use.

i. Transportation System Management Ordinance

The City's Transportation System Management (TSM) Ordinance (Chapter 10.60 of the Municipal Code) has established requirements for employers to promote alternative commute modes, such as transit, ridesharing, bicycling, and walking, and to reduce the total number of vehicle trips in order to proactively manage congestion and vehicle emissions. The Ordinance is applicable to major employers and major projects of 100 or more employees and to minor employers and projects of 25 to 99 employees.

Major employers/projects are required to obtain a transportation management certificate. To obtain the certificate, employers must submit a transportation management plan, which specifies measures to achieve an average vehicle ridership goal of 1.35 during the peak period of commute trips. A status report and, if necessary, additional measures are to be submitted annually for certificate renewal. If the employers can demonstrate achievement of the established goals during two consecutive years, a two-year renewal certificate may be obtained.

Minor employers/projects are required to post information describing the benefits of transit, ridesharing, bicycling, and walking, and to provide practical information on these alternative mode options. In addition, such information is to be provided to newly-hired employees. A transportation coordinator must be designated; this coordinator is responsible for the dissemination of alternative commute information, such as ridesharing and transit schedules.

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

Legislation enacted since the implementation of the existing General Plan TSM ordinance makes conformance with these requirements largely voluntary.

ii. Traffic Impact Mitigation Ordinance

Chapter 14.13.180 of the Municipal Code establishes a procedure to assess and mitigate the potential impacts of proposed development projects on the transportation system. Section 14.13.180.070, Traffic Impact Standards, establishes traffic impact standards, which specifically allow City decision-makers to allow and accept LOS D without mitigation improvements. This standard is generally more lenient than the LOS standard proposed for the General Plan Update, which establishes mid-LOS D using delay-based Highway Capacity Manual methodology as the minimum standard of LOS for all intersections, road links, and interchanges, except in the Downtown Urban High Density Residential Overlay District, where the standard is LOS D. As part of General Plan Update implementation, the Traffic Impact section of the Municipal Code will be updated to be consistent with the LOS standard applied in the General Plan Update. The Traffic Impact Mitigation Ordinance also provides for the approval of LOS E and LOS F conditions at a specific location under defined circumstances similar to those identified in the existing General Plan Policy.

iii. Emergency Response and Wildland Fires

Emergency organization, emergency functions, and an emergency response plan are codified in Chapter 2.52 of the Municipal Code, and in Section 14.20.290, *Development Standards for New Construction Adjacent to Open Space Lands Where Wildfire is a Threat*, of the Land Use and Development Code. This section provides development standards that apply to new construction adjacent to open space where there is threat of wildfire. The stated purpose is to increase the protection of life and property from wildfire occurring on open lands. Where wildfire is a threat, Section 14.20.290.050 requires a 20-foot-wide fire access road, when required by the Fire Chief, around the perimeter of a site, and larger building setbacks.

For clustered residential projects, the Code requires that fire apparatus access roads shall have a minimum unobstructed width of 20 feet, a minimum vertical clearance of 13 feet-6 inches, and be provided within 150 feet of all exterior walls of the first floor of nay building. For access in excess of 150 feet on a dead-end access road, a means of turning around the fire apparatus, or providing a restricted through way, shall be provided.

B. Existing Setting

This section describes the existing transportation environment in Vacaville, including roadway network, traffic operations of selected intersections, roadway segments and freeway segments, transit services, and pedestrian and bicycle facilities.

1. Roadway System

Vacaville is bisected diagonally by Interstate 80, which serves as the primary regional connector. Besides the interstate highway system, the city has a hierarchy of streets which serve different functions, including arterial, collector, and local streets.

a. Regional Facilities

Regional access in Vacaville is provided by the interstate highway network and a series of regional routes.

i. Interstate Highway Network

Vacaville is served by two freeways, Interstate 80 and Interstate 505, which are part of the interstate highway network. Interstate 80, which primarily has four travel lanes in each direction in the study area, extends southwest through Fairfield and Vallejo, and crosses the Carquinez Bridge and the Oakland Bay Bridge to terminate at Highway 101 in San Francisco. It also extends northeast through Dixon and Davis, over the Sacramento River, to Sacramento and beyond. There are ten interchanges along Interstate 80 in Vacaville:

- Lagoon Valley Road
- Cherry Glen/Pleasants Valley Road
- Alamo Drive
- Davis Street
- Cliffside Drive/Mason Street
- Allison Drive/Monte Vista Avenue
- Nut Tree Road/Interstate 505
- Leisure Town Road/Vaca Valley Parkway
- Meridian Road/Weber Road
- Midway Road

Interstate 505 links Interstate 80 to Interstate 5, a major north-south freeway serving the west coast of the United States. Interstate 505 has two travel lanes in each direction. In addition to the interchange at Interstate 80, access to Interstate 505 is provided in Vacaville at Vaca Valley Parkway and Midway Road.

The freeway interchanges of Interstate 80 and Interstate 505 define the regional context that affects the local access and circulation within Vacaville.

ii. Regional Routes

In addition to Interstate 80 and Interstate 505, the following regional routes have been identified in the 2005 Comprehensive Transportation Plan (CTP 2030), and in the 2009 Congestion Monitoring Program (CMP) as providing regional access to and from Vacaville:

- Vaca Valley Parkway between Interstate 505 and Interstate 80 (CTP and CMP)
- Leisure Town Road (future Jepson Parkway) between Interstate 80 and Vanden Road (CTP)
- Vanden Road from Leisure Town Road south to Peabody Road in Solano County (CTP and CMP)
- Peabody Road from Elmira to California Drive (CTP)
- Peabody Road from California Drive south into Fairfield (CTP and CMP)
- Alamo Drive between Interstate 80 and Peabody Road (CTP)
- Elmira Road between Leisure Town Road and Interstate 80 (CTP)
- Elmira Road from Leisure Town Road east to A Street in the Town of Elmira City Limits (CMP)

b. Local Street and Road System

The local street and roadway system is composed of three classifications, each serving a different function.

i. Arterials

Arterials link residential and commercial districts with the freeway network and provide intercity connections. These roadways can be either divided or undivided, and generally carry the heaviest amount of traffic among the three classifications. While the majority of arterials in Vacaville consist of four travel lanes, there are also two-lane arterials, such as Brown Street and portions of California Drive, and six-lane arterials, such as portions of Elmira Road and Vaca Valley Parkway.

ii. Collectors

Collectors are designed to connect neighborhoods with arterials. All collector streets in Vacaville have two travel lanes. Some examples of collectors are Orchard Avenue, Marshall Road, and Vanden Road.

iii. Local Streets

Local streets are intended to serve adjacent land uses only. They carry little through traffic and generally have low traffic volumes.

iv. Rural Roads

The current General Plan does not have separate designations for rural and urban roads. The proposed General Plan adds designations for rural arterials and rural collectors. Rural arterials are roadways built to rural or County standards that provide for greater levels of through traffic, while rural collectors make connections between low volume rural roadways and rural arterials.

2. Existing Traffic Operations

This section provides information on the existing operating conditions for selected intersections and freeway mainline segments in Vacaville in terms of level of service. Level of service (LOS) describes the operating conditions experienced by persons on a transportation system. For motorized vehicles, level of service is a qualitative measure of the effects of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated LOS A through F, from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents conditions where traffic demands exceed capacity and the flow of traffic breaks down, resulting in stop-and-go conditions and long queues of vehicles.

Vacaville has established a citywide goal of LOS C, but currently allows for LOS D, LOS E, and LOS F under specified circumstances. The current General Plan calls for the design of improvements to provide for LOS C. In March 2013, the City Council adopted Resolution 2013-023, identifying the Highway Capacity Manual (HCM) method as the standard for transportation congestion analyses and establishing HCM level of service mid-D (<45 sec. delay) as the threshold of significance for the General Plan Update environmental impact report. This is a departure from the Traffic Impact Mitigation section of the Municipal Code, which identifies LOS D (< 55 sec. delay) as the threshold of significance for environmental studies.

a. Level of Service Methodology

Methodologies outlined in the Transportation Research Board's *Highway Capacity Manual*[12,13] are used to evaluate level of service for both intersections and freeway mainline segments. Roadway segment analysis is based on the *Highway Capacity Manual* and commonly-accepted default values derived by the Florida Department of Transportation.

i. Intersections

The methodology for analysis of unsignalized intersections, with the exception of all-way stop intersections, calculates an average total delay per vehicle for each minor street movement and

[12] Transportation Research Board, 2010. *Highway Capacity Manual.*

[13] Transportation Research Board, 2000. *Highway Capacity Manual.*

for the major street left-turn movements, based on the availability of adequate gaps in the main street through traffic. A level of service designation is assigned to individual movements or to combinations of movements in the case of shared lanes, based upon delay. Unsignalized intersection levels of service are reported for the overall intersection, as well as for the worst approach based upon the average delay per vehicle.

Table 4.14-1 presents the average delay criteria used to determine the level of service at unsignalized intersections (one, two, or all-way stop controlled). The average delay is expressed as the length of delay experienced at the intersection, measured in seconds. It is not unusual for some of the minor street movements to have LOS D, E, or F conditions while the major street movements have LOS A, B or C conditions. In such a case, the minor street traffic experiences delays that can be substantial for individual minor street vehicles, but the majority of vehicles using the intersection have very little delay. Usually in these cases, the minor street traffic volumes are relatively low. If the minor street volume is large enough, improvements to reduce the minor street delay may be justified, such as limiting or prohibiting left turn movements, channelization, widening, or signalization.

At signalized intersections and all-way stop intersections, the level of service is determined by the weighted average delay for all vehicles entering the intersection. The methodologies for these types of intersections calculate a single weighted average delay and level of service for the intersection. Table 4.14-Table 4.14-2 presents the average delay criteria used to determine the level of service at signalized intersections. The average delay criteria used to determine the level of service at all-way stop intersections are the same as those shown for all types of unsignalized intersections in Table 4.14-1, as designated in the *Highway Capacity Manual*.

The LOS criteria for unsignalized intersections are somewhat different from the criteria used for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals, which can reduce users' delay tolerance.[14]

[14] Transportation Research Board, 2010, *Highway Capacity Manual,* Chapter 19, pages 19-1 to 19-2.

TABLE 4.14-1 DEFINITION OF LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

LOS	Expected Delay	Control Vehicle Delay (secs/veh)
A	Little or no delay	0 - 10
B	Short traffic delays	> 10 - 15
C	Average traffic delays	> 15 - 25
D	Long traffic delays	> 25 - 35
E	Very long traffic delays	> 35 - 50
Mid-E		42
F	Extreme delays potentially affecting other traffic movements in the intersection	> 50

Notes:
LOS = Level of Service
sec/veh= seconds per vehicle
At two-way stop-controlled intersection, LOS is determined for each minor-street movement and major-street left-turns. At all-way stop-controlled intersection, LOS is determined for each individual approach and for the entire intersection based on average control delay.
Source: Transportation Research Board, *Highway Capacity Manual*, Washington D.C., 2010.

TABLE 4.14-2 DEFINITION OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

LOS	Expected Delay	Control Delay (secs/veh)[a]
A	Very Low Delay	≤10
B	Minimal Delay	>10 - 20
C	Acceptable Delay	>20 - 35
D	Approaching Unstable/Tolerable Delay	>35 – 55
Mid-D		45
E	Unstable Operation/Significant Delay	>55 - 80
F	Excessive Delay	> 80

Note:
LOS = Level of Service
sec/veh= seconds per vehicle
Source: Highway Capacity Manual, Transportation Research Board, Washington D.C., 2010.

TABLE 4.14-3 **FREEWAY MAINLINE SEGMENT LEVEL OF SERVICE CRITERIA**

LOS	Maximum Density (passenger vehicles per mile per lane)
A	<=11
B	18
C	26
D	35
E	45
F	>45

Note:
LOS = Level of Service
Source: Transportation Research Board, Highway Capacity Manual, Washington D.C. 2010, page 11-5.

ii. Freeway Mainline Segments

Caltrans' *Guide for the Preparation of Traffic Impact Studies*[15] has required the use of the analysis methodology outlined in the Highway Capacity Manual for freeway mainline segments. The LOS was determined using density on the freeway segment, as defined by passenger vehicles per mile per lane. The level of service criteria are presented in Table 4.14-3.

iii. Roadways

Roadway level of service was determined by using peak hour two-way volumes derived from intersection turning movements. There are two peak hours: the AM and PM peak hour. AM peak hour refers to the morning hours with the highest average traffic volume, occurring between 7:00 a.m. and 9:00 a.m. The PM peak hour refers to the afternoon hours with the highest average traffic volume, occurring between 4:00 p.m. and 6:00 p.m. Levels of service for roadway links were estimated based on the 2009 Florida Department of Transportation (FDOT) methodology,[16] which applies the Highway Capacity Manual arterials analysis for planning applications. The level of service criteria are presented in Table 4.14-4.

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

[16] State of Florida Department of Transportation, 2009. *Quality/Level of Service Handbook.*

TABLE 4.14-4 **ROADWAY SEGMENT LEVEL OF SERVICE CRITERIA**

Generalized Peak Hour Two-Way Volumes in Urbanized Areas

Class I Number of Lanes	Median	LOS B	LOS C	LOS D	LOS E
2	Undivided	930	1,500	1,600	n/a
4	Divided	2,840	3,440	3,560	n/a
6	Divided	4,370	5,200	5,360	n/a
8	Divided	5,900	6,970	7,160	n/a
Class II Number of Lanes	**Median**	**LOS B**	**LOS C**	**LOS D**	**LOS E**
2	Undivided	n/a	1,020	1,480	1,570
4	Divided	n/a	2,420	3,220	3,400
6	Divided	n/a	3,790	4,880	5,150
8	Divided	n/a	5,150	6,530	6,880
Class III/IV Number of Lanes	**Median**	**LOS B**	**LOS C**	**LOS D**	**LOS E**
2	Undivided	n/a	500	1,150	1,440
4	Divided	n/a	1,220	2,730	3,100
6	Divided	n/a	1,910	4,240	4,680
8	Divided	n/a	2,620	5,770	6,280

Notes:
General characteristics of arterial classes:
Class I: Arterials in non-rural areas with speed limits of at least 45 mph and a signal density of less than 2 signals per mile, or arterials in rural developed areas.
Class II: Arterials with speed limits of 35 to 45 mph and a signal density from 2 to 4.5 signals per mile.
Class III: Arterials with speed limits of 30 to 40 mph and a signal density of at least 4.5 signals per mile.
Class IV: Arterials in downtowns of core cities in urbanized areas with populations at least 1,000,000.
n/a: LOS is not achievable for this roadway class.
Source: State of Florida Department of Transportation, 2009. *Quality/Level of Service Handbook*.

b. Existing Traffic Operations

i. Intersection Operations

Figure 4.14-1 graphically depicts 100 intersections selected for analysis, including existing and future intersections. The existing AM and PM peak hour level of service results for the 89 existing intersections located in the City of Vacaville, Solano County, and Fairfield that were analyzed for existing conditions are described in Table 4.14-5. The results are based on vehicular turning movement volumes collected primarily in 2009 and 2010. The remaining 11 intersections are identified as future intersections or were not analyzed.

