Appendix B
Scoping Report

ELVERTA SPECIFIC PLAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Scoping Report

Prepared for:
U.S. Army Corps of Engineers,
Sacramento District

October 2009

ELVERTA SPECIFIC PLAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Scoping Report

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TABLE OF CONTENTS

Elverta Specific Plan EIS Scoping Report

List of Figures

Page

List of Tables

Appendices

ELVERTA SPECIFIC PLAN PROJECT
Scoping Report

Introduction

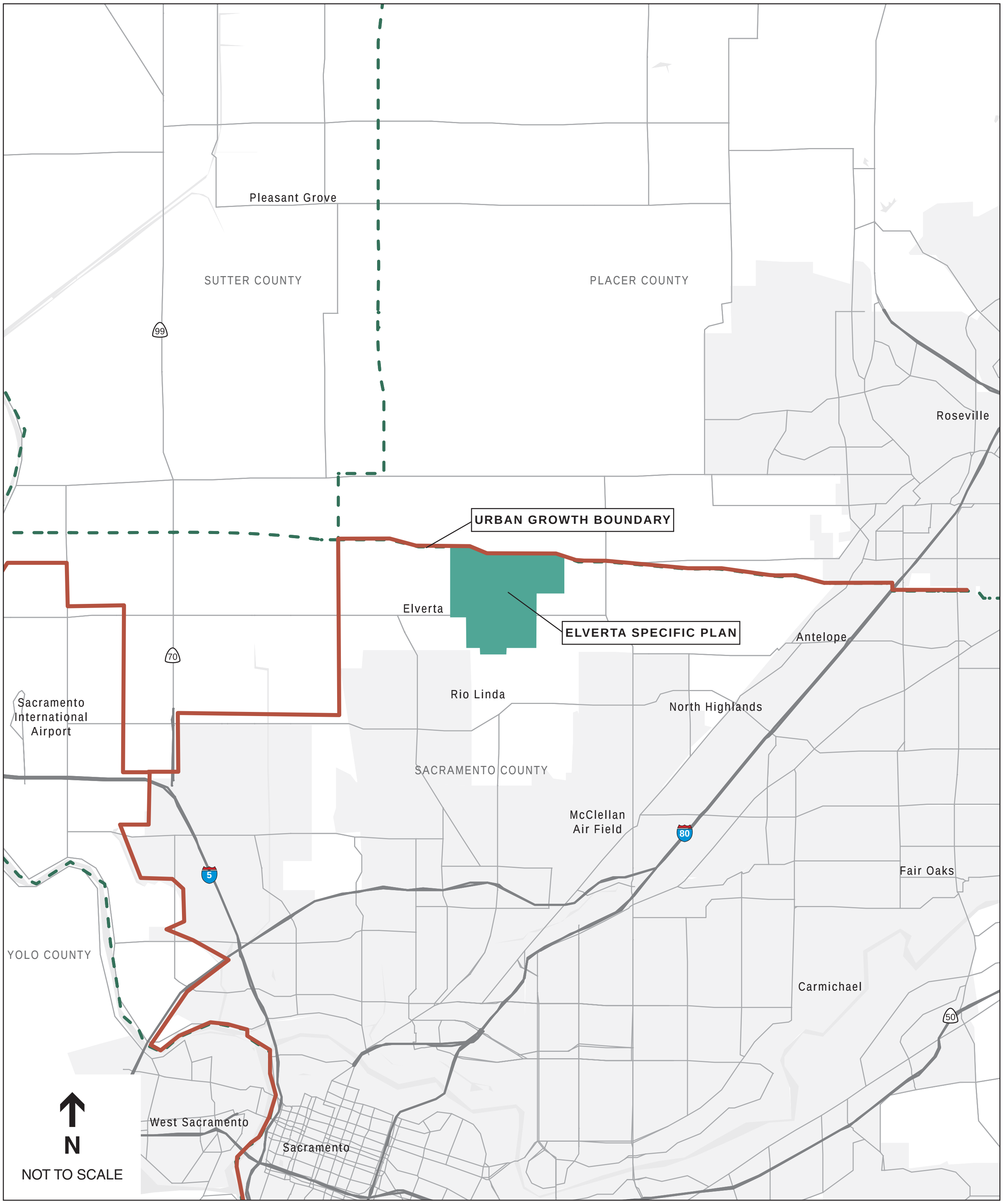
The U.S. Army Corps of Engineers (Corps), Sacramento District is preparing an Environmental Impact Statement (EIS) for the proposed Elverta Specific Plan project (Plan). The Corps is the lead agency under the National Environmental Policy Act (NEPA). As part of the public involvement process for the EIS, the lead agency asked for input on the scope of the environmental review for the project through a public scoping meeting (June 24, 2009) and a written comment period (June 9, 2009 through July 9, 2009, extended from the original period ending June 29, 2009). This report presents a summary of the issues raised during scoping.

Proposed Project and Location

The Elverta Specific Plan addresses future land uses on approximately 1,745 acres in north-central Sacramento County, California. The Elverta Owners Group (Applicant) has applied for Department of the Army permits under Section 404 of the Clean Water Act to develop the initial phase of the Plan, which amounts to approximately 775.6 acres within the plan area. The project site is shown in **Figure 1**.

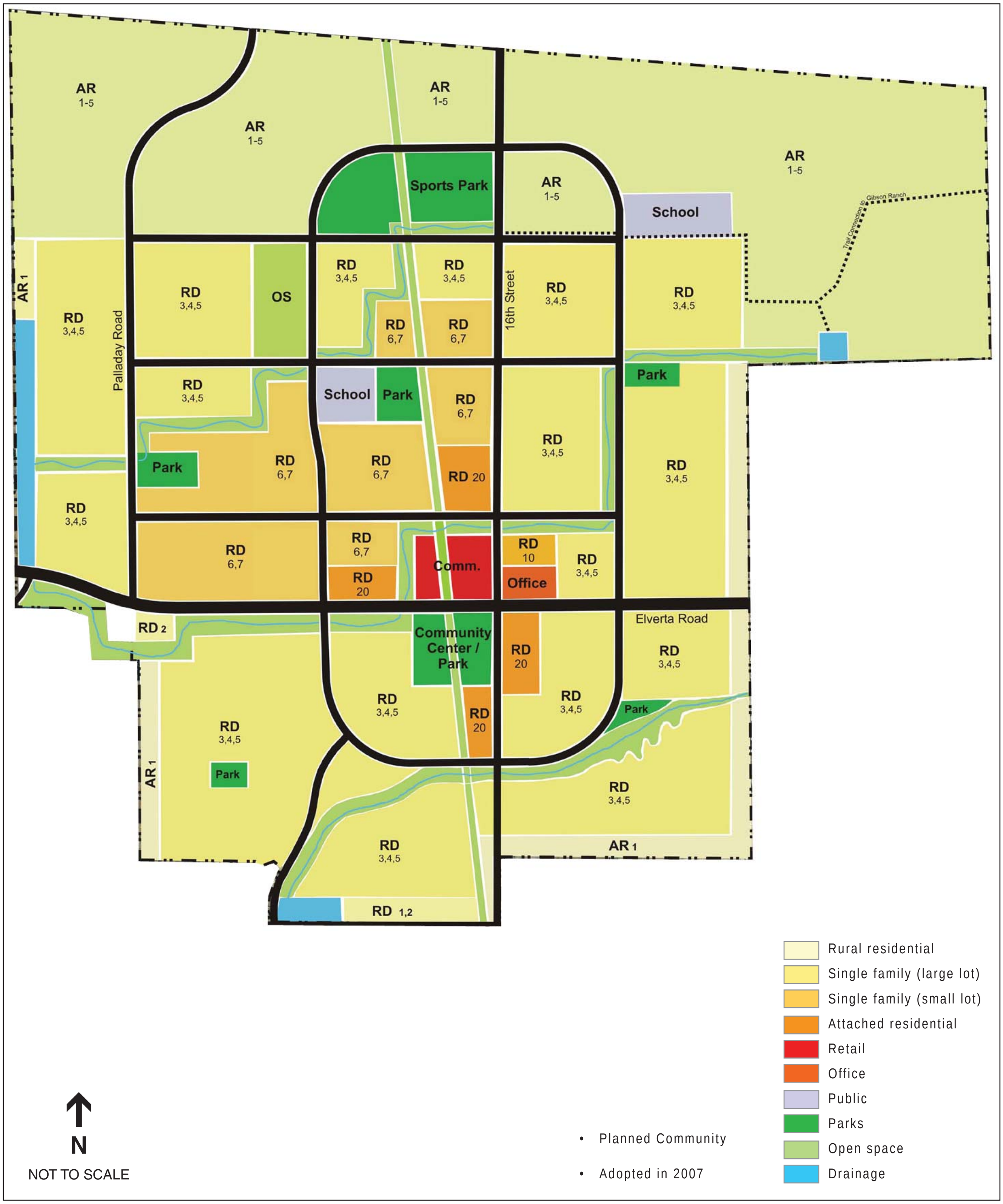
An Environmental Impact Report (EIR) was prepared for the Plan by the Sacramento County Department of Environmental Review and Assessment (DERA) under the California Environmental Quality Act (CEQA). The EIR provided a site plan that identified participant properties included in the project at that time (see **Figure 2**). Since then, the mix of participant properties has changed. For this reason, figures and analyses in the EIR and in various technical documents show differing patterns of included project parcels within the Plan area as compared to the Applicant's current proposal. However, because the EIR evaluated impacts at a programmatic level for the entire Plan area, all parcels that are included in the Applicant's proposal were evaluated by DERA in the EIR.

The Plan is primarily residential in character: it includes 880.3 acres of urban residential uses and 551.8 acres of agricultural-residential uses with a total of 6,187 residential units; 15.0 acres of commercial uses; 4.4 acres of office/professional uses; 20.2 acres of school uses; 73.3 acres of park uses; 18.4 acres (former landfill site) to be designated as open space; and 191.9 acres to be used for drainageways, detention facilities, trails, powerline corridor and major roads. Development proposed by the Applicant on the 22 parcels would be consistent with these uses.



SOURCE: DeLorme Street Atlas, 2000; and ESA, 2009

Figure 1
Specific Plan Location



SOURCE: Sacramento County, 2007; and ESA, 2009

Elverta Specific Plan . 207431

Figure 2
Approved Specific Plan

Background

The following background information summarizes information contained in the Plan's EIR. Some updates to acreages have been provided to account for changes in participating property owners. In addition, the Notice of Intent (NOI) published for this project (Appendix A) indicated that the proposed project would result in the fill of approximately 39 acres of wetlands and other waters of the United States (including seasonal wetlands, vernal pools, intermittent channels, swales, and ditches). The Applicant also proposed to create approximately 15 acres of riparian habitat on the project site. Comments and updated data provided by the Applicant during scoping have further refined these estimates, and now indicate that the proposed project would fill approximately 45.27 acres of wetlands and other waters of the United States, with approximately 18.13 acres of riparian habitat being proposed for creation on the project site. This information has been incorporated into the current project description. The riparian enhancements are proposed to enhance the hydrologic functions and biological quality of the existing channels. Offsite mitigation is also proposed by the Applicant to compensate for onsite impacts to wetlands and other waters of the United States.

The topography of the 1,745 acre Elverta Specific Plan area is flat to gently undulating, with elevations ranging from a high of about 85 feet above mean sea level (msl) in the northeast to a low of about 50 feet above msl in the west/southwest. The northwest portion of the planning area drains to the northwest, while the remainder of the planning area drains to the southwest. Several intermittent streams cross the planning area and ultimately convey all of the site's drainage runoff to the Natomas East Main Drainage Canal (also referred to as the NEMDC and Steelhead Creek), which joins the Sacramento River at Discovery Park. A portion of the Plan area is designated on the FEMA flood map as being within the 100-year floodplain; the remainder of the planning area is shown to be outside the 500-year floodplain.

The site consists primarily of non-native annual grassland habitat used for dry land pasture, with minor areas used for irrigated truck crops such as strawberries. The site's pasture lands support cattle grazing and equestrian uses. Trees are generally lacking throughout the site, although groups of trees have been planted in clusters around residences and as windbreaks along roadways. On-site tree species include black walnut, black locust, valley oak, blue oak, willow, cottonwood, eucalyptus, fig, and a variety of ornamental pine and fruit trees.

Rural residential households are located in the area, mostly grouped along Elverta Road, Palladay Road, 16th Street, and Kasser Road. Domestic water supply is provided by private wells, and wastewater is treated by private septic systems. The eastern and southern portions of the planning area are uninhabited. A portion of a 20-acre parcel on Palladay Road was historically used as a landfill (the Monroe Landfill) for domestic waste. A PG&E power transmission line bisects the planning area in a generally north-south direction.

Surrounding land uses include rural residential uses in the AR-2 zone to the west; urban residential uses in the RD-5 and RD-10 zones to the southwest; rural residential uses in the AR-2 and AR-5 zones to the south; rural residential uses in the AR-1 zone and the Gibson Ranch Regional Park in the O zone to the east; and currently undeveloped grazing land proposed for development with an urban residential community known as Placer Vineyards to the north within Placer County. The former McClellan Air Force Base is located approximately 3 miles southeast of the planning area.