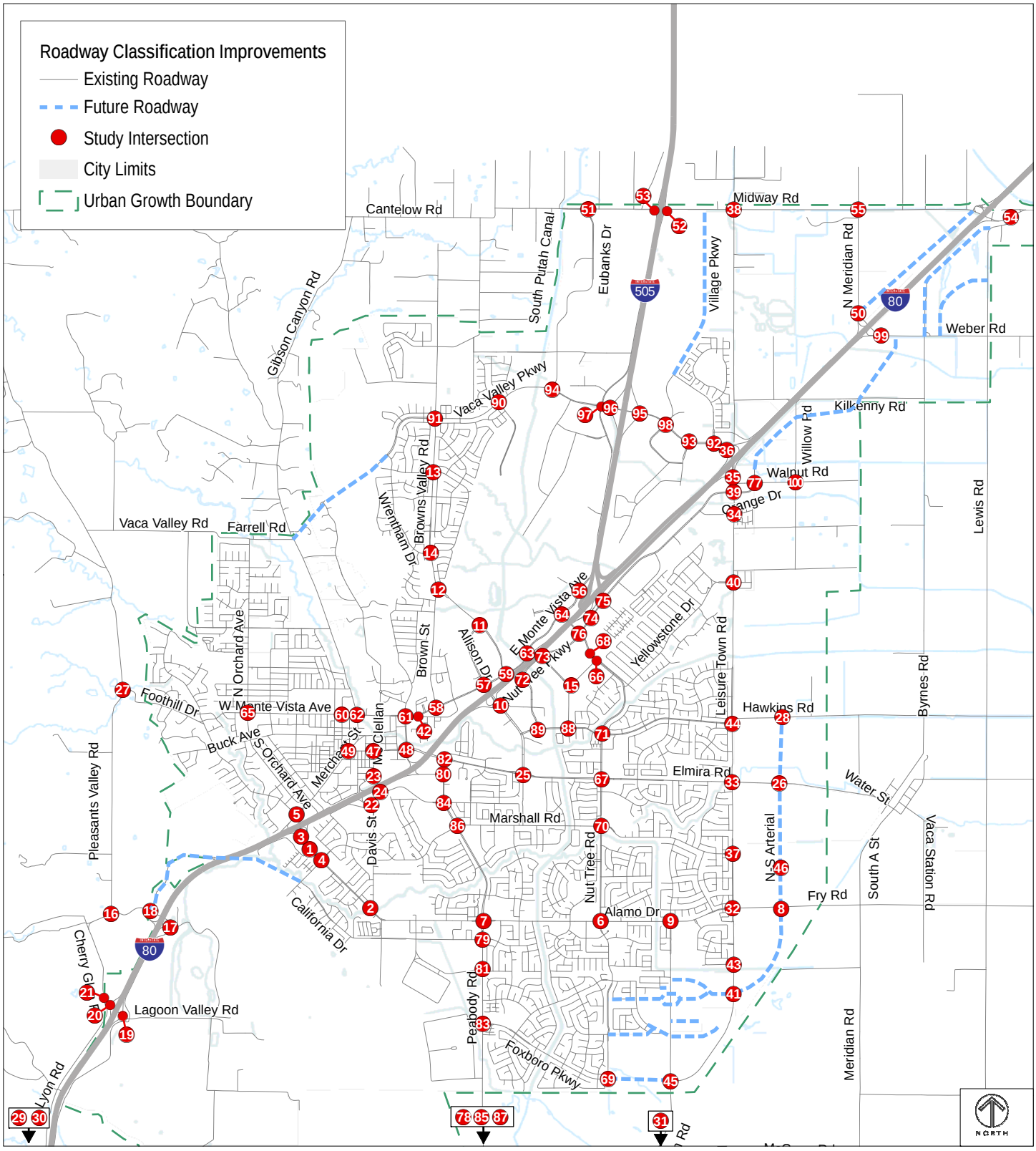
Of the 63 existing signalized intersections assessed for existing conditions, 57 currently operate at LOS mid-D (<45 sec. delay) or better for locations outside the Downtown Overlay District or at LOS D (<55 sec. delay) or better for locations within the District, meaning that they operate within threshold standards, while six intersections currently operate below standards during at least one peak hour. Three of the 26 unsignalized intersections currently operate below significance threshold standards.

The following six signalized intersections currently operate below significance threshold standards during at least one peak hour:

- Alamo Drive at Davis Street (#2) in the AM peak hour (LOS D – 52.4 sec.)
- Davis Street at Bella Vista Road (#22) in the PM peak hour (LOS D – 48.9 sec.)
- Mason Street at Depot Road (#48) in the PM peak hour (LOS E – 65.8 sec.)
- Nut Tree Road at Elmira Road (#67) in the PM peak hour (LOS E – 67.0 sec.)
- Orange Drive at Nut Tree Road (#76) in the PM peak hour (LOS D – 49.7 sec.)
- Peabody Road at Elmira Road (#82) in the PM peak hour (LOS E – 55.6 sec.)

The following three unsignalized intersections located outside the Downtown Overlay District currently operate at LOS E or F overall and/or on the worst approach during at least one peak hour:

- Leisure Town Road at Ulatis Drive (#44) (LOS E in the AM peak hour (49.0 sec.) and LOS F in the PM peak hour (145.2 sec.) on the worst approach)
- Nut Tree Road at Burton Street (#66) in the PM peak hour (LOS F overall (64.1 sec.) and on the worst approach (357.8 sec.))
- Interstate 505 Southbound Ramps at Vaca Valley Road (#96) in both peak hours (LOS F on the worst approach (AM = 66.4 sec.; PM = 60.4 sec.))



Source: Kittelson & Associates, Inc.

FIGURE 4.14-1

STUDY INTERSECTIONS AND 2035 ROADWAY IMPROVEMENTS

TABLE 4.14-5 INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
1	Alamo Dr at Butcher Rd	Signalized	AM	C	22.2
			PM	C	24.3
2	Alamo Dr at Davis St	Signalized	AM	**D**	**52.4**
			PM	B	13.1
3	Alamo Dr at I-80 EB Ramp	Signalized	AM	A	6.7
			PM	A	2
4	Alamo Dr at Marshall Rd	Signalized	AM	C	32.7
			PM	C	32.4
5	Alamo Dr at Merchant St	Signalized	AM	D	36.4
			PM	C	29.8
6	Alamo Dr at Nut Tree Rd	Signalized	AM	D	42.4
			PM	D	41.7
7	Alamo Dr at Peabody Rd	Signalized	AM	C	32.2
			PM	D	38.8
8	Alamo Dr at S Street	One/Two-Way Stop	AM	Future Intersection	
			PM		
9	Alamo Dr at Vanden Rd	Signalized	AM	B	18.2
			PM	D	36.2
10	Allison Dr at Nut Tree Pkwy	Signalized	AM	B	18.7
			PM	D	38.3
11	Browns Valley Rd at Allison Dr	Signalized	AM	B	16.5
			PM	B	18.5
12	Browns Valley Rd at Brown St	Signalized	AM	B	19.4
			PM	B	14.2
13	Browns Valley Rd at Shannon Dr/Glen Eagle Wy	One/Two-Way Stop	AM	A(C)	4.5 (16.9)
			PM	A(D)	4.1 (31)
14	Browns Valley Rd at Wrentham Dr	Signalized	AM	C	32.5
			PM	C	26.3
15	Burton Dr at Helen Power Dr[d]	One/Two-Way Stop	AM	A(A)	8.7 (9.9)
			PM	B(C)	12.4 (16.2)

TABLE 4.14-5 **INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS**

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
16	Cherry Glen Rd at Pleasants Valley Rd	One/Two-Way Stop	AM	A(A)	8.1 (9.4)
			PM	A(A)	6.4 (9.8)
17	Cherry Glen Rd at I-80 EB Ramp	One/Two-Way Stop	AM	A(A)	3.4 (9.1)
			PM	A(A)	6.5 (9.6)
18	Cherry Glen Rd at I-80 WB Ramp	One/Two-Way Stop	AM	A(A)	6.3 (9.8)
			PM	A(A)	6.2 (10)
19	Lagoon Valley Rd at I-80 EB Ramp	One/Two-Way Stop	AM	A(B)	7.2 (10.9)
			PM	A(B)	8.7 (11.6)
20	Lagoon Valley Rd at I-80 WB Ramp	One/Two-Way Stop	AM	A(A)	1.8 (9.5)
			PM	A(A)	2 (9.5)
21	Cherry Glen Rd at Lyon Rd	One/Two-Way Stop	AM	A(B)	4.2 (10.1)
			PM	A(A)	5 (9.8)
22	Davis St at Bella Vista Rd	Signalized	AM	D	36.2
			PM	**D**	**48.9**
23	Davis St at Hickory Ln	Signalized	AM	C	30.6
			PM	C	28.7
24	Davis St at Hume Wy	Signalized	AM	B	17.6
			PM	D	36.9
25	Elmira Rd at Allison Dr	Signalized	AM	C	21.9
			PM	C	24.4
26	Elmira Rd at S Street	Signalized	AM	Future Intersection	
			PM		
27	Foothill Dr at Pleasant Valley Dr	One/Two-Way Stop	AM	A(B)	4.6 (10.5)
			PM	A(B)	3.4 (11.4)
28	Hawkins Rd at S Street	One/Two-Way Stop	AM	Future Intersection	
			PM		
29	I-80 EB at North Texas St^	Signalized	AM	A	8.1
			PM	B	18.2
30	I-80 WB at North Texas St^	Signalized	AM	C	21.6
			PM	C	25.4

TABLE 4.14-5 INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
31	Jepson Pkwy at New Cannon Rd	Signalized	AM	Future Intersection	
			PM		
32	Leisure Town Rd at Alamo Dr	Signalized	AM	C	34.7
			PM	C	29.7
33	Leisure Town Rd at Elmira Rd	Signalized	AM	B	12.1
			PM	B	11.9
34	Leisure Town Rd at Gilley Wy	One/Two-Way Stop	AM	A(B)	1 (11.8)
			PM	A(D)	2.6 (25.8)
35	Leisure Town Rd at I-80 EB Ramps	Signalized	AM	C	21.5
			PM	B	14.3
36	Leisure Town Rd at I-80 WB Ramps	Signalized	AM	A	4.4
			PM	A	5.9
37	Leisure Town Rd at Marshall Rd	One/Two-Way Stop	AM	A(D)	3.8 (27.5)
			PM	A(D)	2.1 (26.6)
38	Leisure Town Rd at Midway Rd	All-Way Stop	AM	A	7.8
			PM	A	8.1
39	Leisure Town Rd at Orange Dr	Signalized	AM	B	16.8
			PM	B	17.7
40	Leisure Town Rd at Sequoia Dr	Signalized	AM	A	8.4
			PM	B	13.3
41	Leisure Town Rd at Southtown Collector	Signalized	AM	Future Intersection	
			PM		
42	Monte Vista Av at Scoggins Ct	Signalized	AM	B	12.7
			PM	B	13.2
43	Leisure Town Rd at North-South Arterial (S)	One/Two-Way Stop	AM	Future Intersection	
			PM		
44	Leisure Town Rd at Ulatis Dr	One/Two-Way Stop	AM	A(**E**)	6.9 (**49.0**)
			PM	C(**F**)	16.4 (**145.2**)
45	Leisure Town Rd at Vanden Rd/Foxboro Pkwy	Signalized	AM	C	25.7
			PM	A	7.5

TABLE 4.14-5 **INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS**

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
46	Marshall Rd at S Street	One/Two-Way Stop	AM	Future Intersection	
			PM		
47	Mason St at Davis Dr*	Signalized	AM	C	22.4
			PM	C	25.9
48	Mason St at Depot St*	Signalized	AM	D	37.4
			PM	**E**	**65.8**
49	Mason St at Merchant St*	Signalized	AM	B	12.9
			PM	B	13.3
50	Meridian Rd at I-80 WB	One/Two-Way Stop	AM	A(A)	3.7 (9)
			PM	A(A)	2 (9)
51	Midway Rd at Eubanks Dr	One/Two-Way Stop	AM	A(B)	1.7 (10.5)
			PM	A(B)	1.8 (10.3)
52	Midway Rd at I-505 NB Ramps	One/Two-Way Stop	AM	A(B)	4.6 (11)
			PM	A(B)	7.6 (14.4)
53	Midway Rd at I-505 SB Ramps	One/Two-Way Stop	AM	A(B)	1.9 (11.4)
			PM	A(B)	1.7 (12.7)
54	Midway Rd at Lewis Rd	One/Two-Way Stop	AM	A(B)	1.3 (11.9)
			PM	A(B)	3.9 (14.2)
55	Midway Rd at Meridian Rd	One/Two-Way Stop	AM	A(A)	8.1 (8.4)
			PM	A(A)	8.3 (8.6)
56	Monte Vista Av at Airport Rd	All-Way Stop	AM	A	8.4
			PM	A	9.9
57	Monte Vista Av at Allison Dr	Signalized	AM	B	17.4
			PM	D	37.2
58	Monte Vista Av at Brown St	Signalized	AM	B	14.5
			PM	B	15.7
59	Monte Vista Av at Browns Valley Pkwy	Signalized	AM	B	13.6
			PM	B	13.7
60	Monte Vista Av at Cernon St*	Signalized	AM	C	28.2
			PM	C	28.1

TABLE 4.14-5 **INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS**

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
61	Monte Vista Av at Depot St*	Signalized	AM	C	32.1
			PM	D	41.6
62	Monte Vista Av at Dobbins St*	Signalized	AM	D	49.9
			PM	D	43.1
63	Monte Vista Av at I-80/Best Buy	Signalized	AM	A	7.7
			PM	B	15
64	Monte Vista Av at Nut Tree Rd	Signalized	AM	C	26.3
			PM	C	31.4
65	Monte Vista Av at Orchard Av	Signalized	AM	C	28.3
			PM	C	25.3
66	Nut Tree Rd at Burton Dr	One/Two-Way Stop	AM	A(B)	2 (12.4)
			PM	**F(F)**	**64.1 (357.8)**
67	Nut Tree Rd at Elmira Rd	Signalized	AM	D	38.3
			PM	**E**	**67.0**
68	Nut Tree Rd at Factory Stores	Signalized	AM	B	16.0
			PM	C	22.3
69	Nut Tree Rd at Foxboro Pkwy	All-Way Stop	AM	Analyzed for future condition only (Only north and west legs exist)	
			PM		
70	Nut Tree Rd at Marshall Rd	Signalized	AM	D	44.4
			PM	C	32.1
71	Nut Tree Rd at Ulatis Dr	Signalized	AM	C	26.7
			PM	C	33.9
72	Nut Tree Pkwy at Harbison Dr	Signalized	AM	C	33.9
			PM	C	25.7
73	Nut Tree Pkwy at Helen Power Dr	Signalized	AM	B	11.1
			PM	B	13.0
74	Orange Dr at I-80 EB	Signalized	AM	C	25.6
			PM	D	36.0
75	Orange Dr at Lawrence Dr	Signalized	AM	A	9.7
			PM	B	11.7

TABLE 4.14-5 INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
76	Orange Dr at Nut Tree Rd	Signalized	AM	B	18.6
			PM	**D**	**49.7**
77	Orange Dr at Walnut Rd	One/Two-Way Stop	AM	Analyzed for future condition only	
			PM		
78	Peabody Rd at Air Base Pkwy^	Signalized	AM	B	13.1
			PM	C	21.5
79	Peabody Rd at California Dr	Signalized	AM	B	17.2
			PM	C	20.5
80	Peabody Rd at Cliffside Dr	Signalized	AM	C	27.0
			PM	D	44.1
81	Peabody Rd at California State Prison	Signalized	AM	B	12.4
			PM	B	13.0
82	Peabody at Elmira Rd	Signalized	AM	D	35.6
			PM	**E**	**55.6**
83	Peabody Rd at Foxboro Pkwy	Signalized	AM	B	14.0
			PM	C	20.9
84	Peabody Rd at Hume Wy	Signalized	AM	C	29.7
			PM	D	43.4
85	Peabody Rd at Jepson Pkwy^	Signalized	AM	B	19.9
			PM	C	20.8
86	Peabody Rd at Marshall Rd	Signalized	AM	D	38.9
			PM	D	36.3
87	Peabody Rd at New Cannon Rd	Signalized	AM	Future Intersection	
			PM		
88	Ulatis Dr at Burton Dr	Signalized	AM	B	15.7
			PM	C	20.8
89	Ulatis Dr at Harbison Dr	Signalized	AM	C	25.0
			PM	C	30.5
90	Vaca Valley Pkwy at Allison Pkwy	One/Two-Way Stop	AM	A(B)	4.9 (13.7)
			PM	A(C)	4.9 (20.2)

TABLE 4.14-5 INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

	Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]
91	Vaca Valley Pkwy at Browns Valley Rd[d]	All-Way Stop	AM	A	8.4
			PM	A	9.2
92	Vaca Valley Pkwy at Crescent Dr	Signalized	AM	C	24.2
			PM	C	29.6
93	Vaca Valley Pkwy at E Akerly Dr	Signalized	AM	C	34.7
			PM	B	13.9
94	Vaca Valley Pkwy at Eubanks Ct[d]	All-Way Stop	AM	B	12.9
			PM	C	19.3
95	Vaca Valley Pkwy at I-505 NB Ramps	Signalized	AM	B	10.4
			PM	A	7.7
96	Vaca Valley Pkwy at I-505 SB Ramps	One/Two-Way Stop	AM	A(**F**)	6.4 (**66.4**)
			PM	A(**F**)	3.0 (**60.4**)
97	Vaca Valley Pkwy at Monte Vista Av	Signalized	AM	B	17.3
			PM	C	25.7
98	Vaca Valley Pkwy at New Horizons Wy	Signalized	AM	B	11.4
			PM	B	18.7
99	Weber Rd at I-80 EB Ramps	One/Two-Way Stop	AM	A(A)	3.3 (9.6)
			PM	A(B)	3.8 (10.1)
100	Willow Rd at Walnut Rd	One/Two-Way Stop	AM	Analyzed for future condition only	
			PM		

^ denotes intersections located in Fairfield
* denotes intersections located within the Downtown Overlay District
[a] LOS = level of service
[b] Average Delay = average vehicle delay in seconds
[c] For unsignalized intersections, LOS/delay are shown for both overall intersection and worst approach e.g. A (B) 2.4 (14.3).
[d] Due to Synchro software limitation, the analysis only assumed two approach lanes even where there are three lanes on each approach at Intersections #15, 91, and 94. Therefore, the analysis is more conservative and the actual operation might be better than results shown.
Source: Kittelson & Associates, 2012.

Of the 89 intersections analyzed for existing conditions, 90 percent (80 intersections) operate within significance threshold standards. The remaining nine intersections operate below significance thresholds as follows: three operate at higher than LOS mid-D, four operate at LOS E, and two operate at LOS F. When different LOS results are reported for the two peak hours, the worst LOS is used.

ii. Freeway Mainline Segment Operations

The results for selected freeway mainline segments are presented in Table 4.14-6. The study mainline segments operate at LOS D or better during both AM and PM peak hours.

iii. Roadway Segment Operations

The existing operations of four segments on the Congestion Management Program network are presented in Table 4.14-7**.** All study segments operate at LOS C or better.

3. Public Transportation Services

Public transportation service in Vacaville includes local and regional bus service, rail service, and taxi operations.

a. Bus Service

Bus service in Vacaville is provided by Vacaville City Coach, Fairfield and Suisun Transit, and Yolobus. Vacaville City Coach offers local service to and from the Vacaville Transportation Center located on Allison Drive at Travis Way. The Transportation Center also serves as a transfer point for intercity routes operated by Fairfield and Suisun Transit. The Vacaville Regional Transportation Center, located at the corner of Davis Street and Hickory Lane, is another key intercity transit hub, with two nearby park-and-ride lots along Davis Street on either side of Interstate 80.

i. Vacaville City Coach

The City of Vacaville operates Vacaville City Coach, which offers fixed-route and special bus services throughout the city. The six fixed-routes, as described below,[17] operate from Monday through Saturday. There is no service on Sunday. All routes run on a frequency of 30 minutes. Bus routes are assigned numerical route numbers for identification. Routes 3 and 7 are not currently used by the City's transit system. Routes that become discontinued are dropped from the numerical list of routes as is currently the case with numbers 3 and 7. A future route may be assigned one of these available route numbers.

[17] City Coach website, http://www.citycoach.com, accessed June 29, 2012.

TABLE 4.14-6 FREEWAY MAINLINE SEGMENT LEVEL OF SERVICE – EXISTING CONDITIONS

		AM Peak Hour		PM Peak Hour	
Location	**No. of Lanes**	**Density[a]**	**LOS[b]**	**Density[a]**	**LOS[b]**
Interstate 80 West of Lagoon Valley Road					
Eastbound	4	17.1	B	31.5	D
Westbound	4	23.9	C	25.4	C
Interstate 80 East of Leisure Town Road					
Eastbound	3	12.5	B	24.8	C
Westbound	3	21.2	C	20.8	C
Interstate 505 North of Interstate 80					
Northbound	2	11.2	B	14.9	B
Southbound	2	11.7	B	9.1	A

[a] Density = passenger cars per mile per lane.
[b] LOS = Level of service.
Source: Kittelson & Associates, 2012.

TABLE 4.14-7 ROADWAY SEGMENT LEVEL OF SERVICE – EXISTING CONDITIONS – PM PEAK HOUR

Street	From	To	Arterial Class[b]	No. of Lanes	LOS	Volume[a]
Vaca Valley Parkway	I-505	I-80	II	4	C	1,122
Elmira Rd	Leisure Town Rd	A Street	I	2	B	165
Peabody Rd	Alamo Dr	City Limits	II	4	C	2,223
Vanden Rd	Leisure Town Rd	Peabody Rd	I	2	C	1,259

Note: LOS = Level of service.
[a] Volumes are derived from intersection turning movement counts at the following locations: Vaca Valley Parkway east of Akerly Drive, Elmira Road east of Leisure Town Road, Peabody Road south of California Drive, Vanden Road south of Leisure Town Road.
[b] Please refer to Table 4.14-4 for arterial class definitions.
Source: Kittelson & Associates, 2012.

- Route 1 operates between the Transportation Center and Green Tree Golf Course with destinations including Wal-Mart, Ulatis Cultural Center, Factory Stores, Leisure Town, Department of Motor Vehicle and Sam's Club. It runs between 6:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:30 p.m. on Saturday.
- Route 2 is a loop service with destinations including Alamo Plaza, Food Fair, Transit Plaza, Millennium Sports Club, Nugget Market, Ulatis Cultural Center and Vacaville Museum. It runs between 6:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:30 p.m. on Saturday.
- Route 4 is loop service with destinations including the Transportation Center, Wal-Mart, Factory Stores, Leisure Town Road, Solano College, Genentech, Kaiser Permanente, and Sam's Club. It runs between 6:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:30 p.m. on Saturday.
- Route 5 provides service between the Transportation Center and the Transit Plaza with destinations including the Ulatis Cultural Center, Vaca Valley Hospital, Downtown, Vaca Pena Middle School, and Three Oaks Community Center. It runs between 6:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:30 pm on Saturday.
- Route 6 runs between the Transportation Center and the Transit Plaza with destinations including Vacaville Commons, Factory Stores, Nut Tree Village, Downtown, Sutter Medical Center and Brenden Theaters. It runs between 6:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. and 5:30 p.m. on Saturday.
- Route 8 operates between the Transportation Center and the Transit Plaza with destinations including Will C. Wood High School, Brenden Theaters, Downtown, Vacaville High School, Jepson Middle School, and Food Fair. Its operating hours are between 6:00 a.m. and 5:30 p.m. on weekdays and 8:00 a.m. and 5:30 p.m. on Saturday.

City Coach Special Services is provided to eligible residents as an ADA Paratransit service within Vacaville. Trips beyond the city limits of Vacaville may be specially arranged with City Coach.

Local transit routes and service currently achieve a farebox recovery rate of 20 percent. Farebox recovery ratio is the relationship between passenger fares collected and total expenses to operate the particular transportation mode (bus, rail, etc.). To continue to receive State transit funding, a 20 percent farebox recovery is mandated. Anticipated ridership data derived from various sources such as public transit interest surveys and Short Range Transit Plan documents must demonstrate an adequate level of ridership to meet the farebox recovery mandate.

The current City of Vacaville Short Range Transit Plan (2008-2012) includes performance measures under each of the following goal topics: service, ridership, customer focus, cost effectiveness, and land use. For example, under the service goal, the Short Range Transit Plan estab-

lishes a measure to provide equal coverage throughout the Local Tax Base Area. In addition, a land use performance measure establishes the need to practice involvement in the planning and approval process by specifying service levels, identifying capital improvements to include in new developments, and working with retailers and the business community to increase accessibility to the public transit service network.

ii. Fairfield and Suisun Transit

Fairfield and Suisun Transit (FAST) is operated by MV Transportation, a private company. It offers three intercity routes through Vacaville, primarily to serve weekday commuters:

- Route 20 operates hourly service between Fairfield and Vacaville between 6:30 a.m. and 7:30 p.m. on weekdays and 9:30 a.m. and 5:30 p.m. on Saturday.
- Route 30 runs between Fairfield and Sacramento via Vacaville during the morning and afternoon peak commute periods on weekdays and between Fairfield and Davis on Saturday.
- Route 40 runs between Vacaville and the Walnut Creek BART station during the morning and afternoon peak commute periods on weekdays only.

iii. Yolobus

Yolobus, administered by the Yolo County Transportation District, offers one fixed bus route between Vacaville and Davis via Interstate 505 and Winters. Route 220 provides three daily trips in each direction from Monday to Saturday.

b. Rail Service

The Capitol Corridor Rail Service, administered by the Capitol Corridor Joint Power Authority and operated by Amtrak on Union Pacific Railroad tracks, provides regional rail service to and from the Suisun/Fairfield Station, which is located about 11 miles from Vacaville. It operates 16 roundtrips on weekdays and eleven roundtrips on weekends between Sacramento and Oakland, with some trains continuing southwest to San Jose and northeast to Auburn.

A new commuter rail station is planned to be constructed at the southeast corner of Peabody Road and Vanden Road in northeast Fairfield along Amtrak's Capitol Corridor. The Vacaville/Fairfield Multi-Modal Rail Station would further enhance regional transit connections.

c. Taxi Service

Vacaville is served by a number of privately operated taxi companies, including Yellow Cab of Vacaville, Veteran's Cab, and Vacaville Checker Cab.

In addition, the City of Vacaville administers the Half Fare Discount Taxi Script Program, which provides qualified individuals with opportunity to use the services of Vacaville's local taxi cab companies at half the regular fare. This service is provided to elderly and handicapped residents of Vacaville and the unincorporated area adjacent to Vacaville's city limits.

4. Goods Movement

This section describes the movement of goods in Vacaville.

a. Truck Routes

The City of Vacaville has established an extensive truck route network on which vehicles exceeding a gross vehicle weight rating of 5 tons ("trucks") must travel unless they are destined for or originate from points within the city. The shortest and most direct routes must be used to and from the truck routes and/or between locations within the city. The City has also established an extra legal permit process, patterned after a State process, for trucks with loads exceeding legal limits. Applications must specify truck dimensions and weights. Appropriate truck routes are conditioned and approved based on evaluating established City truck routes.

The designated truck routes are listed below:

- Akerly Drive from Leisure Town Road to Vaca Valley Parkway
- Alamo Drive from West Monte Vista Avenue to Merchant Street
- Bella Vista Road from Davis Street to Interstate 80
- Cotting Lane from Crocker Drive to westerly city limits
- Crocker Drive from Aldridge Road to northerly city limits
- Davis Street from Bella Vista Road to Mason Street
- Gilley Way from Leisure Town Road to Orange Drive
- Hickory Lane from Interstate 80 to Davis Street
- Hume Way from Davis Street to easterly city limits
- Mason Street from Merchant Street to McClellan Street
- McClellan Street from Interstate 80 to East Monte Vista Avenue
- Merchant Street from Interstate 80 to Mason Street
- Midway Road from westerly city limits to easterly city limits
- West Monte Vista Avenue from Alamo Drive to Orchard Avenue
- Nut Tree Road from East Monte Vista to Elmira Road

Solano County limits the use of the County portion of Midway Road due to concerns about the number of trucks traveling between I-80 and I-505.

Trucks and vehicles with loads extending 3 feet in the front and 10 feet in the rear are also prohibited from traveling within the Central Business District (CBD) between noon and 6:00 p.m., except for loading and unloading purposes. The CBD is defined by Cernon Street to the west, Monte Vista Avenue to the north, McClellan Street to the east, and Mason Street to the south.

b. Freight Rail

Currently, no freight rail operates through the city. However, the Union Pacific Railroad operates the Martinez subdivision tracks to the southeast of the city, providing east-west connections from Oakland to Sacramento.

5. Aviation System

The Nut Tree Airport offers air services for business and recreational travel in the Vacaville area. Travis Air Force Base in Fairfield is the home of the world's largest military cargo airlift. The Solano County Airport Land Use Commission (ALUC) has adopted plans for airport land use compatibility that would facilitate orderly development and avoid land use conflicts in the airport environs.

6. Bicycle Facilities

The California Manual on Uniform Traffic Control Devices for Streets and Highways and the Highway Design Manual classifies bikeways into three categories. The State's class definitions are as follows:

- **Class I Bikeway (Bike Path).** A Class I Bikeway provides a completely separate right-of-way designated for the exclusive use of bicyclists and pedestrians, with crossflows by motorists minimized. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers), as well as other authorized motorized and non-motorized users.
- **Class II Bikeway (Bike Lane).** A Class II Bikeway provides a restricted right of way for the exclusive or semi-exclusive use of bicycles. Through travel by motor vehicles or pedestrians is prohibited, but vehicle parking and crossflows by pedestrians and motorists is permitted.
- **Class III Bikeway (Bike Route).** A Class III Bikeway is an on-street bike route, labeled with signs or permanent markings, designated for shared use by bicyclists with motorists.

Given the topography of Vacaville, bicycling is a viable alternative to vehicle use for both recreational and non-recreational trips. A number of bicycle facilities are provided in the city. The City currently classifies bikeways into three categories:

- **Bike paths** that meet the State requirements for Class I shared-use paths. These paths are dedicated off-street public paths designed and constructed that serve both bike and pedestrian traffic. Some examples of bike paths in Vacaville are Nut Tree Road between Somerville Drive and Opal Way, Alamo Creek Bikeway along Alamo Creek between Marshall Road and Leisure Town Road, and Vaca Valley Road between Browns Valley Road and Allison Parkway and between Interstate 505 and just east of East Akerly Drive.