Elverta Road provides regional access to the planning area from Watt Avenue on the east and from Rio Linda Boulevard on the west; while Dry Creek Road provides regional access to the planning area from the south. The limited number of existing crossings of the Dry Creek floodplain corridor to the south of the site (i.e., at Dry Creek Road and at Rio Linda Boulevard) place considerable load on Elverta Road as an east-west distributor of vehicular traffic.

Implementation of the project as proposed by the Applicant would require a Department of the Army Permit under Section 404 of the Clean Water Act. The Elverta Owners Group is proposing to fill approximately 45.27 acres of waters of the United States, including wetlands, to construct this project. The Corps determined that preparation of an EIS was required to meet the requirements of NEPA.

Notice of Intent

The Corps published a Notice of Intent (NOI) in the Federal Register, Vol. 74, No. 109 on June 9, 2009 (**Appendix A**), to inform agencies and the general public that a Draft EIS was being prepared and invited comments on the scope and content of the document. The NOI also provided information on the date and time of the public scoping meeting.

Public Scoping Meeting

The Corps held a public scoping meeting to solicit input from interested parties to be considered in project design, alternatives development, and on the scope and content of the EIS. The meeting was held on June 24, 2009 from 4 p.m. to 7 p.m. at the Rio Linda Elverta Community Center. Attendees were given the opportunity to ask questions and to provide written and oral comments (recorded by a Court Reporter, attached as **Appendix B**). Notice of the public scoping meeting was provided via legal notice in the *Sacramento Bee* newspaper on June 20, 2009 (see **Appendix C**). Additionally, subsequent to the public scoping meeting, the *North Country News* (a local Rio Linda monthly periodical) published an article discussing the project and public scoping meeting and providing information on public commenting (see **Appendix D**).

Summary of Oral Public Comments

The following table provides a summary of the oral comments given at the June 24th public scoping meeting.

TABLE 1
ORAL COMMENTS GIVEN AT THE PUBLIC SCOPING MEETING

Comment Topic	Comment Detail	Name(s) of Commenter(s)
Dry Creek Road		
	Commenter is opposed to use of Dry Creek Road as an ingress/egress route to the project site.	Charlea Moore
	Commenter is in support of the project, but concerned about increasing Dry Creek Road from two to four lanes in regards to safety for children going to school and displacing homes on that route. Commenter suggests 16th Street. as an alternate route to reduce impacts to local residents. 16th Street is a main artery to downtown Sacramento.	Lisa Morris
	Commenter states concern regarding transportation and the north/south roads. Commenter states that it is developments north of Sacramento County (Placer Vineyards and Sutter Point) that are driving demand in Rio Linda/Elverta to widen the roads. Commenter states that local community does not support widening Dry Creek Road. Commenter further asks if Placer County will pay for the road widenings. He indicates that Sacramento County may be negotiating with Placer County regarding the payment for the road widenings. Commenter wants negotiations signed before roads are widened – dumping a lot of cars into Rio Linda/Elverta.	Don Schatzel
	Commenter expresses concern regarding the extension from the thoroughfare from the development through Dry Creek Road and the potential traffic safety concerns for local school children. Commenter suggests moving the access to 16th St. instead.	Mary Harris
Flooding		
	Commenter questions how additional drainage needs will be met and who will compensate for property damage/loss associate with additional flooding if it occurs. Commenter thinks the tiny drain in 10th Street Park is insufficient now and needs to be analyzed for the project drainage needs.	Sharon King
	Commenter states he doesn't think that the project should impact any flooding in the area and the project needs to be built.	Hal Morris
Green Building		
	Commenter discusses potential water recycling, solar energy and water conservation as potential benefits with the project.	Mary Harris
Housing		
	Commenter questions why a development is proposed versus fixing and filling existing homes that are vacant due to foreclosures or lack of need.	Lisa Baker
	Commenter questions increasing housing density above anticipated need. Sacramento County is already over the number of homes in the General Plan 2030.	Sharon King
Natural Resources		
	The project must mitigate for loss of natural resources, specifically things like wetlands, loss of trees, loss of any kind of flora, fauna, should be mitigated within the Dry Creek Parkway, Gibson Ranch, and the community in general.	Charlea Moore

TABLE 1
ORAL COMMENTS GIVEN AT THE PUBLIC SCOPING MEETING

Comment Topic	Comment Detail	Name(s) of Commenter(s)
Public Noticing		
	The June 24th public scoping meeting did not have adequate public noticing.	Charlea Moore
	Commenter states that The North Country News is not a legal publication and that The Rio Linda News is a legal publication. The North Country News is published monthly. They have to be published weekly at the very minimum to become a legal publication.	Kathryn Santos Reed
Traffic		
	Traffic will be an issue on 16th Street. How will 16th Street be impacted by the development to the north that is not in the Specific Plan? 16th Street should be four-lanes all the way from the County line to I-80. We should not use Dry Creek Road for any ingress, egress to the Elverta Specific Plan.	Charlea Moore

Summary of Written Public Comments

To date, 15 comment letters have been received on the NOI as listed in **Table 2**. The letters are included as **Appendix E**. Comments are summarized below and include the number of the associated comment letter in parenthesis.

TABLE 2
NOI COMMENT LETTERS

Letter	Name	Organization	Date Received
1	April Hawkins	Personal Communication from Corporate Email (A/E Consultants Information Network)	June 22, 2009
2	Marlene Robillard-Ramatici	Personal Communication	June 24, 2009
3	Karla M. Alsgood	Personal Communication	June 24, 2009
4	Charlea Moore	Personal Communication	June 24, 2009
5	Paul Amato	U.S. EPA, Region 9	June 24, 2009
6	Paula Parker	Personal Communication	June 25, 2009
7	Amy J. Sterzik	Personal Communication	June 28, 2009
8	Paul Amato	U.S. EPA, Region 9	June 30, 2009
9	Russ Hood	Personal Communication	July 2, 2009
10	Mark and Nancy Pheatt	Personal Communication	July 8, 2009
11	Eric Henderson	Personal Communication	July 9, 2009
12	Marlene Vallee	Personal Communication from Corporate Email (HomEq Servicing Portfolio and Risk Analytics)	July 10, 2009
13	April Hawkins	Personal Communication	July 14, 2009
14	Gregor Blackburn	U.S. Department of Homeland Security, FEMA Region IX.	July 14, 2009
15	Robert Uram	Sheppard, Mullin, Richter & Hampton, LLP (Attorney for the Applicant, The Elverta Owners Group)	August 12, 2009

Air Quality and Health Hazards

- As noted in the "Dry Creek Road" comment summaries, commenters express concern that increased traffic would lead to increased air emissions and associated health hazards as well as increased traffic noise. (Letters 1 and 7)
- DEIS must adequately address air quality impacts from the project and minimize these. Project is located within Sacramento County Air Basin and is designated serious non-attainment for 8-hour ozone and moderate non-attainment for PM10. DEIS should provide a discussion of baseline air quality conditions in the project area, a description of federal and State air quality regulations, and a rigorous assessment of impacts (direct, indirect, cumulative). DEIS should describe specific mitigations and an estimate of the air quality benefits associated with each. DEIS should describe coordination with EPA, ARB and SMAQMD. (Letter 8)
- DEIS should describe whether the project will or will not meet general conformity requirements. If the action may interfere with attainment of the Clean Air Act NAAQS, the Corps must conduct a conformity analysis. Although not required in the NEPA document, EPA also recommends that the General Conformity Determination be included in the NEPA document for full public disclosure. (Letter 8)
- Commenter suggests several construction measures be adopted into the DEIS related to: fugitive dust control, mobile and stationary source controls, and administrative controls. See comment letter for specific measures. (Letter 8)
- DEIS should identify sensitive receptors in the project area such as schools, daycare centers, nursing homes and hospitals. DEIS should specify how impacts to these will be minimized. (Letter 8)
- DEIS should analyze how the project traffic will affect traffic in the region and contribute to cumulative air quality impacts. (Letter 8)

Alternatives

- DEIS should explore and objectively evaluate a reasonable range of alternatives that avoid impacts. EPA recommends adding an "aquatic resources avoidance alternative" to the stated alternatives list from the NOI. This alternative would maximize avoidance and restoration of existing aquatic resources on the project site. (Letter 8)

Biological Resources

- DEIS should provide information on all species and habitats protected under the Federal Endangered Species Act and the California Endangered Species Act and describe how impacts will be avoided, minimized and mitigated. DEIS should provide a description of baseline biological conditions, including habitats and species, and a description of impacts from project (direct, indirect and cumulative). (Letter 8)
- Commenter is concerned about the potential for the project to result in fragmentation of aquatic and terrestrial species habitats and encourages the Corps and Applicant to identify alternatives that maintain large habitat conservation areas on the project site, connected with adequate corridors. DEIS should consider habitat fragmentation and edge effects for aquatic and terrestrial species. (Letter 8)

Community Character

- Commenters state that the Elverta Specific Plan will change the character of the community from rural to urban and will affect residents' quality of life due to increased traffic and associated noise and pollution. (Letters 7 and 13)

Cumulative Effects

- DEIS cumulative analysis should be comprehensive and rigorous and should consider an appropriate scope of activities and spatial and temporal scales when assessing project effects. EPA refers to CEQ 1997 guidance and EPA 1999 guidance documents. Additionally recommends referring to Caltrans SER cumulative guidance as a systematic way to analyze cumulative impacts. (Letter 8)

Dry Creek Road

Commenters oppose the widening of Dry Creek Road as a major north/south four lane roadway for the following reasons.

- Commenter expresses concern that widening this road will result in traffic safety hazards for pedestrians (including school children), bicyclists and horse-back riders. (Letter 1)
- Commenter expresses concern that widening this road will result in increased traffic from Placer County causing increased traffic congestions. (Letter 1)
- Commenter expresses concern that increased traffic would lead to increased air emissions and associated health hazards as well as increased traffic noise. (Letter 1)
- Commenter expresses concern that increased traffic caused by widening this road will result in reduced property values of existing homes located on the road. (Letter 1)
- Commenter states that Dry Creek Rd. is a transportation route for one senior high school, one junior high school, two elementary schools, and one special needs school and that the Elverta Specific Plan "intends to increase safety hazards" for these school children, bus drivers, parents driving their children to school, pedestrians, bicyclists and horse-back riders on Dry Creek Road. Commenter states it is in the best interest of this community to keep Dry Creek Road a 2-lane road, add sidewalks for safety, and not consider expanding to a four-lane road or increasing the speed limit. (Letter 13)

Economics

- Commenter is concerned that water bills in Rio Linda/Elverta will increase. (Letter 1)

Flooding

- Commenter expresses concern over increased flooding as a result of the project and requests that the environmental document appropriately study the impact of the planned drainage system on the property owners to the west of the project, between it and the NMEDC, specifically in regards to additional water pooling on the downstream properties for greater periods of time. (Letter 6)
- Commenter notes that Dry Creek Road also floods often from the creeks, and can not be used at all for travel. (Letter 6)

- Commenter directs the Corps to review the current effective Flood Insurance Rate Maps (FIRMs) for the County of Sacramento and to note that the County is a participant in the National Flood Insurance Program (NFIP). (Letter 14)
- Commenter provides a summary of NFIP floodplain building management requirements, including elevation of lowest floor, required hydrologic and hydraulic analyses to ensure no increase in base flood elevation levels within a Regulatory Floodway, and requirements for Special Flood Hazard Areas. (Letter 14)
- Commenter states that the County may have building requirements that are more strict than the minimum federal standards and provides contact information for the Sacramento County floodplain manager to obtain local requirements. (Letter 14)

Green Building

- Environmental impacts of the proposed project can be reduced through modifications of the footprint and configuration and the integration of Smart Growth, Green Building, and LEED principles. (Letter 8)

Groundwater

- Commenter is concerned with potential groundwater impacts due to overdraft and increases in impervious surfaces that would reduce recharge. The DEIS should clearly describe existing groundwater conditions and potential impacts, as well as avoidance measures. Direct, indirect and cumulative impacts to groundwater and the relationship between groundwater and surface water should be addressed in the DEIS. Design and conservation measures should be considered. (Letter 8)

Growth

- DEIS should describe how project could result in environmental impacts due to induced growth. Make the methodology and assumptions in the growth inducement analysis transparent to the public and decision makers. Identify which land use model will be used, identify assumptions used in the model, ground truth results of the model, use results to inform transit options, neighborhood design, recommendations for land use and mitigation measures. Describe why certain models/assumptions were used and discuss strengths and weaknesses. (Letter 8)

Housing Density

- Commenter requests that the Corps fully evaluate the issues associated with increasing the housing density from 4,950 units to 6,187 units. (Letter 7)
- Commenter expresses confusion regarding the increase in housing density proposed for the Elverta Specific Plan from 4,950 units to 6,187 units without adequate community notice and involvement. Commenter asks if the rezone to increase density has been approved and states that the increased density will further reduce rural quality of life in excess of that expected with the DERA approved 4,950 units. (Letter 9)

On-Site Mitigation

- Commenter states that the NOI did not discuss the on-site mitigation proposed as a part of the project. Approximately 18 acres of waters within the Specific Plan area will be avoided and enhanced as part of the Elverta Owners Group actions. The Applicants will minimize impacts to these avoided areas by restoring and buffering these areas from development. Areas adjacent to these enhanced drainages will be used to create and restore wetlands within drainage corridors. (Letter 15)
- Commenter states that upon completion, the created, restored and enhanced aquatic features will serve to improve water quality, provide a visual amenity for the community, and provide habitat for wildlife. Commenter states that the Elverta Owners Group anticipates that further enhancement will be done as part of the development of the remainder of the Specific Plan. (Letter 15)