- **Bike lanes** that meet the State requirements for striped on-street Class II bike lanes. These lanes are marked exclusively for bike travel on roadways. Examples of bike lanes in the city include Nut Tree Road between its northern terminus and Marshall Road, Ulatis Drive between Allison Drive and Leisure Town Road, and Allison Drive between Ulatis Creek and Elmira Road and between Monte Vista Avenue and Nut Tree Parkway.

- **Bike routes** that meet the State's requirements for Class III on-street bike routes. These routes must be signed or marked and bicycle riders must share the roadway with vehicles. Many of the Class III bike routes shown on the existing Bike Path Map are actually substandard Class II bike lanes that are either signed or striped, but do not meet all Class II striping and signing requirements, or where a Class II bike lane only exists on one side of the street. The City is currently working on upgrading Class III signs and marking to add more routes to the system. Examples of bike routes in Vacaville include Leisure Town Road between Alamo Drive and Purple Martin Drive and between Interstate 80 and Orange Drive, Alamo Drive near its intersection with La Cruz Lane and between Alamo Lane and Southside Bikeway, and New Horizon Way between Vaca Valley Parkway and Grassland Drive.

In addition, the City has assigned secondary uses to existing well sites and other small parcels that are 1 acre and smaller in size. These sites are developed for passive recreation, known as bike rests. The bike rests are located along bicycle routes. Vacaville currently has one bike rest located at Nut Tree Road, south of Marshall Road.

7. Pedestrian Facilities

Vacaville has a well-established pedestrian network. Sidewalks with raised curb and gutter are typically provided along arterials and collectors, as well as in newer residential developments. In some older residential neighborhoods west of the Downtown, sidewalks are intermittently interrupted by landscaping and other obstructions and roll curbs are generally provided. The City requires a minimum sidewalk width of 4.5 feet to 9.5 feet depending on the land use type. Narrower walks are allowed for residential areas as compared to commercial districts. Nonetheless, a 4-foot minimum of clear, uninterrupted area is required on all sidewalks. The minimum width for an ADA-compliant sidewalk is 3 feet

(clear width). In addition, passing spaces for wheelchairs must be provided at a minimum of 200 feet intervals for any sidewalk less than 5 feet wide.

Most major intersections in the city have marked crosswalks and countdown pedestrian crossing signals that can be activated by pedestrians. Pedestrian curb ramps are located at most intersections. The provision of high-contrast, truncated domes is more sporadic. Such detectable warnings, which comply with ADA requirements, are notably deficient in the Downtown, where there is high pedestrian traffic.

C. Standards of Significance

The proposed General Plan and ECAS would have a significant impact with regard to traffic and transportation if they would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. The project impact is considered significant if project-generated traffic would:

  For intersections in Vacaville:

  - Cause a signalized or all-way stop controlled intersection outside of the Downtown Urban High Density Residential Overlay District[18] to operate below LOS mid-D (average delay of 45 seconds or more for signalized, and 30 seconds or more for all-way stop).
  - Cause the worst approach at a one- or two-way stop controlled intersection outside of the Downtown Urban High Density Residential Overlay District to operate below LOS mid-E on the worst approach (average delay 42 seconds or more), or conflict with City policy to design intersections to provide for LOS D on the worst approach in the horizon year development forecast.
  - Cause a signalized intersection or an all-way stop controlled intersection in the Downtown Urban High Density Residential Overlay District to operate below LOS D (an average delay of 55 seconds or more for signalized and 35 seconds or more for all-way stop).

[18] The Downtown Urban High Density Residential Overlay District is roughly defined by West Street to the west, E. Monte Vista Avenue/E. Deodara Street to the north, Depot Street to the east, and Mason Street/Stevenson Street to the south.

[19] Institute of Transportation Engineers, 2008. *Trip Generation,* 8th Edition.

- Cause a one- or two-way stop controlled intersection in the Downtown Urban High Density Residential Overlay District to operate below LOS mid-E (an average delay of 42 seconds or more), or the worst approach to the intersection to operate below LOS E (an average delay of 50 seconds or more).

For intersections in Fairfield:

- Cause an arterial intersection to degrade to below LOS D.
- Cause a collector intersection to degrade to below LOS C.
- Cause a local intersection to degrade to below LOS B.

For intersections and Congestion Management roadway segments in Solano County:

- Cause an intersection to degrade to below LOS C except where the existing level of service is below LOS C; at which point the project should not decrease the existing level of service.
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways. According to Section III, CMP System Performance Element, of the Solano County Congestion Management Program, the project impact is considered significant if the project-generated traffic would:
  - Cause Interstate 80 between Post Mile 23.03 and 24.08 (segment between Pena Adobe Road and Alamo Drive) to degrade below LOS E.
  - Cause Interstate 80 between Post Mile 28.359 and 32.691 (segment between interstate 505 interchange and Leisure Town Road) to degrade below LOS F.
  - Cause the following roadway segments to degrade below LOS E:
    - Vaca Valley Road between Interstate 505 and Interstate 80.
    - Elmira Road between Leisure Town Road and A Street in the town of Elmira.
    - Peabody Road between California Drive and Fairfield City Limits.
  - Cause the Vanden Road segment between Leisure Town Road and Peabody Road to degrade below LOS D.

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

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

♦ Result in inadequate emergency access.

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- The project would have a significant impact if it would conflict with the accessibility and geographic coverage goals of the Vacaville City Coach by not providing equal service throughout the Local Tax Base Area.

D. Analysis Approach

To support the anticipated growth projected in the General Plan, the General Plan includes recommendations for an expanded roadway network, especially in the potential growth areas in the northeastern and eastern portions of the city. However, the growth allowed under the General Plan is expected to occur gradually over many years. This transportation analysis evaluates development and roadways that are expected to develop by 2035. The traffic forecasts include developments that have been approved or are reasonably projected to be built by 2035, as well as roadway improvements that have been identified in the current transportation portion of the Development Impact Fee Program.

The vehicle traffic forecasts are based on vehicle trip generation characteristics calibrated to existing observed conditions. The forecasts do not take credit for measures identified in the ECAS that would potentially reduce vehicular traffic and result in better traffic operations. Therefore, the traffic analysis in the Section E, Impact Discussion, is considered to be conservative. With the ECAS measures in place, the freeway, intersections and roadway operations could be better than the results presented.

Potential significant transportation impacts of the project are identified based on established standards shown in Section C, Standards of Significance. Besides analysis results of the proposed 2035 General Plan, the operations of the study locations under Existing Conditions and adopted 1990 General Plan scenarios are also presented in Section E, Impact Discussion. As described in Chapter 3, Project Description, impacts are determined by comparing the proposed General Plan and ECAS to existing conditions, rather than to the existing General Plan. The inclusion of operations under the 1990 General Plan scenario is for informational purposes, to provide a comparison of the future transportation system in 2035 under the proposed General Plan to existing conditions, and provides a comparison to a future transportation system in 2035 if the 1990 General Plan remained in effect.

1. Modeling Assumptions

The project traffic was estimated through a process that involved vehicle trip generation, trip distribution, and assignment of the trips to the roadway network using the Vacaville Citywide Traffic Model for the various study scenarios.

a. Scenarios Modeled

The Citywide traffic model was used to develop traffic volumes for the following future year scenarios:

- Cumulative – Year 2035 Horizon of 1990 General Plan - Assumed development reasonably anticipated to occur by year 2035 based on the 1990 General Plan.
- Cumulative – Year 2035 Horizon of Proposed General Plan - With development reasonably anticipated to occur by year 2035 based on the proposed General Plan.

The projected traffic growth at each individual location was derived from the differences between the model forecasts for the base year and future year scenarios. The growth increments were then applied to the actual vehicular turning movement volumes collected (as discussed in Section B.2.b, Existing Traffic Operations) to arrive at the projected traffic volumes for each future year scenario.

b. Future Roadway Network

The new roadways assumed to be in place by 2035, and therefore included in these traffic forecasts, are shown on Figure 4.14-1. In addition, the following roadway improvements are assumed in the Traffic Model for 2035 conditions because they are expected to be complete by 2035:

Improvements identified in Development Impact Fee Program

- Vaca Valley Parkway Extension from Gibson Canyon Road to Wrentham Drive
- Vaca Valley Road/Interstate 505 Interchange and Overcrossing Widening
- California Drive Extension and Interstate 80 Overcrossing Construction
- Jepson Parkway, which would improve Leisure Town Road to a four-lane divided arterial between Orange Drive and the south city limits (in combination with conditions of approval for projects fronting Leisure Town Road, and regional funding as part of the STA Jepson Parkway project)
- Foxboro Parkway Extension between Nut Tree Road and Jepson Parkway

Improvements that would be constructed as Development Conditions of Approval

- Realignment of the Leisure Town Road/Ulatis Drive and Leisure Town Road/Hawkins Road intersections
- Widening of Fry Road to a four-lane arterial east of Leisure Town Road
- Widening of Elmira Road to a four-lane arterial east of Leisure Town Road
- Widening of Peabody Road to a four-lane arterial between the Vacaville City Limits and Markley Lane
- North-South Arterial Street (east of Leisure Town Road - southern portion) between Hawkins Road and Leisure Town Road
- Adding a southbound left-turn lane and corresponding receiving lane on the east leg at the intersection of Vaca Valley Road and Monte Vista Avenue

2. Trip Generation

The number of projected trips in Vacaville under each of the study scenarios was determined from the Citywide Model by applying trip rates for housing units and non-residential acres. The model trip rates are primarily derived from those published in *Trip Generation*[19] by the Institute of Transportation Engineers. Table 4.14-8 summarizes the projected daily trips generated by the housing units and non-residential uses relative to the Existing Conditions for both the adopted 1990 General Plan and the proposed General Plan.

The trips generated for the 2035 horizon year with the proposed General Plan would be within 1 percent of the 2035 trips generated with the 1990 General Plan. This is because the total 2035 housing and employment growth forecast in the city would be similar under either General Plan scenario, although the specific locations of various land uses would differ between the two scenarios. See Figure 3-6 for the approximate locations of projected development for the horizon year of the proposed General Plan. The Land Use Alternatives Evaluation Report, prepared as part of the General Plan Update, compares land use quantities and trip generation for full potential buildout of all land in the city planning area under various General Plan scenarios. As discussed in Chapter 3, Project Description, it is extremely unlikely that full buildout would occur within the horizon of the General Plan, and therefore the 2035 planning horizon is used for this analysis.

Table 4.14-9 summarizes the number of the daily vehicle miles of traveled (VMT) for trips that take place within Vacaville, trips that begin in Vacaville and travel beyond the city boundaries (Internal-External), and trips to Vacaville from outside the city boundaries (External-Internal).

[19] Institute of Transportation Engineers, 2008. *Trip Generation,* 8th Edition.

TABLE 4.14-8 TRIP GENERATION

Scenario	Vehicle Trips			Increase Relative to Existing Conditions			Percent Increase		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Existing (2008 conditions)	31,899	40,658	394,684	—	—	—	—	—	—
1990 General Plan (2035 horizon year)	46,671	61,537	587,711	14,772	20,879	193,027	46%	51%	49%
Proposed General Plan (2035 horizon year)	46,897	60,923	585,997	14,998	20,265	191,313	47%	50%	48%

Note: Data from the Citywide Travel Demand Model
Source: Kittelson & Associates, 2012.

TABLE 4.14-9 **DAILY VEHICLE MILES TRAVELED (IN MILLIONS OF MILES) AND AVERAGE TRIP LENGTH (IN MILES)**

Scenario	Internal VMT	Internal-External VMT	External-Internal VMT	Total Daily VMT	Average Trip Length
Existing (2008 Baseline)	0.433	2.832	2.452	5.717	14.5
1990 General Plan (2035)	0.646	4.518	4.120	9.283	15.8
Proposed General Plan (2035)	0.640	4.568	4.138	9.347	16.0

Notes: VMT = Vehicle Miles Traveled
VMT data are from the Citywide Travel Demand Model
Internal = Trips within Vacaville
Internal-External = Trips generated in Vacaville but travel to outside city limits
External-Internal = Trips attracted to Vacaville from outside city limits
Source: Kittelson & Associates, 2012.

The total daily trip miles are also provided along with the average length of all trips to/from Vacaville. For a discussion of air quality stemming from emissions associated with VMT, see Chapter 4.3, Air Quality.

As with the trip generation results, the VMT generated for the 2035 horizon year with the proposed General Plan would be within 1 percent of the 2035 VMT generated with the 1990 General Plan. This is because the total 2035 housing and employment growth forecast in the city would be similar under either General Plan scenario, although the specific locations of various land uses would differ between the two scenarios.

E. Impact Discussion

This section presents the potentially significant impacts as a result of implementation of the proposed General Plan and ECAS, and the mitigation measures that would reduce the future effects of the project. For a discussion of project impacts relating to increased traffic noise associated with increased traffic volumes, see Chapter 4.11, Noise.

Mitigation measures are described in terms of the party responsible for implementation and the required action. If a mitigation measure is included in the proposed General Plan Transportation Element, it is considered to be part of the proposed project and is assumed to be able to be implemented as a mitigation measure. For these mitigation measures, implementation is assumed regardless of funding status, and the impact after mitigation is considered to be less than significant.

If the City of Vacaville is the implementing party, there are two means typically used to fund transportation improvements. Traffic impacts of specific development projects and the specific street or transportation improvements required to mitigate those impacts would be included in the conditions of approval for the specific development project. Traffic impacts related to cumulative development, and not necessarily triggered by one specific development project, would be mitigated through the City's Development Impact Fee Program. The City intends to update the Development Impact Fee Program as necessary to fund mitigation measures for cumulative impacts.

For mitigation measures that would require roadway widening, it is uncertain if the necessary right-of-way would be available when the improvements are needed in order to maintain an acceptable level of service. Because it is uncertain whether it will be possible to implement these mitigation measures due to funding and/or physical constraints, the project impacts are considered significant and unavoidable.

1. Project Impacts

This discussion of potential project impacts is organized by and responds to each of the potential impacts identified in the Standards of Significance.

a. Conflicts with Relevant Plans, Policies, or Ordinances

i. Impacts of the Proposed General Plan

The proposed General Plan includes a stated goal of providing roadway capacity so that there is no significant delay during morning and afternoon peak commute periods (Goal TR-3). To this end, it establishes intersection level of service policies and requires development project applicants or the City to provide roadway improvements based on the service standards.

Intersection operations during the AM and PM peak hours were assessed for the 2035 forecast with proposed General Plan conditions. For comparison purposes, the levels of service for Existing Conditions and the 2035 forecast with the 1990 General Plan conditions are also presented in Table 4.14-9. However, impact findings and mitigation measures are based only on the levels of service under the proposed General Plan (Project) conditions.

Of the 100 study intersections, 34 would exceed level of service standards during one or both peak hours under the proposed General Plan. The impact and mitigation measure for these intersections are described below. The number in parentheses following the intersection name corresponds to the intersection numbers used in Figure 4.14-1 and Table 4.14-10.

a) Cause a Signalized Intersection Outside of the Downtown Overlay District to Operate Below LOS Mid-D (<45 sec. delay)

Cumulative 2035 traffic, including the proposed General Plan, would cause the following signalized intersections outside of the Downtown Urban High Density Residential Overlay District to operate below LOS mid-D, or conflict with City policy to design intersections to provide for LOS mid-D in the horizon year development forecast.