Permit Applications

- Commenter states that changes to the project have occurred since The Elverta Owners Group submitted applications to the Corps in 2005, and that new applications will be submitted. (Letter 15)
- Commenter states that new permit applications will include an infrastructure permit for common facilities that serve the entire proposed Specific Plan. (Letter 15)
- Commenter states that The Elverta Owners Group anticipates that fill of waters of the United States associated with the applications and the infrastructure will be approximately 45 acres. (Letter 15)

Project Description

- Commenter states that the Applicants are seeking individual permits for fill associated with the first phase of construction on 775.6 acres owned by entities participating in the Elverta Owners Group and a permit for fill associated with infrastructure necessary to serve the entire 1,745-acre Specific Plan area. (Letter 15)
- Commenter states that it is the expectation of the Elverta Owners Group that non-participating land owners will choose to develop their properties at a later time according to the Specific Plan. (Letter 15)
- Commenter states that as part of the EIS process, the Corps should consider issuing letters of permission (LOP) to allow non-participating owners to fill wetlands on their lands in the Specific Plan area in a manner that is consistent with the approved permits for the Elverta Owners Group. (Letter 15)
- Commenter states that in order to qualify for the letters of permission, the non-participating owners should have to conform their applications to the project footprint and fill areas the Corps identifies in the LOP and meet other conditions of the LOP, or alternatively should file separate individual permit applications. (Letter 15)

Property Value

- As noted in the "Dry Creek Road" comment summaries, commenters express concern that increased traffic caused by widening this road will result in reduced property values of existing homes located on the road. (Letters 1 and 7)

Public Involvement

- Commenters request extension of comment period for the Notice of Intent (Letters 2 and 5)
- Commenters request to be added to noticing lists for future notices (Letters 3 and 4)
- Commenter describes decade-long Rio Linda community public involvement in the EIR process and describes community opposition to the project. Commenter further states that there has been a lack of transparency and public noticing in regards to changes to the Elverta Specific Plan between 2006 and present. (Letter 7)
- Commenter states that their property is located within the boundaries of the Elverta Specific Plan and that they did not receive individual notice of the public scoping meeting. Commenter further states they are concerned about the potential impact to their property and requests information regarding direct and indirect impacts to their property, a list of properties affected by the proposed permit, description of how the permit may change or influence their property values, and what further requirements must be completed by the Corps to identify the potential impacts to their property. Commenter further requests an additional public meeting to meet with the Corps to discuss how the proposed action may affect them and their property. (Letter 10)
- Commenter states that the scoping meeting was not noticed substantially and suggests multiple public meetings to present the Plan and address community concerns regarding traffic, water, and quality of life before being allowed to proceed. (Letter 11)

Purpose and Need

- Purpose and Need should be clearly stated and describe underlying purpose and need to which the Corps is responding in proposing alternatives, including the proposed action. Explain why the Applicant is undertaking the proposed project, and the objectives that the action is intended to achieve. Include a detailed description of why a development of the size, composition, and location of the proposed project is needed. (Letter 8)

Scope of the EIS

- Commenter states that through the scoping process the lead agency must determine the scope of the environmental review and "identify and eliminate from detailed study the issues which are not significant or have been covered by prior environmental review." Commenter provides citation of sections within 40 C.F.R. (Letter 15)
- Commenter states that NEPA requires federal agencies to cooperate with local agencies to reduce duplication between NEPA and state and local requirements. Commenter provides citation of sections within 40 C.F.R. (Letter 15)
- Commenter states that during the scoping process, the lead agency may work cooperatively with others to identify the significant issues to be analyzed in depth in the EIS and to

eliminate insignificant issues from further study. Commenter provides legal citation. (Letter 15)

- Commenter states that the Corps may incorporate the contents of state and local environmental evaluations by reference into decision documents so long as it documents how it reached its own NEPA determination. Commenter provides legal citation. (Letter 15)
- Commenter states that Sacramento County's EIR was prepared as both a Master EIR and a Program EIR that review the impacts of the entire Elverta Specific Plan. The County approved and certified the Final EIR in accordance with CEQA and it will conduct further review of the project as required to issue local entitlements and authorizations. Commenter states that to reduce duplication, the Corps should use the scoping process to identify areas that have been previously covered adequately under CEQA and present why they will not have any significant effect on the environment or incorporate relevant data and analysis from the County's EIR into the EIS. (Letter 15)
- Commenter states that in accordance with subsection 320.4(j)(2) of the Corps' regulations, the EIS should explain that the primary responsibility for determining zoning and land use matters rests with the state and local governments and that the Corps accepts decisions by such governments on those matters unless the Corps identifies significant issues of overriding national importance. (letter 15)

Scoping Period

- Commenter thinks June 29, 2009 is too short of a period to review and comment on the EIS. (Letter 2)

Traffic Volumes

- Commenter expresses concern about the traffic impact on Rifle Ridge Drive in the Cherry Creek Subdivision. (Letter 11)
- Commenter expresses concern about the overall traffic impact on Elverta Road and Watt Avenue. (Letter 11)
- Commenter expresses concern in regards to the plans and capacity for 16th Street. (Letter 11)
- Commenters express concern in regards to the plans and capacity for Dry Creek Road. (Letters 1 and 11)
- Commenter expresses concern regarding local impact of 70,000 dwelling units planned in Placer County north of the project. (Letter 11)
- Commenter requests information or documents regarding the Department of Transportation's recommendation for the 16th Street extension for the Elverta specific Plan. (Letter 12)
- DEIS should include a traffic analysis to determine how the proposed project will affect traffic in the region. (Letter 8)

Traffic Hazards / Pedestrian, Bicyclist and Equestrian Safety

- As noted in the "Dry Creek Road" comment summaries, commenters express concern that widening this road will result in traffic safety hazards for pedestrians (including school children), bicyclists and horse-back riders. (Letters 1 and 7)

Water Supply and Electricity Provision

- DEIS should describe the existing and/or proposed water supply for the project, anticipated water demand for the project, and impacts to water resources that may occur (direct, indirect and cumulative). The project should maximize conservation measures and provide estimate of benefit from each measure. The DEIS should describe water reliability and how that will be affected by climate change. (Letter 8)
- Commenters express concern that adequate water supply is not available to serve the project and that this lack of water supply would result in increased water costs for existing residents (Letters 1 and 11)
- Commenter questions adequate availability/provision of electricity and questions how provision to new residences will affect existing residential rates. (Letter 11)

Wetlands and Other Waters of the United States

- Commenter requests that the Corps fully evaluate the issues associated with wetlands fill. (Letter 7)
- Commenter is concerned with impacts to waters of the U.S. (waters) at the project site, especially vernal pools. Commenter encourages the Applicant to avoid and minimize impacts to waters to the maximum extent possible and requests a future site visit with the Corps to better understand site conditions. (Letter 8)
- DEIS should discuss how the alternatives analysis complies with the 404 (b)(1) Guidelines that require selection of the LEDPA for Section 404 permitting purposes. (Letter 8)
- Where impact to waters are determined to be unavoidable, the DEIS should demonstrate compliance with Mitigation Rule 33 CFR Parts 325 and 332 and 40 CFR Part 230 regarding Compensatory Mitigation for Losses of Aquatic Resources, Final Rule. (Letter 8)
- DEIS alternatives and mitigation should be identified by studies that identify aquatic resources at the project site, including a functional assessment. Results should be used in baseline, impacts and mitigation, and used to demonstrate LEDPA. (Letter 8)
- Stormwater runoff from the project could result in chemical, physical, and biological impacts to aquatic resources and should be avoided through the use of appropriate best management practices, low impact development (LID) techniques, and the use of stormwater retention and treatment features. The DEIS should describe construction and design measures to avoid and minimize impacts to water quality and aquatic resources through pretreatment of stormwater, and stormwater attenuation to prevent hydromodification of receiving waters. (Letter 8)
- Commenter states that the NOI only identifies impacts to waters of the U.S. on the lands owned by the Elverta Owners Group participants. Commenter states that the EIS should also evaluate the total impacts on waters of the U.S. from implementation of the Specific Plan as an additional 980 acres of development would occur on the lands of non-participating land owners in subsequent phases of implementation of the Specific Plan. (Letter 15)

APPENDIX A

Federal Register – Notice of Intent

Defense Business Board, and pursuant to the Federal Advisory Committee Act of 1972, the Government in Sunshine Act of 1976, and other appropriate federal regulations, this Task Group does not work independently of the Board's charter.

(b) Availability of Materials for the Meeting

A copy of the June 25 and 26 meeting agenda may be obtained from the Board's website at *http://www.defenselink.mil/dbb* under ''NSPS Task Group.'' On June 25th the Task Group will invite experts on this topic and who recently testified before Congress. On June 26th the Task Group will hear from select members of the public where the Task Group requires additional information or explanation from previously submitted written comments.

(c) Public's Accessibility to the Meeting

Pursuant to 5 U.S.C. 552b and 41 CFR 102–3.140, and the availability of space, this meeting is open to the public. Seating is on a first-come basis.

(1) Special Accommodations: Individuals requiring special accommodations to access the public meeting should contact Ms. Evans at least five business days prior to the meeting so that appropriate arrangements may be made.

(d) Procedures for Providing Public Comments

Pursuant to 41 CFR 102–3.105(j) and 102–3.140, and section 10(a)(3) of the Federal Advisory Committee Act of 1972, the public or interested organizations may submit written comments to Ms. Phyllis Ferguson, Designated Federal Officer for the Defense Business Board, 2521 South Clark Street, Room 650, Arlington, VA 22202, and this individual will ensure that the written comments are provided to the Task Group for their consideration.

Written comments being submitted in response to the agenda mentioned in this notice must be received by the Designated Federal Officer at the address listed above by June 18, 2009. Written comments received after this date may not be received in time for the NSPS Review Task Group to consider prior to the June 25–26, 2009 meeting.

While individuals are not required to follow any specific format when submitting written comments, it would be beneficial to the Task Group's analysis if those individuals who are submitting written comments consider formatting their comments along the following lines:

1. Classification Architecture (design of pay bands, pay schedules, and career groups);
2. Implementation of NSPS (initial orientation, availability of training, communication with employees);
3. Labor Management Relations (collective bargaining issues);
4. Pay Pool Process (pay pool funding, transparency, fairness, equity, uniformity and consistency across pay pools);
5. Pay Setting (rules/flexibilities for setting pay on reassignments, promotions, new hires, etc.);
6. Pay Structure (pay bands, targeted local market supplement, general salary increases);
7. Performance Management (design of performance management system including performance plans, monitoring performance, performance criteria, rating levels, rating distribution, performance process, communication, reconsideration process, administrative workload);
8. Program Outcomes (mission alignment, results focused, high-performing workforce);
9. Staffing and Employment (appointing authorities, alternative promotion procedures, hiring flexibilities).

In addition and on a voluntary basis, the Task Force would also like those submitting written comments to consider providing the following information: (1) DoD NSPS Employee, (2) DoD NSPS Supervisor, (3) DoD Non-NSPS Employee, (4) Other Federal Government Employee, (5) Non-Federal Government Employee or (6) Interested Organization.

Please note: The Board operates under the provisions of the Federal Advisory Committee Act, as amended; therefore, all public presentations will be treated as public documents and will be made available for public inspection, including being posted on the Board's Web site.

Dated: June 3, 2009.

Patricia L. Toppings,

OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. E9–13382 Filed 6–8–09; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for the Proposed Elverta Specific Plan Project, in Sacramento County, CA, Corps Permit File Number SPK–2004–323

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DOD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers, Sacramento District (Corps), will prepare an Environmental Impact Statement (EIS) for the Elverta Specific Plan project, a proposed master planned community in Sacramento County, CA. The Elverta Owners Group has applied for Department of Army permits to fill approximately 39 acres of waters of the United States, including wetlands, to construct this project.

ADDRESSES: Please send written comments to Kathleen Dadey, U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Room 1480, Sacramento, CA 95814–2922.

FOR FURTHER INFORMATION CONTACT: Questions about the proposed action and EIS should be addressed to Kathleen Dadey, (916) 557–7253, e-mail: *Kathleen.A.Dadey@usace.army.mil.*

SUPPLEMENTARY INFORMATION: The Elverta Specific Plan (Plan) addresses future land uses on approximately 1,745 acres in north-central Sacramento County, California. The Elverta Owners Group has applied for Department of the Army permits under Section 404 of the Clean Water Act to develop approximately 775.6 acres of the Plan area as the initial phase of the Plan. The Elverta Owners Group, which is comprised of 13 applicants, has submitted one application for the infrastructure to serve the Plan area and individual permit applications for 22 separate development parcels (projects). Each of the projects is complete and independent from one another; however, each of the projects relies upon the common drainage, roadways, and sewer infrastructure as described in the infrastructure permit application.

An Environmental Impact Report (EIR) was prepared for the Plan by the Sacramento County Department of Environmental Review and Assessment (DERA) under the California Environmental Quality Act (CEQA). The EIR provided a site plan that identified participant properties included in the project at the time of publication. Since that time the mix of included properties has changed. For this reason, figures and analyses in the EIR and in various technical documents show differing patterns of included project parcels within the Plan area as compared to the current proposal. However, because the EIR evaluated impacts at a programmatic level for the entire Plan area, all parcels that are included in the current proposal were evaluated by DERA in the EIR.

The Elverta Specific Plan is primarily residential in character: It includes 880.3 acres of urban residential uses and 551.8 acres of agricultural-residential uses with a total of 6,187 residential units; 15.0 acres of commercial uses; 4.4 acres of office/professional uses; 20.2 acres of school uses; 73.3 acres of park uses; 18.4 acres (former landfill site) to be designated as open space; and 191.9 acres to be used for drainageways, detention facilities, trails, powerline corridor and major roads. Development proposed by the Elverta Owners Group on the 22 parcels would be consistent with these uses. The number of residential units has increased from the original 4,950 units analyzed previously in the EIR. The Sacramento County Housing Element 2008–2013 (adopted December 2008) allows for a 25% density increase for residential development projects that meet the following two conditions: (1) Result in energy savings beyond those obtained with conventional design and construction techniques, and, (2) The amount of increased density is proportional to the amount of increased energy efficiency achieved that exceeds adopted regulations (see Chapter 3, Sub-Strategy VII–A, Policy HE–59c of the Housing Element [page 3–91]). The proposed project would meet these criteria and therefore the maximum of 6,187 residential units is proposed.

The project would result in fill of up to 39 acres of waters of the United States, including seasonal wetlands, vernal pools, intermittent channels, swales, and ditches. Some of this fill would be permanent and some would be temporary. Temporary fill would be restored with approximately 15 acres of riparian corridors on the project site. The riparian enhancements are expected to enhance the hydrologic functions and biological quality of existing channels. Offsite mitigation is also proposed to compensate for onsite impacts to wetlands and waters.

The EIS will include an evaluation of a reasonable range of alternatives. Currently, the following alternatives are expected to be analyzed in detail: (1) The no action (no development) alternative, (2) the no federal action (no permit issued) alternative, (3) the applicant's preferred project, (4) the approved Specific Plan, and (5) a different location (off-site) alternative. The no action (no development) alternative assumes no development would occur on the site. The no federal action (no permit issued) alternative assumes limited development would occur on the site with all waters of the United States avoided. The off-site alternative assumes the proposed project would be developed at a different but suitably sized site in the region. The Corps will also use the EIS to evaluate alternatives under the Section 404(b)(1) Guidelines, and additional alternatives may be developed under this evaluation.

The Corps' scoping process for the EIS includes a public involvement program with several opportunities to provide oral and written comments. In addition to public meetings and notifications in the **Federal Register**, the Corps will issue public notices when the draft and final EISs are available. Affected Federal, State, and local agencies, Native American tribes, and other interested private organizations and parties are invited to participate.

Potentially significant issues to be analyzed in the EIS include, but are not limited to: Loss of waters of the United States, including wetlands; land use and agriculture; population, employment and housing; environmental justice and socio-economic impacts; drainage, hydrology and water quality; utilities and service systems; public services; geology, soils and mineral resources; paleontological resources; cultural and historic resources; biological resources; visual resources; parks and recreation; hazards and hazardous materials; traffic and transportation; air quality and global climate change; noise; and cumulative and growth inducing impacts. The Corps is the lead agency for preparation of the EIS under the requirements of the National Environmental Policy Act (NEPA). The Corps will coordinate with other agencies, such as Sacramento County.

Other environmental review and consultation requirements for the proposed action include the need for the applicant to obtain water quality certification under Section 401 of the Clean Water Act from the California Central Valley Regional Water Quality Control Board. In addition, the federally listed vernal pool fairy shrimp (*Branchinecta lynchi*) is known to occur in the Plan area. Surveys conducted on the majority of the properties within the Plan area according to the U.S. Fish and Wildlife Service's protocol requirements during the wet seasons of 2000 and 2001 found *B. lynchi* at three locations. Dry season sampling conducted in 2005 (on 12 parcels) and 2007 (on 23 parcels) also found evidence of the federally listed *Branchinecta.* The Corps will formally consult with the U.S. Fish and Wildlife Service in accordance with Section 7 of the federal Endangered Species Act. The Corps will also consult with the State Historic Preservation Officer under Section 106 of the National Historic Preservation Act concerning properties listed, or potentially eligible for listing, on the National Register of Historic Places.

A public scoping meeting for the EIS will be held on June 24, 2009, from 4 p.m. to 7 p.m. The meeting will be held at the Rio Linda Elverta Community Center, 810 Oak Lane, Rio Linda, CA 95673. Interested parties can provide oral and written comments at the meeting. Interested parties may also submit written comments on this notice. Scoping comments should be submitted before June 29, 2009 but may be submitted at any time prior to publication of the Draft EIS.

Interested parties may register for the Corps' public notice e-mail notification lists at: *http://www.spk.usace.army.mil/organizations/cespk-co/regulatory/pnlist.html.*

Brenda S. Bowen,

Army Federal Register Liaison Officer.

[FR Doc. E9–13473 Filed 6–8–09; 8:45 am]

BILLING CODE 3720–58–P

DEPARTMENT OF DEFENSE

Department of the Army

Army Science Board Plenary Meeting

AGENCY: Department of the Army, DoD.

ACTION: Notice of open meeting.

SUMMARY: Pursuant to the Federal Advisory Committee Act of 1972 (5 U.S.C., Appendix, as amended), the Sunshine in the Government Act of 1976 (U.S.C. 552b, as amended) and 41 Code of the Federal Regulations (CFR 102–3.140 through 160), the Department of the Army announces the following committee meeting:

Name of Committee: Army Science Board (ASB).

Date(s) of Meeting: July 13–23, 2009.

Time(s) of Meeting:

0800–1700, July 13, 2009.
0800–1700, July 14, 2009.
0800–1700, July 15, 2009.
0800–1700, July 16, 2009.
0800–1700, July 17, 2009.
0800–1700, July 20, 2009.
0800–1700, July 21, 2009.
0800–1700, July 22, 2009.
0800–1400, July 23, 2009.

APPENDIX B

Scoping Meeting Oral Comments

0001

ELVERTA PROJECT

EIS SCOPING MEETING

PUBLIC COMMENTS

JUNE 24, 2009
4:00 p.m. to 7:00 p.m.

Rio Linda Elverta Community Center
810 Oak Lane
Rio Linda, California 95673

REPORTED BY: ANGELA T. KOTT, CSR 7811

0002

CHARLEA R. MOORE
8840 El Verano Avenue
Elverta, California 95626
(916) 991-0338
Charhorseranch@aol.com

MS. MOORE: My first comment and most pressing concern is the lack of public notification for this scoping meeting, which is probably where people, the public especially, first gets their chance to say, "This is what is concerning this community." And this community has been involved in this project, the Elverta Specific Plan, heavily involved for as long as it's been in existence.

I was on the CAC back in the '90s when we were doing the Community Advisory Committee, appointed by the Board of Supervisors and paid for public input thousands of dollars. Race Studios did the CAC.

Since that time, this community has shown its involvement, and to have this meeting suddenly pop up with no knowledge in the community -- the community has no knowledge of this meeting. If it hadn't been for a 10:30 phone call last night from Marlene Ramatici-Rollbiard, I would not have known this meeting existed.

I called this building this morning at 9:30 and was told there was no meeting. And that is my concern. That's it for now.

0003

SECOND STATEMENT BY MS. MOORE

MS. MOORE: The concern I have is that we emphasize mitigating resources that are -- that need to be mitigated within our community, specifically things like wetlands, loss of trees, loss of any kind of flora, fauna, be mitigated within the Dry Creek Parkway, Gibson Ranch and the community in general.

And the second issue is traffic on 16th Street and how it will be impacted by the development to the north that is not within our Specific Plan, but it is nonetheless going to hit the border at 16th Street. It's already planned for there. And as it comes south on 16th Street, we need to take that into account in terms of going over the Dry Creek Parkway so that 16th Street should be four-laned all the way from the county line to I-80. And we should not use Dry Creek Road as any of the ingress, egress to the Elverta Specific Plan.

0004

LISA BAKER
Dry Creek Road
Rio Linda, California 95673

MS. BAKER: My name is Lisa Baker. I live on Dry Creek Road in Rio Linda, California. Zip code 95673.

My question is this, to the people, the developers, given the way the economy is right now, jobs being scarce, people barely making it and housing being foreclosed, and all that -- and by the way, in the Rio Linda area, there's many foreclosed homes.

I got some information from Realtytrack.com from a friend of mine on June 17, 2009. I live in zip code 95673. Right now there's about 188 defaults, 115 auctions, 172 bank owns and 11 homes for sale.

I pass by every day, you know, on my bike and I see so many empty houses for sale. We have so many empty houses right now, why do you want to build more in the first place instead of trying to fix and fill the ones we have now?

0005

SHARON KING
7420 Dry Creek Road
Rio Linda, California 95673
(916) 991-4266

MS. KING: Number 1) Currently with no wetland fill, Dry Creek and U Street become an unplanned-for reservoir across both roads every winter. With the increased water displaced by the fill, how is the ESP going to prevent even more flooding?

2) I live on a natural drain for the area starting at U Street and 16th. It goes across 14th behind my property, meandering behind several neighbors to drain under Dry Creek Road beside my property. I do not flood right now. Should I flood after the wetlands are filled and the development is done, who will compensate me for my loss? How will the excess drainage be dealt with?

3) Someone needs to look at the tiny drain where

all the project's water ultimately goes. It's in 10th Street Park, it's insufficient now and backs up.

4) Last question: How can Sacramento County consider additional homes' density on top of the filled-in wetlands when the general plan 2030 is already way over the number of homes -- are planning for way over the number of homes that they think will be needed, what justification is there?

0006

KATHRYN SANTOS REED
(916) 968-0252

MS. REED: My statement was about legal publication. The North Country News is not a legal publication. The Rio Linda News is. The Rio Linda is adjudicated, a newspaper of general circulation, and they are allowed to publish legal notices. The North Country News has been in business one year, but it's only published monthly. They have to be published weekly at the very minimum to become a legal publication, and then they have to go through the court process.

0007

Lisa Morris
1138 Q Street
Rio Linda, California
(916) 991-2416

MS. MORRIS: Actually, I'm all for the Elverta Specific Plan to happen. It's going to benefit our community. The only concern I do have is if Dry Creek Road is a four-lane instead of a two-lane due to the factor that it's the main route that children take to go to school -- we have several schools and several day care centers on Dry Creek. You're going to be destroying people's homes that have been there for a long time. And the alternative route that I would choose would be 16th Street.

16th Street will be minimal purchasing of homes, it will affect less people in our community. I did speak to several people on 16th Street and they said they are not really too happy about having a four-lane road going through their community, but they totally understand that. And my support is if you have widening of a road, have it 16th Street because that's a main artery to downtown Sacramento.

0008

HAL MORRIS
1138 Q Street
Rio Linda, California

MR. MORRIS: I was on the original Community Advisory Committee for this project starting in 1997 and I believe it's a great project. I don't really think that it should impact any flooding in the area and it needs to get done and built. Thank you.

0009

DON SCHATZEL
(Work address)
810 Oak Lane
Rio Linda, California
(916) 991-8110

MR. SCHATZEL: My comments were along the lines of transportation and north/south roads. The concern we have is in the planning effort. Many of the maps do not include the development north of Sacramento County, Placer Vineyards, one development; Sutter Point, another development.

Those populations are the ones that are driving the demand to widen roads in Rio Linda/Elverta that go in a north/south direction. It's not the Elverta Plan that is forcing the widening of those roads. It's the people in the other county, that development in Placer County.

And so, you know, Dry Creek Road in particular, this community doesn't support widening it.

And then the question we have too is, the roads that can be widened, is Placer County paying for it? And so far the input we've gotten from Sac County is, "Well, we're negotiating." And from our perspective, the negotiations should be done and signed before they build anything that is going to dump a lot of cars into this community. Okay.

0010

MARY HARRIS
1020 Q Street
Rio Linda, California 95673
(916) 991-3100

MS. HARRIS: I'm here to look at the displays on the Elverta Specific Plan. I'm encouraged from what I'm hearing here. Every time we come to another meeting, you know, we learn just a little bit more. I was able to talk with John about some recycling of putting like a filtration at the large lots, the single family homes to where the gray water could be recycled for lawns and trees. And I had read on the Internet that it would cost like $1,000 for the tank, the recycling tank. I think that would be beneficial for smart growth for this area.

Solar energy, we talked about that and wells and the treatment facilities and stuff. That would definitely help. And the water district will work with the Specific Plan on the irrigation to cut back on water usage.

One very main concern that I'm really here for is the extension from the thoroughfare from the development through Dry Creek Road. And I am totally opposed to putting anything that would be a thoroughfare through Dry Creek Road.

We have three schools in that area. I live on Q Street and I'm two doors from the elementary school. And we had, I would say 25 years ago, a student was crossing

0011

the road and a car hit the young man. And he did survive, but he's paraplegic today. And if we put anything that would increase traffic on Dry Creek Road, I think it would be a detriment to the students.