Impact TRAF-1: The Alamo Drive at the Marshall Road (4) intersection would degrade to below LOS mid-D during both peak hours.[20]

[20] The number in parenthesis following the intersection name corresponds to Figure 4.14-1 and Table 4.14-10.

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
1	Alamo Dr at Butcher Rd	Signalized	AM	C	22.2	C	20.6	B	19.9
			PM	C	24.3	C	35.0	C	31.5
2	Alamo Dr at Davis St	Signalized	AM	**D**	**52.4**	D	35.6	D	36.9
			PM	B	13.1	B	14.6	B	14.0
3	Alamo Dr at I-80 EB Ramp	Signalized	AM	A	6.7	A	4.8	A	4.8
			PM	A	2.0	A	3.1	A	3.1
4	Alamo Dr at Marshall Rd	Signalized	AM	C	32.7	D	43.5	**D**	**47.9**
			PM	C	32.4	**D**	**49.1**	**D**	**45.4**
5	Alamo Dr at Merchant St	Signalized	AM	D	36.4	C	28.7	C	28.0
			PM	C	29.8	**D**	**48.4**	**D**	**48.4**
6	Alamo Dr at Nut Tree Rd	Signalized	AM	D	42.4	D	35.9	D	36.6
			PM	D	41.7	**D**	**48.8**	D	43.8
7	Alamo Dr at Peabody Rd	Signalized	AM	C	32.2	C	33.2	D	35.1
			PM	D	38.8	D	38.8	D	43.0
8	Alamo Dr at S Street	One/Two-Way Stop	AM	Future Intersection		Intersection Does Not Exist		A (B)	3.7 (10.9)
			PM					A (C)	4.1 (19.7)

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
9	Alamo Dr at Vanden Rd	Signalized	AM	B	18.2	C	23.1	C	22.7
			PM	D	36.2	D	37.0	D	42.2
10	Allison Dr at Nut Tree Pkwy	Signalized	AM	B	18.7	C	30.1	C	23.9
			PM	D	38.3	**F**	**89.8**	**F**	**88.6**
11	Browns Valley Rd at Allison Dr	Signalized	AM	B	16.5	C	20.8	B	19.0
			PM	B	18.5	B	19.2	B	19.0
12	Browns Valley Rd at Brown St	Signalized	AM	B	19.4	B	13.9	B	13.9
			PM	B	14.2	B	14.4	B	12.6
13	Browns Valley Rd at Shannon Dr/Glen Eagle Wy	One/Two-Way Stop	AM	A (C)	4.5 (16.9)	A (B)	3.0 (13.6)	A (B)	2.9 (13.9)
			PM	A (D)	4.1 (31)	A (C)	3.2 (19.8)	A (C)	3.1 (18.5)
14	Browns Valley Rd at Wrentham Dr	Signalized	AM	C	32.5	C	22.0	C	21.3
			PM	C	26.3	B	19.1	B	18.6
15	Burton Dr at Helen Power Dr	One/Two-Way Stop	AM	A (A)	8.7 (9.9)	A (B)	8.7 (10.1)	A (A)	8.6 (10.0)
			PM	B (C)	12.4 (16.2)	C (C)	16.5 (22.1)	B (C)	14.5 (18.6)
16	Cherry Glen Rd at Pleasants Valley Rd	One/Two-Way Stop	AM	A (A)	8.1 (9.4)	A (B)	9.0 (10.8)	A (B)	8.6 (10.2)
			PM	A (A)	6.4 (9.8)	A (B)	6.4 (13)	A (B)	6.6 (12.3)
17	Cherry Glen Rd at I-80 EB Ramp	One/Two-Way Stop	AM	A (A)	3.4 (9.1)	A (B)	3.8 (11.7)	A (B)	4.9(10.4)
			PM	A (A)	6.5 (9.6)	C (E)	16.8 (40.5)	B (C)	10.3 (20.7)

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
18	Cherry Glen Rd at I-80 WB Ramp	One/Two-Way Stop	AM	A (A)	6.3 (9.8)	C (D)	24.0 (33.4)	C (C)	18.1 (21.5)
			PM	A (A)	6.2 (10)	B (C)	13.7 (21.4)	A (B)	9.8 (14.9)
19	Lagoon Valley Rd at I-80 EB Ramp	One/Two-Way Stop	AM	A (B)	7.2 (10.9)	A (D)	8.2 (27.4)	A (C)	5.2 (23.1)
			PM	A (B)	8.7 (11.6)	**F (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
20	Lagoon Valley Rd at I-80 WB Ramp	One/Two-Way Stop	AM	A (A)	1.8 (9.5)	**F (F)**	**>150 (>150)**	**E (F)**	**43.4 (>150)**
			PM	A (A)	2 (9.5)	**F (F)**	**>150 (>150)**	**F (F)**	**60.4 (>150)**
21	Cherry Glen Rd at Lyon Rd	One/Two-Way Stop	AM	A (B)	4.2 (10.1)	A (B)	5.3 (13.2)	A (B)	5.2 (13)
			PM	A (A)	5.0 (9.8)	A (C)	9.8 (18.8)	A (C)	10.0 (19.5)
22	Davis St at Bella Vista Rd	Signalized	AM	D	36.2	C	29.3	C	23.1
			PM	**D**	**48.9**	**E**	**68.9**	C	35.0
23	Davis St at Hickory Ln	Signalized	AM	C	30.6	C	25.5	C	29.5
			PM	C	28.7	C	30.0	C	29.5
24	Davis St at Hume Wy	Signalized	AM	B	17.6	B	20.0	C	20.9
			PM	D	36.9	**D**	**47.5**	D	44.0
25	Elmira Rd at Allison Dr	Signalized	AM	C	21.9	C	21.9	C	21.9
			PM	C	23.4	C	32.9	D	37.4
26	Elmira Rd at S Street	Signalized	AM	Future Intersection		Intersection Does Not Exist		C	23.2
			PM					C	23.2

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
27	Foothill Dr at Pleasant Valley Dr	One/Two-Way Stop	AM	A (B)	4.6 (10.5)	A (B)	4.7 (13.6)	A (B)	4.6(13.4)
			PM	A (B)	3.4 (11.4)	A (C)	2.8 (17.1)	A (C)	2.8(16.9)
28	Hawkins Rd at S Street	One/Two-Way Stop	AM	Future Intersection		Intersection Does Not Exist		A (A)	2.1 (8.3)
			PM					A (A)	0 (0)
29	I-80 EB at North Texas St^	Signalized	AM	A	8.1	**F**	**101.7**	**F**	**100.9**
			PM	B	18.2	**F**	**>150**	**F**	**>150**
30	I-80 WB at North Texas St^	Signalized	AM	C	21.6	**F**	**120.0**	**F**	**123.5**
			PM	C	25.4	D	47.7	D	48.6
31	Jepson Pkwy at New Cannon Rd	Signalized	AM	Future Intersection		B	13.3	B	13.7
			PM			C	20.7	C	20.2
32	Leisure Town Rd at Alamo Dr	Signalized	AM	C	34.7	D	44.1	C	35.0
			PM	C	29.7	**D**	**51.8**	**E**	**55.2**
33	Leisure Town Rd at Elmira Rd	Signalized	AM	B	12.1	B	16.8	**F**	**>150**
			PM	B	11.9	C	20.3	**F**	**>150**
34	Leisure Town Rd at Gilley Wy	One/Two-Way Stop	AM	A (B)	1.0 (11.8)	A **(F)**	1.7 **(52.9)**	A **(F)**	1.8 **(71)**
			PM	A (D)	2.6 (25.8)	**F (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
35	Leisure Town Rd at I-80 EB Ramps	Signalized	AM	C	21.5	C	33.1	**D**	**45.9**
			PM	B	14.3	C	31.2	D	38.3

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
36	Leisure Town Rd at I-80 WB Ramps	Signalized	AM	A	4.4	B	11.8	C	21.3
			PM	A	5.9	B	11.8	B	11.6
37	Leisure Town Rd at Marshall Rd	One/Two-Way Stop	AM	A (D)	3.8 (27.5)	**F (F)**	**68.8 (>150)**	**F (F)**	**>150 (>150)**
			PM	A (D)	2.1 (26.6)	**F (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
38	Leisure Town Rd at Midway Rd	All-Way Stop	AM	A	7.8	C	19.0	C	21.0
			PM	A	8.1	D	32.2	**E**	**38.0**
39	Leisure Town Rd at Orange Dr	Signalized	AM	B	16.8	C	22.4	**D**	**51.3**
			PM	B	17.7	D	35.8	**D**	**54.9**
40	Leisure Town Rd at Sequoia Dr	Signalized	AM	A	8.4	B	10.9	B	11.1
			PM	B	13.3	B	13.3	B	12.0
41	Leisure Town Rd at Southtown Collector	Signalized	AM	Future Intersection		A	6.9	A	6.1
			PM			A	8.5	A	6.9
42	Monte Vista Av at Scoggins Ct	Signalized	AM	B	12.7	B	15.3	B	15.2
			PM	B	13.2	B	14.4	B	13.8
43	Leisure Town Rd at North-South Arterial (S)	One/Two-Way Stop	AM	Future Intersection		Intersection Does Not Exist		A (C)	0.4 (17.2)
			PM					A **(E)**	0.6 **(49.0)**
44	Leisure Town Rd at Ulatis Dr	Minor St Stop/Signalized	AM	A **(E)**	6.9 **(49.0)**	B	17.4	C	21.5
			PM	C **(F)**	16.4 **(145.2)**	C	29.6	D	40.1

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
45	Leisure Town Rd at Vanden Rd/Foxboro Pkwy	Signalized	AM	C	25.5	B	11.6	B	11.7
			PM	A	7.5	A	9.1	A	9.8
46	Marshall Rd at S Street	One/Two-Way Stop	AM	Future Intersection		Intersection Does Not Exist		A (A)	4.0 (9.6)
			PM					A (B)	3.6 (10.2)
47	Mason St at Davis Dr*	Signalized	AM	C	22.1	C	25.0	C	21.8
			PM	C	25.9	C	27.8	C	32.3
48	Mason St at Depot St*	Signalized	AM	D	37.4	C	30.0	C	29.1
			PM	**E**	**65.8**	D	37.9	D	46.0
49	Mason St at Merchant St*	Signalized	AM	B	12.9	B	13.5	B	13.3
			PM	B	13.3	B	13.0	B	13.0
50	Meridian Rd at I-80 WB	One/Two-Way Stop	AM	A (A)	3.7 (9)	A (A)	3.2 (8.8)	A (A)	3.2 (8.8)
			PM	A (A)	2.0 (9.0)	A (A)	1.9 (8.7)	A (A)	3.7 (9)
51	Midway Rd at Eubanks Dr	One/Two-Way Stop	AM	A (B)	1.7 (10.5)	A (B)	2.7 (12.1)	A (B)	2.3 (11.4)
			PM	A (B)	1.8 (10.3)	A (C)	2.8 (15.6)	A (B)	2.1 (13.7)
52	Midway Rd at I-505 NB Ramps	One/Two-Way Stop	AM	A (B)	4.6 (11.0)	A **(E)**	6.2 **(46.4)**	A **(F)**	6.5 **(51.2)**
			PM	A (B)	7.6 (14.4)	**F (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
53	Midway Rd at I-505 SB Ramps	One/Two-Way Stop	AM	A (B)	1.9 (11.4)	**E (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
			PM	A (B)	1.7 (12.7)	**F (F)**	**77.4 (>150)**	**F (F)**	**86(>150)**

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
54	Midway Rd at Lewis Rd	One/Two-Way Stop	AM	A (B)	1.3 (11.9)	A (B)	0.3 (13.4)	A (B)	0.6(13)
			PM	A (B)	3.9 (14.2)	A (D)	4.6 (27.6)	A (E)	9.1 (41.9)
55	Midway Rd at Meridian Rd	One/Two-Way Stop	AM	A (A)	8.1 (8.4)	B (B)	14.5 (16.3)	B (B)	13.2 (14.5)
			PM	A (A)	8.3 (8.6)	D (D)	25.9 (34.3)	C (D)	21.1 (26.8)
56	Monte Vista Av at Airport Rd	All-way Stop	AM	A	8.4	D	**33.6**	C	17.8
			PM	A	9.9	**F**	**53.3**	**F**	**50.3**
57	Monte Vista Av at Allison Dr	Signalized	AM	B	17.4	C	26.4	C	25.1
			PM	D	37.2	**F**	**108.2**	**F**	**102.8**
58	Monte Vista Av at Brown St	Signalized	AM	B	14.5	B	13.5	B	13.5
			PM	B	15.7	B	17.0	B	16.7
59	Monte Vista Av at Browns Valley Pkwy	Signalized	AM	B	13.3	B	12.8	B	12.5
			PM	B	13.7	B	17.3	B	17.1
60	Monte Vista Av at Cernon St*	Signalized	AM	C	28.2	B	16.2	B	15.9
			PM	C	28.1	C	24.5	C	24.1
61	Monte Vista Av at Depot St*	Signalized	AM	C	32.1	C	29.5	C	29.7
			PM	D	41.6	**E**	**57**	**E**	**55.5**
62	Monte Vista Av at Dobbins St*	Signalized	AM	**D**	**49.9**	C	26.3	C	25.9
			PM	D	43.1	C	31.6	C	29

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
63	Monte Vista Av at I-80/Best Buy	Signalized	AM	A	7.7	A	7.6	A	7.2
			PM	B	15.0	**E**	**61.9**	C	28
64	Monte Vista Av at Nut Tree Rd	Signalized	AM	C	26.3	**E**	**56.4**	D	40.3
			PM	C	31.4	**D**	**47.3**	D	44.4
65	Monte Vista Av at Orchard Av	Signalized	AM	C	28.3	B	19.0	C	22.5
			PM	C	25.3	C	25.4	C	23.2
66	Nut Tree Rd at Burton Dr	One/Two-Way Stop	AM	A (B)	2.0 (12.4)	A (C)	2.0 (17)	A (C)	1.9 (17.2)
			PM	**F (F)**	**64.1 (>150)**	**F (F)**	**>150 (>150)**	**F (F)**	**>150 (>150)**
67	Nut Tree Rd at Elmira Rd	Signalized	AM	D	38.3	D	42.5	**D**	**46.6**
			PM	**E**	**67.0**	D	42.0	**D**	**53.8**
68	Nut Tree Rd at Factory Stores	Signalized	AM	B	16.0	B	14.5	B	13.2
			PM	C	22.3	C	24.7	C	21.4
69	Nut Tree Rd at Foxboro Pkwy	All-Way Stop	AM	Analyzed for future condition only		A	6.9	A	6.8
			PM			A	7.5	A	7.4
70	Nut Tree Rd at Marshall Rd	Signalized	AM	D	44.4	D	35.2	C	31.5
			PM	C	32.1	D	39.1	D	36.0
71	Nut Tree Rd at Ulatis Dr	Signalized	AM	C	26.7	C	21.7	C	21.0
			PM	C	33.9	D	44.1	D	41.2

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
72	Nut Tree Pkwy at Harbison Dr	Signalized	AM	C	33.9	B	16.7	B	16.3
			PM	C	25.7	C	28.7	C	28.4
73	Nut Tree Pkwy at Helen Power Dr	Signalized	AM	B	11.1	B	10.6	B	10.6
			PM	B	13.0	B	18.4	B	16.5
74	Orange Dr at I-80 EB	Signalized	AM	C	25.6	B	17.5	B	17.1
			PM	D	36.0	D	42.0	D	43.5
75	Orange Dr at Lawrence Dr	Signalized	AM	A	9.7	A	9.8	A	9.6
			PM	B	11.7	B	17.1	B	18.0
76	Orange Dr at Nut Tree Rd	Signalized	AM	B	18.6	C	23.6	C	24.2
			PM	**D**	**49.7**	**F**	**99.7**	**F**	**88.0**
77	Orange Dr at Walnut Rd	One/Two-Way Stop	AM	Analyzed for future condition only		A (A)	2.7 (8.7)	A (B)	0.7 (12.5)
			PM			A (A)	0.4 (9.1)	A (B)	1.3 (11.1)
78	Peabody Rd at Air Base Pkwy^	Signalized	AM	B	13.1	**E**	**62.8**	**E**	**65.2**
			PM	C	21.5	**F**	**>150**	**F**	**>150**
79	Peabody Rd at California Dr	Signalized	AM	B	17.2	C	30.8	C	29.0
			PM	C	20.5	**E**	**63.1**	D	43.7
80	Peabody Rd at Cliffside Dr	Signalized	AM	C	27.0	C	26.2	C	33.5
			PM	D	44.1	**E**	**67.7**	**E**	**67.8**

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
81	Peabody Rd at California State Prison	Signalized	AM	B	12.4	**F**	**90.2**	**F**	**98.1**
			PM	B	13.0	D	35.4	C	31.2
82	Peabody at Elmira Rd	Signalized	AM	D	35.6	C	32.3	C	33.5
			PM	**E**	**55.6**	**E**	**71.1**	**E**	**73**.2
83	Peabody Rd at Foxboro Pkwy	Signalized	AM	B	14.0	B	17.9	B	18.5
			PM	C	20.9	**D**	**49.2**	**D**	**50.5**
84	Peabody Rd at Hume Wy	Signalized	AM	C	29.7	C	32.0	C	31.1
			PM	D	43.4	**D**	**45.3**	**D**	**46.7**
85	Peabody Rd at Jepson Pkwy^	Signalized	AM	B	19.8	**F**	**>150**	**F**	**>150**
			PM	C	20.8	**F**	**>150**	**F**	**>150**
86	Peabody Rd at Marshall Rd	Signalized	AM	**D**	**38.9**	C	30.0	C	33.0
			PM	**D**	**36.3**	**D**	**37.4**	D	39.7
87	Peabody Rd at New Cannon Rd	Signalized	AM	Future Intersection		C	29.0	C	30.1
			PM			C	31.3	C	32.9
88	Ulatis Dr at Burton Dr	Signalized	AM	B	15.7	B	15.1	B	15.2
			PM	C	20.8	C	21.4	C	21.8
89	Ulatis Dr at Harbison Dr	Signalized	AM	C	24.5	B	16.9	B	16.6
			PM	C	30.5	C	33.9	D	37.0

TABLE 4.14-10 **INTERSECTION LEVEL OF SERVICE**

	Intersection	Control	Peak Hour	Existing Conditions LOS[a]	Existing Conditions Average Delay (sec)[b,c]	Year 2035 Adopted 1990 General Plan LOS[a]	Year 2035 Adopted 1990 General Plan Average Delay (sec)[b,c]	Year 2035 Proposed General Plan LOS[a]	Year 2035 Proposed General Plan Average Delay (sec)[b,c]
90	Vaca Valley Pkwy at Allison Pkwy	One/Two-Way Stop	AM	A (B)	4.9 (13.7)	C **(F)**	18.3 **(62.7)**	C **(F)**	15.6 **(50.5)**
			PM	A (C)	4.9 (20.2)	A **(D)**	9.8 **(33.2)**	A **(D)**	8.8 **(29.3)**
91	Vaca Valley Pkwy at Browns Valley Rd	All-Way Stop	AM	A	8.4	B	10.7	B	11.4
			PM	A	9.2	C	16.4	C	17.8
92	Vaca Valley Pkwy at Crescent Dr	Signalized	AM	C	24.2	**E**	**55.2**	**F**	**86.4**
			PM	C	29.6	**E**	**62.6**	**E**	**55.6**
93	Vaca Valley Pkwy at E Akerly Dr	Signalized	AM	C	34.7	C	21.6	**F**	**90.0**
			PM	B	13.9	**D**	**49.2**	**F**	**98.4**
94	Vaca Valley Pkwy at Eubanks Ct	All-Way Stop	AM	B	12.9	B	13.9	C	15.9
			PM	C	19.3	**E**	**36.5**	D	28.6
95	Vaca Valley Pkwy at I-505 NB Ramps	Signalized	AM	B	10.4	B	12.0	B	12.8
			PM	A	7.7	A	7.3	A	6.2
96	Vaca Valley Pkwy at I-505 SB Ramps	Minor St Stop/Signal	AM	A **(F)**	6.4 **(66.4)**	A	9.6	B	11.8
			PM	A **(F)**	3.0 **(60.4)**	A	4.8	A	4.7
97	Vaca Valley Pkwy at Monte Vista Av	Signalized	AM	B	17.3	C	22.7	C	22.3
			PM	C	25.7	D	44.6	D	39.6
98	Vaca Valley Pkwy at New Horizons Wy	Signalized	AM	B	11.4	C	24.2	C	23.8
			PM	B	18.7	**E**	**59.0**	**F**	**112.7**

TABLE 4.14-10 INTERSECTION LEVEL OF SERVICE

			Existing Conditions		Year 2035 Adopted 1990 General Plan		Year 2035 Proposed General Plan	
Intersection	Control	Peak Hour	LOS[a]	Average Delay (sec)[b,c]	LOS[a]	Average Delay (sec)[b,c]	LOS[a]	Average Delay (sec)[b,c]
99 Weber Rd at I-80 EB Ramps	One/Two-Way Stop	AM	A (A)	3.3 (9.6)	A (A)	2.7 (9.3)	A (A)	2.3(9.5)
		PM	A (B)	3.8 (10.1)	A (A)	3.4 (9.8)	A (B)	5.4(10.5)
100 Willow Rd at Walnut Rd	One/Two-Way Stop	AM	Analyzed for future condition only		A (A)	3.9 (8.5)	A (B)	7.8 (10.5)
		PM			A (A)	3.4 (8.8)	A (A)	7.9 (9.3)

Note: **Bold** denotes substandard locations; Highlight denotes locations with significant impacts.
^ denotes intersections located in Fairfield
* denotes intersections located within the Downtown Overlay District
[a] LOS = level of service.
[b] Delay = average vehicle delay.
[c] For unsignalized intersection, the delay for both overall intersection and the worst approach is shown; e.g. A (B) 2.4 (14.3).
[d] Due to Synchro software limitation, the analysis only assumed two approach lanes even where there are three lanes on each approach at Intersections #15, 91 and 94. Therefore, the analysis is more conservative and the actual operation might be better than results shown.
Source: Kittelson & Associates, 2012.

Mitigation Measure TRAF-1: The City of Vacaville shall implement the following measures:

- Southbound approach: Convert the southbound through-right shared lane to a right-turn lane and convert the left-turn lane to a left-through shared lane, in order to provide a left-through shared lane and an exclusive right-turn lane.
- Modify the traffic signal phasing to provide split phase operation on the northbound and southbound approaches.

Significance After Mitigation: Implementation of these improvements would improve the operations to mid-D with average delays of 42.3 seconds in the AM peak hour and 44.7 seconds in the PM peak hour, and would reduce the impact to *less than significant*.

Impact TRAF-2: The Alamo Drive at Merchant Street intersection (5) would degrade to LOS mid-D in the PM peak hour.

Mitigation Measure TRAF-2: Since the commencement of this Draft EIR analysis, the City of Vacaville has implemented the following measure:

- Westbound approach: Added a westbound right-turn lane to provide two left-turn lanes, two through lanes, and two right-turn lanes.

Significance After Mitigation: Implementation of this improvement would result in LOS C during both peak hours with average delays of 27.8 seconds in the AM peak hour and 28.7 seconds in the PM peak hour, and has mitigated the impact to a *less-than-significant* level.

Impact TRAF-3: The Allison Drive at Nut Tree Parkway intersection (10) would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-3: The City of Vacaville shall implement the following measures:

- Northbound approach: Convert the northbound through-right shared lane to a through lane and add a right-turn lane to provide three through lanes and a right-turn lane.
- Southbound approach: Convert the southbound left-through lane to an exclusive left-turn lane to provide two left-turn lanes and two through lanes.
- Modify the traffic signal phasing to provide a protected left-turn phase on the southbound approach.

Significance After Mitigation: These improvements would be the maximum extent of improvements that the City could make to City facilities at this intersection. Implementation of these improvements would provide LOS C and LOS E operations during the AM and PM

peak hours, respectively. To further improve the level of service, the following improvements would also be needed:

- Westbound approach: Convert a westbound left-turn lane to a right-turn lane to provide one left-turn lane and three right-turn lanes.
- Eastbound approach: Widen the off-ramp to add an additional eastbound left-turn lane to provide three left-turn lanes, two through lanes and one right-turn lane.

Implementation of these additional improvements would provide LOS B with average delays of 19.2 seconds in the AM peak hour and LOS mid-D with an average delay of 42.5 seconds in the PM peak hour. Upon implementation, the impact would be less than significant. However, the improvement to State highway facilities would be outside of the control of the City of Vacaville and may not be physically feasible due to potential right-of-way required. Therefore, the impact is *significant and unavoidable.*

Impact TRAF-4: The Leisure Town Road at Alamo Drive intersection (32) would degrade to LOS E during the PM peak hour.

Mitigation Measure TRAF-4: The City of Vacaville shall implement the following measure:

- Eastbound approach: Add an eastbound left-turn lane to provide dual left-turn lanes, a through lane, and a right-turn lane.

Significance After Mitigation: Implementation of this improvement would provide LOS mid-D or better operations with average delays of 29.1 seconds in the AM peak hour and 38.9 seconds in the PM peak hour. However, it is not certain that right-of-way required for the improvement will be available at the time that implementation is required. Therefore, the impact is *significant and unavoidable.*

Impact TRAF-5: The Leisure Town Road at Elmira Road intersection (33) would degrade to LOS F in during both peak hours.

Mitigation Measure TRAF-5: The City of Vacaville shall implement the following measures:

- Northbound approach: Add one left-turn lane and one right-turn lane, and convert the through-right shared lane to a through lane to provide two left-turn lanes, two through lanes, and a right-turn lane.
- Southbound approach: Add one left-turn lane and one right-turn lane, and convert the through-right lane shared to a through lane to provide two left-turn lanes, two through lanes, and a right-turn lane.

- Eastbound approach: Add a left-turn lane and one through lane, and convert the through-left shared lane to a through lane to provide one left turn lane, two through lanes, and a right-turn lane.
- Westbound approach: Add a right-turn lane and convert the through-right shared lane to a through lane to provide one left-turn lane, two through lanes, and a right-turn lane.

Significance After Mitigation: Implementation of these improvements would provide LOS mid-D or better operations with average delays of 43.5 seconds in the AM peak hour and 40.5 seconds in the PM peak hour. However, it is not certain that right-of-way required for the improvements will be available at the time that implementation is required. Therefore, the impact is *significant and unavoidable*.

Impact TRAF-6: The Leisure Town Road at Interstate 80 Eastbound Ramps (35) would degrade to LOS D during both peak hours. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-6: The City of Vacaville, in coordination with Caltrans, shall implement the following measure:

- Eastbound approach: Add a right-turn lane to the eastbound off-ramp approach to provide a left-turn lane, a left-through shared lane, and a right-turn lane.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS C with average delays of 34.8 seconds in the AM peak hour and 26.2 seconds in the PM peak hour, thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-7: The Leisure Town Road at Orange Drive intersection (39) would degrade to LOS D during both peak hours.

Mitigation Measure TRAF-7: The City of Vacaville shall implement the following measures:

- Southbound approach: Add a southbound left-turn lane to provide two left-turn lanes, two through lanes, and a right-turn lane; and prohibit the southbound U-turn movement.
- Westbound approach: Modify the traffic signal to provide overlap right-turn phasing for the westbound right-turn movement.

Significance After Mitigation: Implementation of these improvements would provide LOS mid-D or better operations with average delays of 27.2 seconds in the AM peak hour and 43.1 seconds in the PM peak hour. The impact would be *less than significant*.

Impact TRAF-8: The Monte Vista Avenue at Allison Drive intersection (57) would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-8: The City of Vacaville shall implement the following measures:

- Northbound approach: Convert a northbound through lane to a right-turn lane to provide two left-turn lanes, one through lane, and two right-turn lanes; and modify the traffic signal phasing to provide overlap northbound right-turn movement.
- Westbound approach: Prohibit westbound U-turn movements; convert a westbound through lane to a left-turn lane to provide two left-turn lanes, one shared through-right turn lane.

Significance After Mitigation: Implementation of these improvements would provide LOS C operations with average delays of 23.3 seconds in the AM peak hour and LOS D with an average delay of 41.5 seconds in the PM peak hour. The impact would be *less than significant*.

Impact TRAF-9: The Nut Tree Road at Elmira Road intersection (67) would degrade to below LOS mid-D during both peak hours.

Mitigation Measure TRAF-9: The City of Vacaville shall implement the following measure:

- Southbound approach: Convert a southbound through lane to a left-turn lane to provide two left-turn lanes, one through lane, and one through-right shared lane.

Significance After Mitigation: Implementation of this improvement would provide LOS mid-D or better operations with average delays of 42.8 seconds in the AM peak hour and 39.0 seconds in the PM peak hour. The impact would be *less than significant*.

Impact TRAF-10: The Orange Drive at Nut Tree Road intersection (76) would degrade to LOS F in the PM peak hour.

Mitigation Measure TRAF-10: The City of Vacaville shall implement the following measures:

- Northbound approach: Add a northbound right-turn lane and convert the through-right shared lane to a through lane to provide one left-turn lane, two through lanes, and a right-turn lane; provide lagging left-turn signal phasing.

- Southbound approach: Add a southbound right-turn lane and convert the through-right shared lane to a through lane to provide two left-turn lanes, two through lanes, and a right-turn lane; provide lagging left-turn signal phasing.
- Westbound approach: Convert a westbound through lane to a left-turn lane to provide three left-turn lanes, two through lanes, and one right-turn lane.

Significance After Mitigation: Implementation of these improvements would provide LOS C operations with average delays of 23.9 seconds in the AM peak hour and LOS D operations with an average delay of 44.2 seconds in the PM peak hour. The impact would be *less than significant*.

Impact TRAF-11: The Peabody Road at Cliffside Drive intersection (80) would degrade to LOS E during the PM peak hour.

Mitigation Measure TRAF-11: The City of Vacaville shall implement the following measure:

- Eastbound approach: Add an eastbound left-turn lane to provide two-left turn lanes, a through-left shared lane, and a right-turn lane, and modify the lane alignment of the east-west movements.