And my proposal is we move it over to 16th Street and that would -- that road would take you straight over to the freeway, which would give the traffic access to hitting the freeway and if they worked downtown or different areas.

So that's pretty well my biggest concern is not putting anything that would increase traffic on Dry Creek Road. And that's the end of my statement.

Thank you.

--oOo--

0012

CERTIFICATE OF REPORTER

I, ANGELA T. KOTT, a duly authorized shorthand Reporter, do hereby certify:

That the foregoing transcript constitutes a full and correct transcript of my shorthand notes taken by such reporter of the proceedings herein, and reduced to typewriting under my supervision and control to the best of my ability.

In witness whereof, I have subscribed my name.

DATED:______________________

____

ANGELA T. KOTT, CSR 7811

APPENDIX C

Sacramento Bee Legal Notice

RWW

The Sacramento Bee

P.O. Box 15779 • 2100 Q Street • Sacramento, CA 95852

ESA/COMM DEV
2600 CAPITOL AVE #200
SACRAMENTO, CA 95816

DECLARATION OF PUBLICATION
(C.C.P. 2015.5)

COUNTY OF SACRAMENTO
STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

June 20, 2009

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on **June 20, 2009**

(Signature)

NO 443 PUBLIC NOTICE

Public Scoping Meeting for the Proposed Elverta Specific Plan Project.

The U.S. Army Corps of Engineers, Sacramento District, (Corps) will prepare an Environmental Impact Statement (EIS) for the Elverta Specific Plan project (Plan), a proposed master planned community in Sacramento County, CA. The Plan addresses future land uses on approximately 1,745 acres in north-central Sacramento County, California. Approximately 775.6 acres of this area would be built out as the initial phase of the Plan. The Elverta Owners Group has applied for Department of Army permits to fill approximately 39 acres of waters of the United States, including wetlands, to construct the initial phase.

A public scoping meeting for the EIS will be held on June 24, 2009, from 4 p.m. to 7 p.m. The meeting will be held at the Rio Linda Elverta Community Center, 810 Oak Lane, Rio Linda, CA 95673. Interested parties can provide oral and written comments at the meeting. Interested parties may also submit written comments on this notice, to Kathleen Dadey, U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Room 1480, Sacramento, California 95814, Kathleen.A.Dadey@usace.army.mil. Scoping comments should be submitted before June 29, 2009 but may be submitted at any time prior to publication of the Draft EIS.

RECEIVED
JUN 26 2009
By

APPENDIX D

North Country News Article

ELVERTA - RIO LINDA - PLEASANT GROVE

North Country News

ESTABLISHED 2008.........THE BEST PAPER IN TOWN !!!!

VOL. 2 NO. 7 ••••• July 2009 ••••• SINGLE COPY $1.00

www.NCNews328.com

Elverta Owners Group applies for permits

SURPRISE "PUBLIC SCOPING" MEETING HELD JUNE 24, 2009 AT THE RIO LINDA ELVERTA COMMUNITY CENTER

By Charlea Moore

The Elverta Owners Group is moving forward with an application to the Department of the Army for permits under the Clean Water Act to develop approximately 775.6 acres of the Elverta Specific Plan area as the initial phase of the Elverta Specific Plan.

The Owners Group is comprised of 13 applicants. They have submitted a single application for the infrastructure to serve the Plan area and individual permit applications for 22 separate development parcels (projects). These projects are separate, independent projects but all rely on the common drainage, roadways and sewer infrastructure described in the permit application.

Last month the NCNews carried a story about the proposed widening of Dry Creek Rd. to 4 lanes. There has been quite a bit of protest from the community and as a result the Dept. of Transportation is recommending that Dry Creek Rd. remain a two lane, neighborhood road.

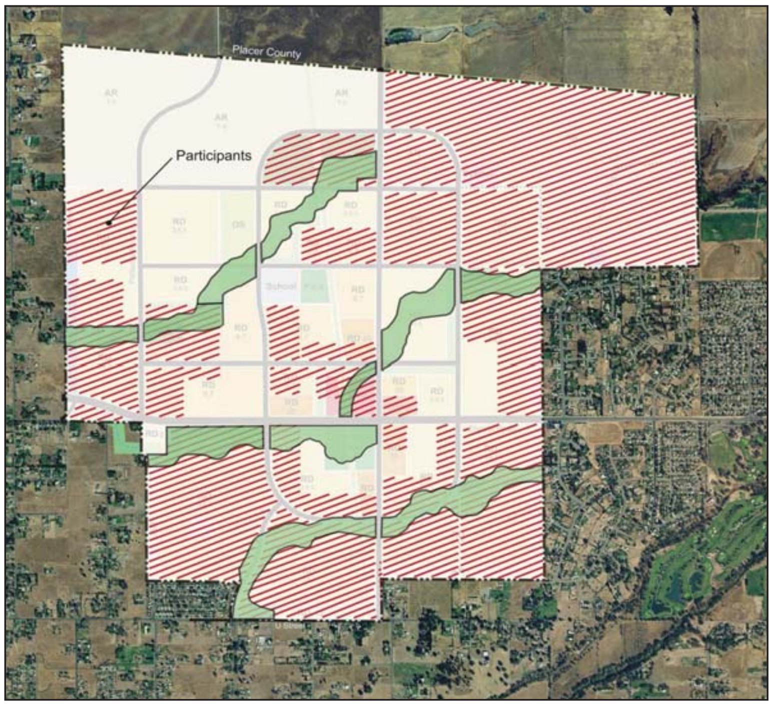
However, the original reason for designating Dry Creek Rd. as 4 lanes was to handle the north/south traffic from the Elverta Specific Plan. As indicated on this map, Dry Creek Rd. is still the only through road to handle the traffic.

The maps at the scoping meeting did not show the 70,000 plus dwelling units scheduled for the area in Placer County immediately north of the Plan. Placer County shows 16th Street as 4 lanes at the Placer/Sacramento County line. Since there is no plan by Sacramento County to build the 16th St. extension across the Dry Creek Parkway the only place the traffic can go is down Dry Creek Rd.

In addition to the permits to dredge and fill, the Elverta Owners Group requested and received a rezone that will increase the maximum dwelling units from 4,950 to 6,187.

There were only a few residents in attendance at the June 24, 2009 scoping meeting and all were the result of Marlene Robillard-Ramatici who alerted the community with phone calls and emails.

According to the Army Corps of Engineers representatives present, the meeting was noticed on the U.S. Army Corps website and also in the legal notices of the Sat. June 20, 2009 Sacramento Bee. That was the only public scoping meeting scheduled. Comments can be sent to project manager Kathleen A. Dadey, 1325 J Street, Room 1480, Sacramento, CA 95814.
Phone: 916-557-7253
or Email: Kathleen.A.Dadey@usace.army.mil
Comments will be accepted through July 9, 2009.



The map depicts the parcels slated for initial development in the cross hatch areas. The owners group has applied for permits to allow dredging and filling on 39 acres of the cross hatch area. The Elverta Specific Plan is bounded on the north by the Sacramento County line; on the East by Gibson Ranch and Cherry Brook and Cherry Creek subdivisions; On the South by roughly U St.; On the West by the property lines of properties facing on 9th St. and El Verano Ave. Dry Creek Parkway and Cherry Island golf course can be seen in the lower right corner. The lower, left edge is the connection to Dry Creek Rd. The light gray Loop Rd. is shown with a "dog leg" to Dry Creek Rd.

All the maps and diagrams for the scoping meeting can be found at:
http://www.spk.usace.army.mil/regulatory.html

Dry Creek Rd. Still Not Safe

By Charlea Moore

A limited victory for Rio Linda residents along Dry Creek Rd. was granted on the second hearing before the Sacramento County Planning Commission but there is still a lot to be done if the beautiful Dry Creek Rd. is going to remain a 2 lane neighborhood road.

While the Dept. of Transportation is apparently going to recommend that Dry Creek Rd. be designated 2 lanes on the County General Plan Update, the Elverta Owners Group is moving forward with plans to develop the initial phase of the Elverta Specific Plan.

This will result in an unacceptable increase in traffic down Dry Creek Rd. from the development in both Placer County and the Elverta Specific Plan unless the extension of 16th Street over the Dry Creek Parkway is built first. Without the extension, the only through road to the south from Placer County and the Elverta Specific Plan is Dry Creek Rd.

The Dept. of Transportation must also recommend that the 16th St. extension be completed and that 16th Street be designated a 4 lane road, to serve the Elverta Specific Plan and Placer County.

North Country News
PO Box 328 Elverta, CA 95626

BULK PERMIT
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ELVERTA, CA 95626

POSTAL CUSTOMER

APPENDIX E

Written Public Comments

From: April Hawkins [mailto:April@a-ecin.com]
Sent: Monday, June 22, 2009 12:42 PM
To: Dadey, Kathleen A SPK
Subject: RE: Elverta Specific Plan EIS

Ok, thanks Kathleen, therefore I will send my concerns to you. I am opposed to widening of Dry Creek Road as a major north/south four lane roadway. My concerns are safety for myself, my neighbors, children walking or riding bikes to school, horse back riders, etc. With speed limits of 45 miles per hour along my stretch, the danger is high for accidents and fatalities. The noise would be way too loud with all the traffic of cars, trucks, buses, and motorcycles, and would impact my quality of life. All of the homes on Dry Creek Road would loose real estate value if a four lane road is developed, we may not be able to sell our houses at all after that. I moved to a quiet community which I want to keep that way. Using 16th Street as a new roadway would have fewer impacts on homes, there would be less family's impacted on 16th Street instead of the 100's of homes and family's that would be impacted by the widening of Dry Creek Road. Dry Creek Road also floods often from the creeks, and can not be used at all for travel. This would impact more and more people trying to use the roadway. In this time of drought, there is no water that can be proven to be a continued source for all those new residents. Our water district is already having financial difficulties and system problems without adding all those new homes. Why should my water bills go up to help pay for the new infrastructure in the new development? By extending Dry Creek road to the county line, you will have Placer County residents coming into Sacramento County via the new roadway. This is unacceptable for Rio Linda, look what has happened to Roseville with all the new developments and roads, that city is a nightmare of traffic. Rio Linda is not that type of Town, we are a small rural community that wants to stay that way. Develop the roadways around Rio Linda, NOT through it. Thanks, and I will be at the meeting on Wednesday.

April Hawkins, Project Researcher
A/E Consultants Information Network
P.O. Box 417816
Sacramento, CA 95841
916/991-0203
916/991-0175 Fax
ahawkins@a-ecin.com
http://a-ecin.com

Letter 2

From: marlene Ramatici [mailto:marlene_ramatici@hotmail.com]
Sent: Wednesday, June 24, 2009 12:28 AM
To: Dadey, Kathleen A SPK
Cc: Randy
Subject: EIS for Elverta Specific Plan

Hello Ms. Kathleen Dadey,
I was just informed about you meeting scheduled for 6/24/09 at the Rio Linda Community Center. I would like to request a copy of the EIS for review and comment. I look forward to meeting and hearing findings on this matter.

With respect to comments, The June 29th due date seems rather short. I have not seen the EIS, so therefore, it makes it difficult for me to make comments on it. Can or will the comment period be extended?

Thank you,
Marlene Robillard-Ramatici

-----Original Message-----
From: Jailnurse [mailto:jailnurse@softcom.net]
Sent: Wednesday, June 24, 2009 11:16 AM
To: Dadey, Kathleen A SPK
Cc: marlene_ramatici@hotmail.com; bob.bastian@twinriversusd.org; Charhorseranch@aol.com; misscaddy@softcom.net; eeh625@hotmail.com; sharonking5224@att.net
Subject: Please add me to email notices of meetings

Please add my email: jailnurse@softcom.net to your notification list for any information concerning Elverta Specific Plan and any notices for Placer, Yolo or Sutter county.

Thank you,

Karla M. Alsgood

308 Q Street

Rio Linda, Ca. 95673

(916) 991-7795

From: Charhorseranch@aol.com [mailto:Charhorseranch@aol.com]
Sent: Wednesday, June 24, 2009 10:43 AM
To: Dadey, Kathleen A SPK
Cc: marlene_ramatici@hotmail.com; bob.bastian@twinriversusd.org; Charhorseranch@aol.com; misscaddy@softcom.net; eeh625@hotmail.com; jailnurse@softcom.net; sharonking5224@att.net
Subject: Please add me to email notices of meetings

Please add my email: Charhorseranch@aol.com to your notification list for any information concerning Elverta Specific Plan and any notices for Placer, Yolo or Sutter county.

Thank you,
Charlea Moore
916-991-0338

8840 El Verano Ave.
Elverta Ca 95626

From: Amato.Paul@epamail.epa.gov [mailto:Amato.Paul@epamail.epa.gov]
Sent: Wednesday, June 24, 2009 9:30 AM
To: Dadey, Kathleen A SPK
Subject: Elverta NOI

Hi Kate,

I got your message about the comment due date for the Elverta NOI. We would like to request an additional week for comments which would give us until July 6. Please confirm that this is okay with the Corps.