Significance After Mitigation: Upon implementation of the above measure, the intersection would improve to LOS A in the AM peak hour and LOS D with an average delay of 54.8 seconds in the PM peak hour. To further improve the operations, the following measure would be required:

- Southbound approach: Add a southbound right-turn lane and convert the through-right shared lane to a through lane to provide a left-turn lane, a through-left shared lane, and a right-turn lane.

Implementation of the additional improvement would provide LOS C operations with average delays of 27.2 seconds in the AM peak hour and LOS D with an average delay of 49.5 seconds in the PM peak hour. To further improve to LOS mid-D or better would require additional right-of-way. As it is not certain that the right-of-way will be available at the time that implementation is required, the impact is *significant and unavoidable.*

Impact TRAF-12: The Peabody Road at CSF intersection (81) would degrade to LOS F in the AM peak hour.

Mitigation Measure TRAF-12: The City of Vacaville shall implement the following measures:

- Southbound approach: Add a southbound right-turn lane and convert the through-right shared lane to a through lane to provide a left-turn lane, a through-left shared lane, and a right-turn lane.
- South leg: Add a corresponding receiving lane on the south leg of the intersection.

Significance After Mitigation: Implementation of these improvements would provide LOS B operations with average delays of 11.0 and 14.6 seconds in the AM and PM peak hours, respectively, and the impact would be *less than significant*.

Impact TRAF-13: The Peabody Road at Elmira Road intersection (82) would degrade to LOS E during the PM peak hour.

Mitigation Measure TRAF-13: The City of Vacaville shall implement the following measures:

- Eastbound approach: Add an eastbound left-turn lane to provide two left-turn lanes, two through lanes, and one right-turn lane; modify the traffic signal to provide overlap eastbound right-turn phasing.
- Northbound approach: Prohibit northbound U-turn movement.
- Westbound approach: Convert a through lane to a left-turn lane to provide two left-turn lanes, one through lane, and a through-right shared lane.

Significance After Mitigation: Implementation of the above measures would provide LOS C operations in the AM peak hour and LOS D with an average delay of 50.4 seconds in the PM peak hour. To further improve the level of service, the following additional improvement would be required:

- Westbound approach: Add a westbound through lane to provide two left-turn lanes, two through lanes, and a through-right shared lane.

Implementation of the additional improvement would provide LOS C operations with average delays of 29.2 seconds in the AM peak hour and LOS D with an average delay of 48.1 seconds in the PM peak hour. To further improve to LOS mid-D or better would require an additional right-of-way on the east leg and south leg of the intersection for an additional westbound left-turn lane, which would improve the average delay to 40.3 seconds in the PM peak hour. As it is not certain that the right-of-way will be available at the time that implementation is required, the impact is *significant and unavoidable.*

Impact TRAF-14: The Peabody Road at Foxboro Parkway intersection (83) would degrade to below LOS mid-D during the PM peak hour.

Mitigation Measure TRAF-14: The City of Vacaville shall implement the following measure:

- Northbound approach: Convert the northbound through-right shared lane to a through lane and add a right-turn lane to provide two through lanes and a right-turn lane.

Significance After Mitigation: Implementation of this improvement would provide LOS B with an average delay of 18.1 seconds in the AM Peak hour and LOS C with an average delay of 26.4 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-15: The Peabody Road at Hume Way intersection (84) would degrade to LOS D during the PM peak hour.

Mitigation Measure TRAF-15: The City of Vacaville shall implement the following measures:

- Eastbound approach: Convert the westbound through lane to a left-through shared lane to provide a left-turn lane, a left-through shared lane, and a right-turn lane; and modify the traffic signal to provide overlap right-turn phasing.
- Northbound approach: Prohibit northbound U-turn movement.

Significance After Mitigation: Implementation of these improvements would provide LOS C operations with average delays of 29.0 seconds in the AM peak hour and LOS mid-D with an average delay of 44.9 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-16: The Vaca Valley Road at Crescent Drive intersection (92) would degrade to LOS F during the AM peak hour and LOS E during the PM peak hour.

Mitigation Measure TRAF-16: The City of Vacaville shall implement the following measure:

- Southbound approach: Convert the through-right shared lane to a left-through-right shared lane to provide a left-turn lane and a left-through-right shared lane; modify the traffic signal to provide split phase operation on the north-south approaches.

Significance After Mitigation: Implementation of this improvement would provide LOS mid-D operations with an average delay of 43.2 seconds in the AM peak hour and LOS C with an average delay of 34.5 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-17: The Vaca Valley Road at East Akerly Drive intersection (93) would degrade to LOS F during both peak hours.

Mitigation Measure TRAF-17: The City of Vacaville shall implement the following measures:

- Northbound approach: Convert the northbound through lane to a through-right shared lane to provide a left-turn lane, a through-right shared lane, and a right-turn lane; modify the traffic signal to provide split phase operations on the north-south approaches.
- Westbound approach: Convert the westbound through lane to a left-turn lane to provide two left-turn lanes and a through-right shared lane.

Significance After Mitigation: Implementation of these improvements would provide LOS C operations with average delays of 23.2 seconds in the AM peak hour and 26.1 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-18: The Vaca Valley Road at New Horizons Way intersection (98) would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-18: The City of Vacaville shall implement the following measures:

- Eastbound approach: Add an eastbound left-turn lane to provide two-left turn lanes, a through lane, and a through-right shared lane.
- Northbound approach: Convert the northbound through lane to a left-turn lane to provide two left-turn lanes and a through-right shared lane.

Significance After Mitigation: Implementation of these improvements would provide LOS C operations with average delays of 22.0 seconds in the AM peak hour and LOS D with an average delay of 42.1 seconds in the PM peak hour, and the impact would be *less than significant*.

b) Cause an All-Way Stop Controlled Intersection Outside of the Downtown Overlay District to Operate Below Applicable Thresholds

Cumulative 2035 traffic, including the proposed General Plan, would cause the following all-way stop controlled intersections outside of the Downtown Urban High Density Residential Overlay District to operate below LOS mid-D.

Impact TRAF-19: The Leisure Town Road at Midway Road intersection (38) would degrade to LOS E during the PM peak hour.

Mitigation Measure TRAF-19: The City of Vacaville shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Implementation of this improvement would provide LOS A with an average delay of 8.6 seconds in the AM peak hour and LOS B with an average delay of 10.4 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-20: The unsignalized Monte Vista Avenue at Airport Road intersection (56) would degrade to LOS F in the PM peak hour.

Mitigation Measure TRAF-20: The City of Vacaville shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met in the PM peak hour.

Significance After Mitigation: Implementation of this improvement would provide LOS A with an average delay of 8.6 seconds in the AM peak hour and LOS B with an average delay of 10.7 seconds in the PM peak hour, and the impact would be *less than significant*.

c) Cause a One/Two-Way Stop Controlled Intersection Outside of the Downtown Overlay District to Operate Below Applicable Thresholds

Cumulative 2035 traffic, including the proposed General Plan, would cause the following unsignalized intersections outside of the Downtown Urban High Density Residential Overlay District to operate below LOS mid-E; or the worst approach at the unsignalized intersection to operate below LOS E.

Impact TRAF-21: The unsignalized Cherry Glen Road at Interstate 80 Eastbound Ramp intersection (19) would degrade to LOS F in the PM peak hour. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-21: The City of Vacaville, in coordination with Caltrans, shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Implementation of the stated mitigation measure would improve the intersection operations to LOS A with average delays of 8.1 seconds in the AM peak hour and LOS B with average delays of 17.9 seconds in the PM peak hour, thereby ful-

ly mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable.*

Impact TRAF-22: The unsignalized Cherry Glen Road at Interstate 80 Westbound Ramp intersection (20) would degrade to LOS E in the AM peak hour and LOS F in the PM peak hour. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-22: The City of Vacaville, in coordination with Caltrans, shall implement the following measure:

- Install stop signs on the northbound and southbound approaches to provide all-way stop control at the intersection.

Significance After Mitigation: Implementation of the stated mitigation measure would improve the intersection operations to LOS B with average delays of 13.7 seconds in the AM peak hour and LOS C with average delays of 16.1 seconds in the PM peak hour, thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable.*

Impact TRAF-23: The unsignalized Leisure Town Road at Gilley Way intersection (34) would degrade to LOS F on the worst minor street approach during both peak hours, while the overall intersection would deteriorate to LOS F in the PM peak hour.

Mitigation Measure TRAF-23: The City of Vacaville shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Installation of a traffic signal would provide LOS mid-D or better operations with average delays of 40.6 seconds in the AM peak hour and 35.3 seconds in the PM peak hour. However, a traffic signal at this location would be in conflict with the adopted Jepson Parkway Concept Plan. Alternative mitigation measures will need to be evaluated at this location, such as closing the median, or "worm islands" that restrict left turns. Because implementation of a traffic signal implementation would be in conflict with other plans and policies, and because it is unknown if alternative mitigation measures would improve the level of service to within acceptable thresholds, the impact is *significant and unavoidable.*

Impact TRAF-24: The Leisure Town Road at Marshall Road intersection (37) would degrade to LOS F during both peak hours.

Mitigation Measure TRAF-24: The City of Vacaville shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Implementation of this improvement would provide LOS C with average delays of 25.7 seconds and 30.0 seconds in the AM and PM peak hours, respectively, and the impact would be *less than significant*.

Impact TRAF-25: The unsignalized Leisure Town Road at North-South Arterial intersection (43) would degrade to LOS E with an average delay of 49 seconds on the worst minor street approach during the PM peak hour, while the overall intersection would operate at LOS A.

Mitigation Measure TRAF-25: The City of Vacaville shall implement the following measure:

- Provide a storage pocket on the south leg to allow a two-stage, eastbound, left-turning movement.

Significance After Mitigation: Implementation of this improvement would provide LOS C operations with an average delay of 19 seconds on the worst minor street approach and the impact would be *less than significant*.

Impact TRAF-26: The unsignalized Midway Road at I-505 Northbound Ramp intersection (52) would degrade to LOS F on the worst minor street approach during both peak hours, while the overall intersection would operate at LOS A in the AM peak hour and LOS F in the PM peak hour. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-26: The City of Vacaville, in coordination with Caltrans, shall implement the following measures:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.
- Eastbound approach: Convert the eastbound through-left shared lane to a through lane, and add a left-turn lane to provide a left-turn lane and a through lane.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS C with an average delay of 20.3 seconds, thereby fully mitigating the project impacts. However, because this location is not under Vacaville's

jurisdiction, the City is not able to assure the timing for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-27: The unsignalized Midway Road at I-505 Southbound Ramp intersection (53) would degrade to LOS F during both peak hours. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-27: The City of Vacaville, in coordination with Caltrans, shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS C with an average delay of 21.6 seconds in the AM peak hour and LOS B with an average delay of 10.3 seconds in the PM peak hour, thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-28: The unsignalized Nut Tree Road at Burton Drive intersection (66) would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-28: The City of Vacaville shall implement the following measure:

- Install a traffic signal at the intersection as the peak hour traffic signal warrant would be met.

Significance After Mitigation: Implementation of this improvement would provide LOS A with an average delay of 8.5 seconds in the AM peak hour and LOS B with an average delay of 15.8 seconds in the PM peak hour, and the impact would be *less than significant*.

Impact TRAF-29: The unsignalized Vaca Valley Road at Allison Drive intersection (90) would degrade to LOS F on the worst minor street approach during the AM peak hour.

Mitigation Measure TRAF-29: The City of Vacaville shall implement the following measure:

- Install stop signs on the eastbound and westbound approaches to provide all-way stop control at the intersection.

Significance After Mitigation: Implementation of this improvement would provide LOS B with average delays of 11.6 seconds in the AM peak hour and 13.2 seconds in the PM peak hour, and the impact would be *less than significant*.

d) Cause a Signalized Intersection in the Downtown Overlay District to Operate Below LOS D

Cumulative 2035 traffic, including the proposed General Plan, would cause the following signalized intersections in the Downtown Overlay District to operate below LOS D.

Impact TRAF-30: The Monte Vista Avenue at Depot Road intersection (61) would degrade to LOS E during the PM peak hour. This intersection is located within the Downtown Urban High Density Residential Overlay District.

Mitigation Measure TRAF-30: The City of Vacaville shall implement the following measures:

- Northbound approach: Modify the traffic signal to allow an overlapping right-turn movement.
- Westbound approach: Prohibit westbound U-turn movements.

Significance After Mitigation: Implementation of these improvements would provide LOS C with an average delay of 28.8 seconds in the AM peak hour and LOS D with an average delay of 54.0 seconds in the PM peak hour, and the impact would be *less than significant*.

e) Cause an Arterial Intersection in Fairfield to Degrade Below LOS D

Cumulative 2035 traffic, including the proposed General Plan, would cause the following arterial intersections in Fairfield to operate below LOS D.

Impact TRAF-31: The Interstate 80 Eastbound Ramps at North Texas Street intersection (29) in Fairfield would degrade to LOS F during both peak hours. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-31: The City of Vacaville, in coordination with Caltrans and the City of Fairfield, shall implement the following measures:

- Eastbound approach: Convert the eastbound through-left shared lane to a left-through-right shared lane and add a right lane to provide one left-through-right shared lane, two exclusive right lanes.

- Southbound approach: Add one southbound through lane to provide one left-turn lane and two through lanes.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS B with an average delay of 19.5 seconds in the AM peak hour and LOS D with an average delay of 37.6 seconds in the PM peak hour; thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way, and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-32: The Interstate 80 Westbound Ramps at North Texas Street intersection (30) in Fairfield would degrade to LOS F in the AM peak hour. This location is a freeway ramp intersection and is under Caltrans jurisdiction.

Mitigation Measure TRAF-30: The City of Vacaville, in coordination with Caltrans and the City of Fairfield, shall implement the following measure:

- Northbound approach: Restripe the northbound approach lanes on North Texas Street to provide two right-turn lanes, a through lane, and one left-turn lane.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS C with an average delay of 24.0 seconds in the AM peak hour and LOS D with an average delay of 36.6 seconds in the PM peak hour; thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-33: The Peabody Road at Air Base Parkway intersection (78) in Fairfield would degrade to LOS E in the AM peak hour and LOS F in the PM peak hour.

Mitigation Measure TRAF- 33: The City of Vacaville, in coordination with the City of Fairfield, shall implement the following measures:

- Eastbound approach: Add an eastbound left-turn lane to provide three left-turn lanes and two through lanes.
- Westbound approach: Add a westbound right-turn lane to provide two right-turn lanes and two through lanes; modify traffic signal to allow right-turn overlap phasing.
- Southbound approach: Prohibit southbound U-turn movement.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS C with an average delay of 29.0 seconds in the AM peak hour and LOS D with an average delay of 52.1 seconds in the PM peak hour; thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way, and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

Impact TRAF-34: The Peabody Road at Jepson Parkway intersection (85) in Fairfield would degrade to LOS F during both peak hours.

Mitigation Measure TRAF-34: The City of Vacaville, in coordination with the City of Fairfield, shall implement the following measures:

- Northbound approach: Add one northbound left-turn lane, one through lane, and one right-turn lane to provide two left-turn lanes, three through lanes, and two right-turn lanes.
- Southbound approach: Add two southbound through lanes and one right-turn lane to provide one left-turn lane, three through lanes and two right-turn lanes.
- Eastbound approach: Add one eastbound left-turn lane, one through lane, and one right-turn lane, and convert the through-right shared lane to an exclusive right-turn lane to provide two left-turn lanes, three through lanes, and two right-turn lanes.
- Westbound approach: Add one westbound left-turn lane and one through lane to provide two left-turn lanes, two through lanes, and one through-right shared lane.