Thanks,
Paul

Paul Amato
Environmental Protection Specialist
Environmental Review Office
U.S. EPA, Region 9
75 Hawthorne Street, CED-2
San Francisco, CA 94105-3901

t:(415) 972-3847
f:(415) 947-8026
e:amato.paul@epa.gov

Letter 6

From: Paula Parker, DVM <sawlogz@ix.netcom.com>
To: Dadey, Kathleen A SPK
Sent: Thu Jun 25 12:47:12 2009
Subject: Scope of EIR for Elverta Villages

Dear Ms. Dadey:

I was intimately involved with the process of early assessment of the impact of Elverta Villages on the communities of Rio Linda and Elverta and I did not receive notification of the Corps intent to do an EIR on the drainage. I served as Chair of the CPAC through the many years that it wound it's way through the planning process.

I was informed of this scoping via the Rio Linda Net, so I am unsure if an email will serve as a format to send in my "formal comments", however I am not currently at home and will not be until after the deadline, thus I have no other way to submit any comments or requests.

I was also involved in drainage studies at that time and I am aware that the run off from the project does not do into Dry Creek but rather into all the Tributaries of what is currently known as Steelhead Creek. It is my specific request that the EIR appropriately study the impact of the planned drainage system on the property owners to the west of the project, between it and the NMEDC. We were repeatedly informed that the project would not be allowed to permit water flow to be higher on the downstream parcels. Intuitively it stands to reason, then, that since more water will be crossing those properties, it will end up having to actually be present on those properties for a longer period of time in a flooding situation. While current flooding on my property does not affect my house, for example, when it occurs, it certainly has an affect on the landscaping. Luckily, after a flood, the parcel drains off relatively rapidly. If more water running off the project were to remain on my property for longer periods of time, this certainly has the potential for causing an impact, such as killing my roses. If it takes 3 days or 6 days for those higher levels to drain off, that would certainly cause more damage than having the water present for 6 or 12 hours.

I repeatedly asked for information during the prior studies on this effect (more water coming down being on the downstream properties for a longer period of time as opposed to rising to a higher level) and was repeatedly told that this was "too high a level of detail" and it "would be studied at a later date". So now is that time, as there will not be further studies once this one is done and accepted. Please include such information in the current EIR so that the community may know how this project will in reality affect their parcels.

Thank you.
Paula Parker, DVM
7646 9th St.
Elverta, CA 95626
916=991=7870
sawlogz@ix,netcom.com

June 28,2009

Dear Decision Makers at the Corp of Engineers,

The residents in Rio Linda, and Elverta, CA, have recently obtained some disturbing news regarding a project that the United States Army Corps of Engineers is working on in partnership with a 1,744-acre development project called the Elverta Specific Plan (ESP). On June 24, 2009 there was a meeting in Rio Linda, CA, regarding changes to this development project, prompted by the ESP developers themselves. The ESP proposed and received approval for building approximately 4,500 new homes in our rural community. Rio Linda, Elverta, and Sacramento County officials have approved this development, against a tremendous amount of public opposition. Since the inception of this project, the community residents have been involved in trying to have their voices heard by utilizing the appropriate avenues available to them. In February 1999, a citizens committed was formed to provide public input on the project over time and report to the developers directly. In 2006, the residents of the neighboring communities to the ESP project tried again to have their voices heard by meeting with the Broad of Supervisors District Representative, Roger Dickenson. For years, a large number of concerned residents have attended Rio Linda City meetings, Dry Creek Parkway meetings, and Rio Linda Water broad meetings. They have talked with Sacramento County senior planners, Sacramento County civil engineers, and Sacramento County community outreach personnel to comprehend and express the impact this development would have on our countryside community. Just recently, a collective group provided a colossal out crying to the Sacramento County Planning Commission at their meetings on June 8, and June 22, 2009, to have our voices heard, yet again, about transportation plans related to the ESP.

Respectfully, in order for the U.S. Army Corps of Engineers to make an informed decision on whether to allow for backfill to the wetlands area within the ESP or not and allow for another 1,200 homes, would not be complete without some background information gathered from the neighboring residents that will be the most dynamically impacted by the wetlands infill. This information sheds light on the silent impacts our rural committee has been asked to endure and on the magnification of these problems if another 1,200 homes are to be added to the ESP. As residents, we ask that you thoroughly evaluate these issues and encompass them in your informed decisions about the wetlands in ESP.

The facts are as follows. Community officials, against public opposition, adopted the ESP project and the residents were asked to endure the potential loss of value to their homes and lifestyles without any mitigated measures to assist them in their adjustments. The 4,500 new homes in our rural community will be wonderful for the tax base, but only when developed responsibly. The transportation routes to and from this development were over looked and ignored. Currently the two lane rural routes surrounding the community are not capable to bear the projected traffic congestion anticipated from the approved 4,500 homes without even considering the addition of 1,200 more homes.

The ESP did an environmental impact report (EIR) early on in the development planning phases. In the final EIR, the noise summary on page 12-23 concludes that residential property lines on two on-site sections of Dry Creek Road (a proposed thoroughfare adjacent to the ESP) exceed Sacramento's General Plan standards and surpass the 65-dB noise level. It goes on to report traffic volumes are too high to allow residential driveway and curb cuts. Since Dry Creek Road has been suggested as this designated 4 lane arterial route to bare traffic from this project, it must be known that in just a one block radius directly adjacent to the ESP project between U Street and Q Street, there are approximately 45 driveways and private road entrances. This is not to mention the numerous schools located throughout the entire Dry Creek Road. The impact to these residents is insurmountable. In addition, the EIR on page 2-2 reports, project generated traffic will produce long term emissions of ROG and NOx that substantially exceed the Air District's significance threshold of 65 lbs a day for these pollutants under summer and winter conditions. The ESP EIR also reports on page 2-2 that, even with the benefit of a 15 % reduction in emissions anticipated with the Elverta AQ-15 Air Quality Mitigation Plan, the projects ROG and NOx vehicle emissions will remain far above the significance threshold.

Furthermore, the ESP developers and their associates, Dave Cook and Michelle McCormick, both spoke at meetings held in 2006 with a large number of Dry Creek Road residents and ensured them they would be "in the loop" for developments and changes to the ESP project. This has not occurred. In fact, the opposite has been transpiring. The ESP developers have been utilizing back door antics, for lack of a better word, to not only keep the residents in the dark, but also slowly take their proposed project and try to compose it into mammoth size portions. For example, on May 2009, at the Rio Linda-Elverta Community Planning Commission meeting, applicants of the Hodgson Company located in the groupings of landholders within the ESP quietly rezoned 132.1 acres from AG-5 (agricultural-Residential) to RD-20 (residential) (4.2 acre), RD-7 (residential) (53.6 acres), and RD-5 (residential) (74.3 acres). This was completed without the knowledge and adequate notification of adjacent project residents input. It was accomplished with complete disregard as to the impact on traffic congestion that scores of more homes will have on the surrounding neighborhoods. Another example is the blatant disrespect for responsible development in the issue that ESP has put before the U.S. Army Corps of Engineers, by backfilling wetlands within the ESP in order to develop 1,200 more new homes.

In conclusion, I ask that the U.S. Army Corps of Engineers to not only evaluate the immediate issue before them of filling in a wetlands area, but I ask that the engineers to consider the bigger picture and the impact that those 1,200 new homes will add to the immense impact the neighboring residents have already been asked to absorb for the originally slated 4,500 homes. The traffic models required for this development have been placed on the back burner since the initiation of this project. ESP's clever planners and developers have been able to keep the lime light off the traffic congestion issues that are pending with the 4,500 homes slated to go in as they slowly increase their project size. As a resident adjacent to the ESP, we never asked for cessation of the project, just responsible growth. As of now, the neighbor residents will carry all the burden of the

ESP. They will lose their rural feel to their community impacting their lifestyles, have increased safety concerns due to the increase in traffic on the rural streets, likely see a drop in property values along the busy streets, and most importantly, as demonstrated by the facts in the EIR done by ESP, public health concerns will be a reality due to emissions and noise levels. So please, as you consider this project for approval, look beyond what it relatively appears as a small request and consider the massive impact these 1,200 new homes will have on our rural community. Hold developers of the Elverta Specific Plan responsible for environmentally conscience development and assist them in complying with smart growth measures in California. Let the voice of this small rural community finally be heard.

Sincerely,

Amy J Sterzik

Amy J Sterzik
cassanme@sbcglobal.net
916-529-6133

Sacramento County website for EIR: www.dera.saccounty.net

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Letter 8

June 30, 2009

Ms. Kathleen Dadey
U.S. Army Corps of Engineers
Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814

Subject: Notice of Intent to prepare an Environmental Impact Statement for the proposed Elverta Specific Plan Project, Sacramento County, California.

Dear Ms. Dadey:

The U.S. Environmental Protection Agency (EPA) has reviewed the Notice of Intent (NOI) to Prepare a Draft Environmental Impact Statement (DEIS) for the Elverta Specific Plan Project (Project) pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. These comments were also prepared under the authority of, and in accordance with, the provisions of the Federal Guidelines (Guidelines) promulgated at 40 CFR 230 under Section 404(b)(1) of the Clean Water Act (CWA).

According to the NOI, The Elverta Owners Group (Applicant) has submitted applications to the U.S. Army Corps of Engineers (Corps) for CWA Section 404 permits to develop necessary infrastructure to support residential and commercial uses within 22 separate parcels on approximately 1,745 acres in north-central Sacramento County. Based on the nature of this Project and the description in the NOI, the EPA provides the following comments.

Waters of the U.S.

The EPA is particularly concerned with the potential impacts to waters of the U.S. (waters) that could occur at the Project site. According to the NOI, the Applicant's Preferred Alternative would result in temporary and permanent impacts from fill of approximately 39 acres of waters, including seasonal wetlands, vernal pools, intermittent channels, swales, and ditches. These impacts would be in addition to indirect and cumulative impacts. We are especially concerned with the rapid loss of vernal pools in California. Projections indicate that at the current rate of loss, all unprotected vernal pools in California will be gone by 2097[1]. Construction of the proposed Project would add to this loss and further diminish the already significantly reduced acreage of vernal pools in the region. We strongly encourage the Applicant to avoid and minimize impacts to waters to the maximum extent practicable. Based on

[1] Based on projections in Dr. Robert Holland's report: *Changes in Great Valley Vernal Pool Distribution 1989 to 1997.*

past coordination with the Corps, the EPA recognizes the level of degradation that has occurred to waters as a result of past and present land use practices on the Project parcels and in this context recognize that there are opportunities to improve some conditions through restoration and enhancement. We look forward to a future site visit with the Corps to better understand these site conditions, how the Applicant will avoid further degradation, and mitigation measures for any unavoidable impacts.

CWA 404(b)(1) Guidelines

We acknowledge the intent of the Corps to use the DEIS to evaluate alternatives under the Section 404(b)(1) Guidelines. The DEIS should discuss how the alternatives analysis complies with the Guidelines that require selection of the least environmentally damaging practicable alternative (LEDPA) for Section 404 permitting purposes.

Compensatory Mitigation

The DEIS should demonstrate compliance with the *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (Mitigation Rule) 33 CFR Parts 325 and 332, and 40 CFR Part 230. Where impacts to waters are determined to be unavoidable, the Applicant will need to identify appropriate compensatory mitigation consistent with the rule. The DEIS should adequately describe and commit to compensatory mitigation for unavoidable impacts to waters and clarify compliance with the Mitigation Rule. The new rule can be found at: http://www.epa.gov/wetlandsmitigation/ and at: http://www.usace.army.mil/cw/cecwo/reg/citizen.htm.

Functional Assessment

We recommend the DEIS alternatives and mitigation be informed by studies that clearly and accurately identify and describe the aquatic resources at the Project site, including a functional assessment. The results should be summarized as part of the description of baseline site conditions; used to demonstrate potential Project impacts, as well as the need for impact avoidance, minimization, mitigation, and monitoring; and inform the selection of a preferred alternative. The functional assessment of waters should also be used to demonstrate compliance with the Guidelines- specifically that the preferred alternative is the LEDPA.

Stormwater

Stormwater runoff from the proposed Project could result in chemical, physical, and biological impacts to aquatic resources and should be avoided through the use of appropriate best management practices, low impact development (LID) techniques, and the use of stormwater retention and treatment features. The DEIS should describe construction and design measures to avoid and minimize impacts to water quality and aquatic resources through pretreatment of stormwater, and stormwater attenuation to prevent hydromodification of receiving waters. The EPA provides resources on stormwater and LID at our National Pollution Discharge Elimination System website at http://cfpub.epa.gov/npdes/home.cfm?program_id=6, and our LID website at http://www.epa.gov/nps/lid.

For further assistance with issues pertaining to waters of the U.S., please coordinate with Paul Jones, EPA Wetlands Office. Paul can be reached at (415) 972-3470, or by email at jones.paul@epa.gov.

Groundwater

Groundwater withdrawal is not discussed in the NOI, but based on the EPA's experience with other development proposals we anticipate the proposed Project could include some groundwater withdrawal to meet water demands. The EPA would be concerned with potential impacts to groundwater characteristics due to overdraft, as well as substantial increases in impervious surfaces that could reduce infiltration rates and recharge of the local aquifer. The DEIS should clearly describe existing groundwater conditions and any potential impacts to groundwater quantity or quality, and commit to avoidance measures to prevent impacts from the Project. The EPA is concerned with impacts to groundwater quality and quantity in the Project area as well as the relationship between existing groundwater conditions and surface water resources that are influenced by these conditions. Any direct, indirect, or cumulative impacts to groundwater that may occur as a result of the Project should be clearly assessed in the DEIS in light of these relationships. Mitigation measures should also be identified and committed to in the DEIS in order to assure that the Project will not have an adverse effect on groundwater and interrelated surface waters. Both design and conservation measures should be considered.