Significance After Mitigation: Implementation of the stated mitigation measures would improve the intersection operations to LOS D with average delays of 49.3 seconds in the AM peak hour and 50.4 seconds in the PM peak hour, thereby fully mitigating the project impacts. However, because this location is not under Vacaville's jurisdiction, the City is not able to assure the timing, right-of-way, and funding availability for the implementation of the improvements. Therefore, the project impacts are *significant and unavoidable*.

ii. Impacts of Implementation of the Proposed Energy and Conservation Action Strategy

Implementation of measures identified in the proposed ECAS would facilitate roadway circulation in Vacaville and reduce the number of vehicle trips and travel distance of the trips, thereby helping to alleviate traffic congestion on city roadways. Therefore, its implementation would have a beneficial impact on transportation in Vacaville and result in a *less-than-significant* impact.

b. Conflicts with Applicable Congestion Management Programs

Selected freeway and roadway segments on the CMP system were assessed to determine compliance with CMP standards. The results for roadway segments are presented in Table 4.14-11. The analysis results for the CMP freeway mainline segments are presented in Table 4.14-12.

i. Road Segments

All study roadway segments on the CMP system would operate within acceptable standards. Therefore, the project would have a *less-than-significant* impact on roadways in the CMP system.

ii. Freeway Segments

The proposed General Plan includes policies that would facilitate improvements on Interstate 80 as well as aim to decrease demand on the freeway network. Specifically, Policies TR-P1.1 and TR-P1.3 state that the City will coordinate regional transportation improvements on CMP routes with neighboring jurisdictions and support the regional effort to construct Jepson Parkway. Policy TR-P1.2 states that the City will provide roadways parallel to the freeway to provide an alternative to local traffic. Furthermore, Policies TR-P2.1, TR-P2.2, and TR-P2.3 state that the City will work with Caltrans and STA to construct programmed freeway improvements in a timely manner, to consider the implementation and effects of ramp metering, and to potentially widen Interstate 80 through Vacaville.

The City's Transportation Demand Management (TDM) policies help to reduce demand on the freeway particularly during peak periods by requiring the City to cooperate with other entities to promote transit service in Vacaville (Policy TR-P10.1), as well as TSM and TDM programs (Policies TR-10.2 and TR-P10.3), especially those that aim to limit vehicle use rather than those that extend the commute hour (Policy TR-P10.4).

Cumulative 2035 traffic, including the proposed General Plan, would cause two freeway segments to operate below the LOS E standard.

Impact TRAF-35: The eastbound segment of Interstate 80 west of Lagoon Valley Road would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-35: Implementation of the policies and implementing actions in the proposed General Plan would potentially improve the freeway operation and reduce the project impact. However, the effectiveness of the policies and actions could not be clearly demonstrated to fully mitigate the project impact and improve the freeway operations to LOS E or better. Therefore, the project impact is *significant and unavoidable.*

Significance After Mitigation: *Significant and Unavoidable*

TABLE 4.14-11 ROADWAY SEGMENT LEVEL OF SERVICE – PM PEAK HOUR

			Existing Conditions				Year 2035 Adopted 1990 General Plan				Year 2035 Proposed General Plan			
Street	From	To	Class [b]	# of Lanes	LOS	Vol[a]	Class [b]	# of Lanes	LOS	Vol[a]	Class [b]	# of Lanes	LOS	Vol[a]
Vaca Valley Pkwy	I-505	I-80	II	4	C	1,122	II	4	D	2,729	II	4	D	2,805
Elmira Rd	Leisure Town Rd	A St	I	2	B	165	II	4	C	87[c]	II	4	C	1,607
Peabody Rd	Alamo Dr	City Limits	II	4	C	2,223	II	4	D	3,118	II	4	D	3,097
Vanden Rd	Leisure Town Rd	Peabody Rd	I	2	C	1,259	I	4	B	1,480	I	4	B	1,493

Note: LOS = Level of service.
[a] Vol = Volumes derived from intersection turning movement counts at the following locations: Vaca Valley Parkway east of Akerly Drive; Elmira Road east of Leisure Town Road; Peabody Road south of California Drive; Vanden Road south of Leisure Town Road.
[b] Please refer to Table 4.14-4 for arterial class definitions.
[c] Volume projected to decrease due to increased future congestion on Elmira Road to west causing diversion to alternate routes.
Source: Kittelson & Associates, 2012.

TABLE 4.14-12 **FREEWAY SEGMENT LEVEL OF SERVICE**

	Existing Conditions						Year 2035 Adopted 1990 General Plan						Year 2035 Proposed General Plan					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Vol	Den	LOS	Vol	Den	LOS	Vol	Den	LOS	Vol	Den	LOS	Vol	Den	LOS	Vol	Den	LOS
Interstate 80 West of Lagoon Valley Road																		
Eastbound	4,281	17.1	B	7,083	31.5	D	5,798	23.9	C	**8,830**	**48.2**	**F**	5,783	23.8	C	**8,940**	**49.7**	**F**
Westbound	5,802	23.9	C	6,085	25.4	C	7,345	33.4	D	7,947	38.5	E	7,439	34.1	D	7,999	39.0	E
Interstate 80 East of Leisure Town Road																		
Eastbound	2,347	12.5	B	4,478	24.8	C	2,595	13.8	B	**6,752**	**50.6**	**F**	2,623	14.0	B	**6,661**	**48.9**	**F**
Westbound	3,962	21.4	C	3,856	20.8	C	5,548	33.8	D	4,395	24.2	C	5,439	32.7	D	4,373	24.1	C
Interstate 505 North of Interstate 80																		
Northbound	1,375	11.2	B	1,825	14.9	B	1,777	14.5	B	2,749	22.9	C	1,885	15.4	B	2,619	21.7	C
Southbound	1,431	11.7	B	1,119	9.1	A	2,245	18.3	C	1,665	13.6	B	2,037	16.6	B	1,682	13.7	B

Notes: **Bold** denotes substandard locations; Highlight denotes locations with significant impacts.
Vol = Volume
Den = Density in passenger cars per mile per lane.
LOS = Level of service.

Source: Kittelson & Associates, 2012.

Impact TRAF-36: The eastbound segment of Interstate 80 east of Leisure Town Road would degrade to LOS F during the PM peak hour.

Mitigation Measure TRAF-36: Implementation of the policies and implementing actions in the proposed General Plan would potentially improve the freeway operation and reduce the project impact. However, the effectiveness of the policies and actions could not be clearly demonstrated to fully mitigate the project impact and improve the freeway operations to LOS E or better. Therefore, the project impact is *significant and unavoidable*.

Significance After Mitigation: *Significant and Unavoidable*

iii. Impacts of Implementation of the Proposed Energy and Conservation Action Strategy

The proposed ECAS would not conflict with the congestion management program because implementation of measures identified in the ECAS would reduce VMT on CMP roadways. Therefore, the impact would be *less than significant*.

c. Result in a Change in Air Traffic Patterns

The Nut Tree Airport, located near the junction of Interstate 505 and Interstate 80, is inside the Vacaville city limits and inside the EIR Study Area. The proposed General Plan land use designations in the vicinity of the Nut Tree Airport reflect existing or approved development that would be the same as, or similar to, development that already coexists with current operations at the Nut Tree Airport. Moreover, the proposed General Plan includes policies to maintain safe living and working conditions around the Nut Tree Airport. Specifically, Policy LU-25.2 limits residential development in areas impacted by potential hazards from the Nut Tree Airport to uses identified in the Nut Tree Airport Compatibility Plan (ALUCP). In addition, Policy LU-25.5 directs the City to continue to refer development proposals within the Nut Tree Airport Compatibility Districts to the Solano County Airport Land Use Commission. These policies would prevent inappropriate development that could affect air traffic patterns due to its nature or height. Therefore, the project would have a *less-than-significant* impact on air traffic patterns.

The proposed ECAS would not result in changes in air traffic patterns through an increase in traffic levels or a change in location. Therefore, its impact would be *less than significant*.

d. Substantially Increase Hazards Due to Design and Incompatible Uses

i. Impacts of the Proposed General Plan

The proposed General Plan projects an increase in both residential and commercial land uses. As these land uses develop, construction and modifications of new and existing roadways would be necessary to support the growth. As with current practice, the improvements would be designed and reviewed in accordance to City of Vacaville Department of Public Works Design

Standards and City of Vacaville Standard Specifications and Drawings. Incompatible uses would be discouraged by the proposed General Plan.

The proposed General Plan contains policies and implementing actions that would reduce potential hazards due to roadway design or incompatible uses. Policy TR-P3.6 requires all roads to comply with the City's Standard Specification for Public Improvements. To minimize potential hazards on neighborhood streets, the policies require arterial intersections and collector roadways to be designed to meet level of service standards in order to avoid traffic diversion (Policy TR-P5.1 and Policy TR-P6.2), discourage through traffic on local streets (Policy TR-P6-1), and maintain truck routes (Policy TR-P12-1). The policies also require high traffic-generating uses to be located on or have immediate secondary access to arterial roadways while controlling the number of driveways along arterials (Policy TR-P5.2). To minimize traffic conflicts, Policy TR-P5.5 requires the City to control access to commercial areas through the use of median strips and frontage roads.

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

ii. Impacts of the Proposed Energy and Conservation Action Strategy

The ECAS proposes the development and implementation of a bikeway plan and a pedestrian plan in order to improve the bikeway and pedestrian network. The plans would include design guidelines and/or direct bicycle and pedestrian facilities to be constructed in accordance to the City's design standards. Therefore, the proposed ECAS would result in a *less-than-significant* impact.

e. Result in Inadequate Emergency Access

i. Impacts of the Proposed General Plan

The proposed General Plan contains policies and implementing actions that ensure efficient circulation and adequate access are provided in the city, which would help facilitate emergency response. These policies address level of service standards, integrated roadway network, and arterial roadway designs. Furthermore, Action TR-A5.2 of the proposed General Plan requires the City to improve emergency vehicle response times.

Implementation of the General Plan policies would ensure that adequate emergency access is provided in Vacaville. However, as shown in the previous section, the project would result in deterioration of level of service at a number of intersections below acceptable standards that

may not be able to be mitigated when the improvements are needed. This could potentially affect emergency access. Therefore, the project impact remains *significant and unavoidable*.

Impact TRAF-37: The project would result in deterioration of level of service at a number of intersections below acceptable standards that may not be able to be mitigated when the improvements are needed.

Mitigation Measure TRAF-37: Intersection level of service impacts would be addressed by Mitigation Measures TRAF-1 through TRAF-34. No additional mitigation measures are available to address this impact. Therefore, the project impact is *significant and unavoidable*.

Significance After Mitigation: *Significant and Unavoidable*

ii. Impacts of the Proposed Energy and Conservation Action Strategy

The proposed ECAS would not result in inadequate emergency access. Therefore, its impact would be *less than significant*.

f. Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities

Several regional documents, including the Solano Countywide Pedestrian Plan and the Solano Countywide Bicycle Transportation Plan, provide guidelines about pedestrian and bicycle facilities in Solano County in order to facilitate alternative transportation modes. Vacaville City Coach Short and Long Range Transit Plans provide regular updates evaluating existing and planned transit services, and provide the guidelines for evaluating impacts on local transit services. Further, the Alternative Mode Element and the Transit Element of STA's Comprehensive Transportation Plan are concerned with the development of a comprehensive transit system and integration of the whole transportation network.

i. Impacts of the Proposed General Plan

The proposed General Plan includes policies that provide for an integrated network of bicycle and pedestrian facilities, as well as for the needs of transit users. The Plan calls for the construction and enhancement of a bike route network (Policies TR-P8.1 and TR-P8.2) to encourage non-motorized transport between neighborhoods and between neighborhoods, in addition to key destinations for commute, recreational, and other purposes (Policy TR-P8.5). The Plan also requires the City to develop a series of continuous pedestrian walkways within the Downtown and residential neighborhoods (Policy TR-P9.1) and to design separated pedestrian paths and trails to be convenient, visible, and safe (Policy TR-P9.2). The Plan encourages improvements in the transit network by supporting expansion of both local services, when financially feasible

(Policy TR-P11.3), and the intercity system (Policy TR-P11.2 and Policy TR-P11.5), while working to enhance rideshare parking opportunities (Policy TR-P11.4).

New developments are required to include transit amenities unless justification for non-provision is provided (Policy TR-P7.3), bike paths or bike lanes when appropriate (Policy TR-P8.4), and adequate public and private bicycle parking and storage facilities (Policy TR-P8.9). The roadway network in new developments must also be designed to accommodate transit vehicles and facilitate transit routes (Policy TR-P7.4) and on-street bicycle lanes where feasible (Policy TR-P7.6) and as a grid pattern to improve access and circulation for all modes (Policy TR-P7.7).

Implementation of the proposed General Plan would therefore support and would not conflict with plans, programs and policies regarding bicycle or pedestrian facilities, or decrease the performance and safety of such facilities. Therefore, the project impact is *less than significant.*

Impact TRAF-38: The proposed General Plan would allow for development to occur in areas not currently served by public transit at equal service levels to the rest of the Local Tax Base Area. This would be in conflict with the accessibility and geographic coverage goals of the Vacaville City Coach Short Range Transit Plan.

Mitigation Measure TRAF-38: Implementation of the policies and implementing actions in the proposed General Plan, in particular Policies TR-P7.3 and TR-P7.4 and Action TR-A7.3, would establish policies and procedures to evaluate transit demand generated by new development and means to provide for transit demand beyond what can be expected from other established funding sources. New or extended transit service must comply with the established 20 percent farebox recovery mandate.

Significance After Mitigation: With implementation of the actions in the proposed General Plan, the project impact would be *less than significant.*

ii. Impacts of the Proposed Energy and Conservation Action Strategy

The ECAS proposes the development and implementation of a bikeway plan and a pedestrian plan in order to improve the bikeway and pedestrian network. It also includes expansion of transit service in Vacaville, though new or extended transit service must comply with the established farebox recovery mandate. Such measures would be beneficial to alternative methods of transportation and are consistent with the Solano Countywide Pedestrian Plan and the Solano Countywide Bicycle Transportation Plan. Therefore, the impact would be *less than significant.*

2. Cumulative Impacts

The traffic levels predicted in 2035 and evaluated in Section E.1, Project Impacts, are based on cumulative traffic conditions that take into account cumulative development in the region, including development within other parts of Solano County, the Bay Area and the Sacramento area. Therefore, the analysis in Section E.1 addresses cumulative impacts.

F. Full Buildout

The full buildout allowed under the proposed General Plan would include significantly more development than the 2035 horizon-year development projection analyzed in Section E, Impact Discussion, in terms of both the amount and the extent of development. Therefore, the potential for impacts related to traffic and transportation would increase. Environmental impacts related to additional mitigation that may be required for development beyond the 2035 horizon year would be subjected to future environmental assessment. However, as discussed in Chapter 3, Project Description, it is extremely unlikely that full buildout would ever occur under the proposed General Plan. Therefore, an analysis of full buildout is not required by CEQA. Information on full buildout conditions is available in the Land Use Alternatives Evaluation Workbook prepared by the City of Vacaville.