Water Supply

The DEIS should describe existing and/or proposed sources of water supply for the Project, anticipated water demand from the Project, and direct, indirect, and cumulative impacts to water resources that may occur. Because the proposed Project could result in increases in water demands for an indefinite period of time, the EPA strongly encourages including a discussion in the DEIS of all water conservation measures that will be implemented to reduce water demands for the proposed Project. The Project design should maximize conservation measures such as appropriate use of recycled water for landscaping and industry, xeric landscaping, a water pricing structure that accurately reflects the economic and environmental costs of water use, and water conservation education. An estimate of the water resource benefits that result from each mitigation and conservation measure proposed should be included in the DEIS. Water saving strategies can be found in the EPA's publications *Protecting Water Resources with Smart Growth* at www.epa.gov/piedpage/pdf/waterresources_with_sg.pdf, and *USEPA Water Conservation Guidelines* at www.epa.gov/watersense/docs/app_a508.pdf.

In addition, the DEIS should describe water reliability for the Project and clarify how existing and/or proposed sources will be affected by climate change. At a minimum, the EPA expects a qualitative discussion of impacts to water supply and adaptability of the Project to these changes, as part of the DEIS impacts analysis.

Biological Resources

Species Impacts

The EPA is concerned with the potential impacts from the proposed Project to biological resources. As stated in the NOI, the federally protected vernal pool fairy shrimp (Branchinecta lynchi) is known to occur on the Project site. The DEIS should provide information on all species and habitats protected under the Federal Endangered Species Act and the California Endangered Species Act, and describe how impacts will be avoided, minimized, and mitigated.

The DEIS should provide a description of baseline biological conditions, including habitats and species, and a description of direct, indirect, and cumulative impacts from the Project.

Habitat Fragmentation

We are also concerned with the potential for the proposed Project to result in fragmentation of aquatic and terrestrial species habitats, and encourage the Corps, County of Sacramento, and Applicant to identify alternatives that maintain large habitat conservation areas at the Project site that are connected by adequate corridors for the species that are expected to use the site. Numerous studies have demonstrated that edge effects and the size of contiguous habitat areas are critical to species health, diversity, and abundance. The DEIS should consider the impacts of habitat fragmentation and edge effects for aquatic and terrestrial species and identify avoidance and mitigation measures to address them.

Air Quality and Traffic

National Ambient Air Quality Standards

The DEIS must adequately assess air quality impacts of the Project and minimize these impacts through adequate mitigation measures. The proposed Project area falls within the Sacramento County Air Basin and is designated nonattainment for national ambient air quality standards (NAAQS). The EPA has designated the air basin serious nonattainment for 8-hour ozone and moderate nonattainment for particulate matter smaller than 10 microns (PM_{10}). The DEIS should provide a discussion of the baseline air quality conditions in the Project area, a description of federal and state air quality regulations, and a rigorous assessment of direct, indirect, and cumulative effects of the proposed Project on air quality. The analysis of air quality impacts should include direct, indirect and cumulative impacts from construction and post construction conditions, including increased traffic. The DEIS should describe specific commitments to mitigate emissions that will prevent further degradation of air quality in the Air Basin. In short, the cumulative impacts analysis should consider all new sources of emissions that are likely to result from the proposed Project. An estimate of the air quality benefits that result from each mitigation measure proposed should be included in the DEIS. The DEIS should also describe coordination with the EPA, California Air Resources Board, and the Sacramento Air Quality Management District to reduce air quality impacts in the Air Basin. For 8-hour ozone-related questions, the Corps is encouraged to contact John Kelly, EPA Air Division, at (415) 947-4151 or by email at kelly.johnj@epa.gov. For PM_{10}-related questions, contact Eleanor Kaplan, EPA Air Division, at (415) 947-4147 or by email at kaplan.eleanor@epa.gov.

General Conformity

The DEIS should describe whether the Project will or will not meet general conformity requirements with the associated state implementation plans for the Air Basin. If the federal action is determined to potentially interfere with the attainment of Clean Air Act NAAQS, the Corps is required to conduct a conformity analysis to determine the likelihood and extent of interference. Though the Clean Air Act does not require a federal lead agency to prepare a draft General Conformity Determination as part of the NEPA process, the EPA recommends this in the interest of full public disclosure and to better inform decision making. For general conformity-related questions, the Corps is encouraged to contact John Kelly, EPA Air Division, at (415) 947-4151 or by email at kelly.johnj@epa.gov.

Air Quality Measures for Construction

To prevent further degradation of air quality in Sacramento County from construction the EPA suggests several construction measures be adopted in the DEIS.

Fugitive Dust Source Controls:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Mobile and Stationary Source Controls:

- Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at the EPA certification levels and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturers recommendations
- If practicable, lease newer and cleaner equipment meeting the most stringent of applicable Federal or State Standards.
- Utilize EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.

Administrative controls:

- Identify where implementation of mitigation measures is rejected based on economic infeasibility.
- Prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on: whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Utilize cleanest available fuel engines in construction equipment and identify opportunities for electrification. Use low sulfur fuel (diesel with 15 parts per million or less) in engines where alternative fuels such as biodiesel and natural gas are not possible.
- Develop a construction traffic and parking management plan that minimizes traffic interference and maintain traffic flow.

Sensitive Receptors

The DEIS should identify sensitive receptors in the Project area, such as schools, daycare centers, nursing homes, and hospitals, and specify the means by which impacts to these receptors will be minimized due to both construction and long term land use associated with the Project. For example, locate construction equipment and staging zones away from sensitive receptors, away from fresh air intakes and buildings, and design neighborhoods such that activity centers (ball fields, etc.) and sensitive receptors are not proximate to emissions sources, such as highways.

Traffic

Due to the nature and size of the proposed Project and the numbers of new residents and jobs it could bring to the area, it is reasonable to anticipate increased traffic and congestion on the local surface streets, freeways, and highways. The DEIS should include a traffic analysis to determine how the proposed Project will affect traffic in the region and contribute to cumulative air quality impacts.

Cumulative Effects

The proposed Project would be one of several developments in the area that have occurred or are proposed and under various stages of development. As a result, it is critical that the cumulative effects analysis be comprehensive and rigorous, and that it consider an appropriate scope of activities and spatial and temporal scales when assessing project effects. The EPA suggests referring to the Council on Environmental Quality 1997 guidance *Considering Cumulative Effects Under the National Environmental Policy Act,* found at http://www.nepa.gov/nepa/ccenepa/ccenepa.htm,, and 1999 EPA guidance, *Consideration of Cumulative Impacts in EPA Review of NEPA Documents,* found at http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf. In addition, we recommend referring to the EPA, California Department of Transportation, and Federal Highway Administration Guidance for Preparers of Cumulative Impact Analysis, found at http://www.dot.ca.gov/ser/cumulative_guidance/purpose.htm. While this guidance was developed for transportation projects, the principles and the 8-step process in this guidance can be applied to other types of projects, both within and outside of California. We recommend the principles and steps in this guidance to other agencies as a systematic way to analyze cumulative impacts for their projects.

Induced Growth

The DEIS should describe how the proposed Project could result in environmental impacts due to induced-growth. The EPA's recommendation is to make both the methodology and the assumptions in the growth inducement analysis as transparent as possible to the public and decision makers. To do this, the EPA recommends the following:

(1) Identify which land use model will be used, discuss its strengths and weaknesses, and describe why it was selected.

(2) Identify the assumptions used in the model and why those assumptions were selected. For example, describe which method will be used to allocate growth to analysis zones, its strengths and weaknesses, and why that method was selected.

(3) Ground truth the results of the land use model by enlisting local expertise involved in land use issues, such as local government officials, land use and transportation planners, home loan officers, and real estate representatives. Use their collective knowledge to validate or modify the results of the land use model.

(4) Use the results of the growth inducement analysis to inform transit options, neighborhood design, and recommendations for land use as well as mitigation measures to reduce environmental impacts.

Smart Growth, Green Building, and Leadership in Energy and Environmental Design

Environmental impacts of the proposed Project can be reduced through modifications to the Project footprint and configuration, and the integration of Smart Growth, Green Building, and Leadership in Energy and Environmental Design (LEED) principles. For your benefit, the EPA is enclosing updated information on these principles, including how they can reduce impacts to different resource areas.

Project Purpose and Need

The purpose and need statement in the DEIS should be clearly stated and briefly describe the underlying purpose and need to which the Corps is responding in proposing alternatives, including the proposed action (40 C.F.R. 1502.13.) The statement of purpose and need should explain why the Applicant is undertaking the proposed Project, and the objectives that the action is intended to achieve. A clear purpose and need statement is important under NEPA and to the EPA's review in that it should be directly linked to the proposed alternative designs and clarify the potential impacts of a range of reasonable alternatives for the proposed Project. The DEIS discussion of purpose and need should also include a detailed description of why a development the size, composition, and location of the proposed Project is needed.

Alternatives

The EIS should rigorously explore and objectively evaluate a reasonable range of alternatives (40 C.F. R. 1502.14). Because of the potential for significant impacts to several environmental resources, the Corps, Sacramento County, and the Applicant should consider a range of alternatives that avoid impacts to these resources to the maximum extent practicable. According to the NOI, the DEIS is currently expected to include the No Action, No Federal Action, Applicant's Preferred, Approved Specific Plan, and Different Location Alternatives. The DEIS should clearly describe and comparatively assess these alternatives, and any other reasonable alternatives, for their direct, indirect, and cumulative effects to environmental resources. We recommend considering an aquatic resources avoidance alternative that maximizes avoidance and restoration of existing aquatic resources on the Project site. Where impacts are unavoidable, the DEIS should describe and commit to appropriate mitigation measures.

Thank you for the opportunity to review the NOI and provide comments to help with the development and preparation of the DEIS for the proposed Project. When the DEIS is released for review, please send two hard copies and one CD copy to the address above (mailcode: CED-2) at the same time five copies are formally filed with EPA Headquarters. If you have any questions, please contact me at (415) 972-3847 or amato.paul@epa.gov.

Sincerely,

Paul F. Amato
Environmental Protection Specialist
Environmental Review Office

Enclosure:
EPA's Smart Growth Recommendations

Cc:
Mr. Charlie Dyer, Senior Planner
Sacramento County Planning and Community Development
827 7th Street,
Room 230
Sacramento, CA 95814

ENVIRONMENTAL PROTECTION AGENCY'S SMART GROWTH RECOMMENDATIONS FOR THE NOTICE OF INTENT TO PREPARE A DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE ELVERTA SPECIFIC PLAN PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Smart Growth has been defined as "development that serves the economy, community, and the environment"[2]. It incorporates government and community partnering, environmental stewardship, and transportation network enhancements for safety and functionality.

Consider implementing Smart Growth principles in development planning.
National, state and local organizations have come together to form the Smart Growth Network (SGN), a voluntary initiative led by 36 partner organizations to encourage development that benefits the economy, communities, and ecological sustainability.
By incorporating smart growth principles, project proponents can demonstrate their commitment to being environmentally sound in development planning. Additionally, smart growth development can support economic growth and facilitate attainment of quality of life goals; attributes found attractive to both developers and potential home owners. Smart Growth design is beneficial for all stakeholders by providing opportunities to save money and resources. Furthermore, the 2004 National Community Preference Survey conducted by the National Association of Realtors concluded that Americans tend to favor Smart Growth communities because they offer shorter commute times and walkable communities. The SGN has made it feasible and efficient to become a partner within the network. For information regarding the SGN please visit the following website: http://www.smartgrowth.org/. For innovative solutions which address low impact development, please visit EPA's Smart Growth website at: http://www.epa.gov/smartgrowth/index.htm.

Smart Growth is Smart Business
Business leaders are beginning to realize that building better communities affects their bottom line. When implemented, Smart Growth strategies allow developers to profit financially while being environmentally sustainable. In the *Smart Growth is Smart Business* study, the National Association of Local Government Environmental Professionals (NALGEP) found that:

- Quality of Life is Crucial to Business;
- Reinvestment in Established Communities Makes Business Sense;
- Smart Growth Is an Emerging Market Opportunity;
- Leading Businesses Seek to Improve Growth Management in Their Regions; and
- Smart Growth Sells in Both Up and Down Economies.

Furthermore, a 2004 National Community Preference Survey conducted by the National Realtors Association revealed the following:

- Americans favor communities that have smart growth values which result in shorter commute times, sidewalks, and walkable areas;
- When Americans choose to purchase a home, commute time is an important deciding factor; and
- Americans expressed the desire for government and business to invest in already existing communities before new developments further away from cities and the suburbs. In

[2] Smart Growth Network, *Getting to Smart Growth: 100 Policies for Implementation,* http://smartgrowth.org

addition, Americans also expressed a desire for more housing for moderate to low income brackets, and more areas to walk and bike in their communities.

An EPA publication, *Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions* (http://www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf) illustrates the opportunity to use parking policies to save money, improve the environment, and meet larger community goals by offering commuters a choice in transportation. These choices can lead to less vehicle miles traveled, a decrease in air pollutants, and a reduction in the amount of pavement and infrastructure costs. Smart Growth is beneficial to developers because it can lead to lower infrastructure costs

Consider development plans that incorporate innovative design modifications.
EPA recommends incorporating design modifications to address impacts that development projects have on the environment. For example, both coving and bay designed homes offer more space and cost less to build due to the need for fewer roads and utilities. Additionally, they offer safer travel and a greater variety than their counterparts, the traditional suburbs.

Coving is a development design that enables the planning of communities while taking green space created in front of houses and winding streets into design plans. This design innovation positions homes to form a curve that is separate from the pattern of the streets, allowing for more homes per given length of a road. This design benefits developers by reducing the lineal feet of paved road by twenty to forty percent.

Bay designed homes also require less infrastructure. Unlike coving, a bay home development and the surrounding land are commonly held by a home owners association. This design considers pedestrian walkability by connecting the fronts of units with a walkway. The homes are designed with the entrance and garage in the rear of the structure, while leaving the front as open space. While housing densities may be similar to traditional housing developments, the bay home concept cuts up to fifty percent in infrastructure spending and creates a pedestrian friendly neighborhood.

Consider increasing density in development plans.
Density is important due to several influential factors including its ability to support housing choice and affordability, help expand transportation choices, support community fiscal health, improve security, help protect the environment and cut infrastructure costs. When designing for density we recommend the following design principles:

- Identify appropriate locations;
- Connect people and places;
- Mix uses;
- Find parking alternatives; and,
- Create great places for people to live, work and play.

For more information concerning the abovementioned principles, we recommend the following publication: *Creating Great Neighborhoods: Density in Your Community* available online at: http://www.epa.gov/piedpage/pdf/density.pdf.

Consider wildlife habitat while designing development plans.
It has long been recognized that development is infringing upon national parks, forests and other critical wildlife habitat. Moreover, the amount of urban land has quadrupled in the past 50 years. As development spreads farther into natural areas, wildlife habitat becomes fragmented. Scientists and wildlife preservation organizations have identified sprawl as a key indicator of species loss.

Land preservation efforts should be especially targeted toward critical aquatic areas including groundwater recharge zones, wetlands, vernal pools, streams, and floodplains. These areas can be protected from development by aligning zoning, determining protected areas, and changing development guidelines to use land more efficiently.

The publication *Endangered by Sprawl: How Runaway Development Threatens America's Wildlife* (http://www.smartgrowthamerica.org/ebsreport/EndangeredBySprawl.pdf) recommends several measures to help avoid the loss of wildlife due to urban encroachment. It is recommended that you create a comprehensive infrastructure strategy that will take the following into consideration:

- Create and maintain inventories of both species and natural resources;
- Establish regional cooperation to protect natural areas and species;
- Develop green infrastructure protection plans that include performance goals and measurements;
- Establish urban growth boundaries or urban service boundaries;
- Protect critical natural habitats; and
- Build reliable local funding resources for green infrastructure and species protection.

Design to Minimize Air Emissions
Air quality is greatly affected by sprawling development patterns that increase vehicle travel and associated air pollution. To help developers mitigate air quality impacts associated with developments EPA published guidance pertaining to air quality and land use activities. This guidance was developed to encourage stakeholders and developers to use better land use planning strategies which result in improvements in air quality. This guidance covers a variety of issues such as air quality planning, transportation planning, land use planning, land use activities and accounting for land use in the air quality and transportation processes. See *EPA Guidance: Improving Air Quality through Land Use Activities* (http://www.epa.gov/otaq/stateresources/policy/transp/landuse/r01001.pdf).

Consider the Use of Native Vegetation
To help protect the natural environment and its valuable water resources, EPA recommends that developers take future water use into consideration. EPA recommends landscaping with native plants when feasible. Using native plants that are adapted to the environment is an important consideration when developing in arid areas with limited water resources.

Vegetation planning is an important aspect of development. For example, trees can help block the summer sun. They also help by acting as wind breaks during extreme weather, control humidity and can help with home appreciation. We encourage the use of native plants and trees in development planning. This can help reduce water consumption and maintenance costs, which are attractive attributes for home owners. The California Native Plant Society provides information regarding native plant species on its Web page: http://www.cnps.org/

Green Building

As stated at EPA's Green Building website, "green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction." The website goes on to state that "well-designed, constructed, operated and maintained green buildings can have many benefits, including durability; reduced costs for energy, water, operations and maintenance; improved occupant health and productivity; and the potential for greater occupant satisfaction than standard developments. A green building may cost more up front, but can save money over the life of the building through lower operating costs." These upfront costs may be only a few percentage points higher than conventional building standards.[3] For more information on Green Building, visit EPA's Green Building website at: www.epa.gov/greenbuilding/index.htm. The EIS should discuss the environmental and economic benefits of green building relevant to the Project alternatives.

Pursue Leadership in Energy and Environmental Design (LEED) Certification

LEED is a Green Building rating system that encourages the adoption of sustainable building practices through the use of universally accepted tools and performance criteria. The U.S. Green Building Council has established LEED rating systems for various types of development including commercial, retail, homes and neighborhood development. EPA encourages the pursuit of LEED certification for the proposed Project. More information on LEED certification can be found at the U.S. Green Building Council website at http://www.usgbc.org.

[3] According to the frequently asked questions on green building, at EPA's website http://www.epa.gov/greenbuilding/pubs/faqs.htm#13

Dadey, Kathleen A SPK

From: Russ Hood [rhood273@comcast.net]
Sent: Thursday, July 02, 2009 6:44 PM
To: Cortez Quinn
Cc: Dadey, Kathleen A SPK
Subject: Elverta Specific Plan

Howdy, Cortez,

I hope you are enjoying wearing all those hats—man, that must mean a lot of meetings! I'm sure you're doing fine with all of your responsibilities.

I'm writing you because I just read something in the July 2009 North County News by Charlea Moore that I can't understand. She writes in the sixth paragraph:
"In addition to the permits to dredge and fill, the Elverta Owners Group requested and received a rezone that will increase the maximum dwelling units from 4,950 to 6,187." And then in the next paragraph," There were only a few residents in attendance at the June 24, 2009 scoping meeting and all were the result of Marlene Robillard-Ramatici who alerted the community with phone calls and emails."

The source of my non-understanding stems from countless meetings and resolutions with the county, the community, and the owners that ultimately wound up with the following from "Elverta Specific Plan" at http://www.planning.saccounty.net/specific/elverta/elverta.html [on the MSA and Planning and Community Development Department website]:

"The policy also limits the residential holding capacity within the "urban" land to 4,500 dwelling units." Having personally attended all of the initial meetings and most of the subsequent hearings related to the issue of maximum number of dwelling units, numbers like 6,187 were never discussed. Unfortunately I did attend a CPAC meeting during which various county representatives explained the original number of 4,500 would now be increased to 4,950. However, this 6,187 figure has not been through the review process, i.e., is not in the DEIR or subsequent amendments or inclusions, to my knowledge.

Cortez, this new figure means an additional 1,687 units, a 37.5% increase over the 4,500 figure, and a 34.1% increase over the revised number. Even if the infrastructure existed or was in the process of being built, these increases would be staggering; but the infrastructure doesn't exist, the community (and county staff) are undecided on the important issue of traffic flow, and this rezone seems to have been done intentionally without adequate community notice. Since the Army Corps of Engineers did follow the letter of the law by placing a notice of this 'public scoping' meeting in the Bee, nothing was probably done illegally. So de jure this process took place, but de facto it was done in secret.

Could you find out and get back to me at your convenience if (a) Charlea Moore's article is accurate (or at least the part I quoted); (b) does a rezone, if it took place at all, mean that the Elverta Specific Plan is now assumed to have been revised to allow this huge increase without any more input, discussion, etc.? That's it. A couple of questions on an issue that threatens to destroy our quality of life. You've been out here, Cortez, and you've seen how rural (read "peaceful and quiet") this area is 95% of the time. My neighbors and I recognize that we lost years ago when our chosen option for redevelopment (a much more rural feel to it) was not approved by the board; but this is a drastic change, and I am hoping that your answers to my questions will allay any additional concerns I and my neighbors may have.

Thanks for your time, Cortez, and I look forward to hearing from you.

p.s. I have cc'd Kathleen A. Dadey, (Kathleen.A.dadey@usace.army.mil) the project manager apparently with the Army Corps of Engineers.

Happy Trails,
Russ Hood
991-4663

Letter 10

RECEIVED
JUL 8 2009
REGULATORY DIVISION
USACE, SACRAMENTO

July 6, 2009

Kathleen Dadey, Chief
CA Delta Branch
US Army Corps. of Engineers, Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814-2922

Re: Public Notice Number SPK -2004-00323

Dear Ms. Dadey

We are residents of Elverta, California. Our property (Parcel Number 202-0070-026) is located within the boundaries of the Elverta Specific Plan. We did not receive notification from you or your agency regarding the June 24,2009 public scoping meeting. We did read about the meeting in a local newspaper. It was unfortunate that we were not mad aware of the meeting. Once we learned of the meeting we read the description of the permit process on the COE website. The information on the website is vague regarding the impacts to our property. We are very concerned about the potential impact. I called your offices on July 2, 2009 and left you a message.

After reading the description of the public meeting and the potential impacts to us we are requesting the following information from your offices:

- What direct and indirect impacts will the proposed CORPS permit have on our property?
- What properties are affected by the proposed permit?
- Will the proposes permit change or influence our property values?
- What further requirements must completed by the Corps in order to identify the potential impacts to us and our property?

We are most interested in meeting with you in order to review the documents presented at the meeting and how the proposed permit will impact us. We hope that there is another public meeting.

Sincerely,

Mark Pheatt

Nancy Pheatt

8846 Palladay Road
Elverta, CA 95626
916 992 1527

From: E H [mailto:satchel9945@yahoo.com]
Sent: Thursday, July 09, 2009 1:39 PM
To: Dadey, Kathleen A SPK
Subject: Actions on Elverta Specific Plan

Kathleen Dadey, Project Manager
Army Corps of Engineers
1325 J Street, Room 1480
Sacramento, CA 95814

Re: Actions on Elverta Specific Plan

Dear Ms. Dadey,

The July issue of the "North Country News" carries an article regarding the public scoping for the "Elverta Owners Group" application for permits to develop approximately 776 acres of the Elverta Specific Plan. The article states that zoning for a maximum of 6187 dwelling units (averaging almost 8 residences per acre) has been granted.

This action gives me concern about the traffic impact on my residential street (Rifle Ridge Drive in the Cherry Creek Subdivision), as well as the overall traffic impact on Elverta Road and Watt Avenue. It also appears that there are valid concerns in regard to the plans and capacity for 16th Street and Dry Creek Road.

In addition to the above, where is the water and electricity going to come from for these new residences, and what will happen to residential rates as a result? What consideration has been given to the local impact of the 70,000 dwelling units that Placer County has apparently approved for the land to the north of this project?

It doesn't seem that the scoping meeting was widely publicized in the community affected by this application. It also seems that a project of this magnitude should have multiple public meetings to present the plan and address community concerns for traffic, water, and quality of life before being allowed to proceed.

Sincerely,

Eric Henderson
8258 Rifle Ridge Drive
Elverta, CA 95626

From: marlene.vallee@homeq.com [mailto:marlene.vallee@homeq.com]
Sent: Friday, July 10, 2009 2:32 PM
To: Dadey, Kathleen A SPK
Subject: Public Scoping meeting - Elverta Specific Plan

Hello -
Can you please send me information or documents regarding the Department of Transportation's recommendation for the 16th Street extension for the Elverta specific Plan?

Thanks!!

Marlene Vallee
HomEq Servicing
Portfolio and Risk Analytics
(916) 339-6155

July 11, 2009

Kathleen A. Dadey
Re: Elverta Specific Plan EIR
Re: Downgrading Dry Creek Road to 2 Lanes w/ Safe Routes to School Sidewalks, Lighting, and Safety Improvements

Ms. Dadey, our family moved from a ranch in Sonora, California to Rio Linda when my oldest son was starting kindergarten. We wanted another community of open space, ranches, orchards, horses, wildlife, creeks, and the quietness that all that brings. We have lived on Dry Creek Road for only 8 years, previously we lived on Curved Bridge Road. We have experienced the best Rio Linda has to offer in the 20 years we have lived here. All of the neighbors and friends I have met here want the same, a small rural community, without traffic and noise and the pollution they bring. We grow vegetable gardens, raise chickens, have farm animals, grow fruit and almond trees, berries, and other environmentally sound foods. Our community neighbors have acres of land that grow the most wonderful, strawberries in the entire Sacramento County area. With the increase of vehicle traffic, the pollution and noise levels will increase 100%+ thereby affecting the community's health. The local McDonalds on the corner of Elk Horn Boulevard and Rio Linda Boulevard have old photos of what this community has always been, a farming, ranching, rural community. In the mornings I can hear my neighbors donkeys, sheep, geese, horses, chickens, peacocks, and other domestic animals. This is a beautiful sound. Do you want our community to endure the sound of 4-lane traffic, congestion, pollution, and aggregation that accompanies urban and traffic sprawl? If our community wanted those things, we would live in Roseville, which when you research Roseville, you will admit it is a traffic and urban sprawl nightmare.

Dry Creek Road is the transportation route of one senior high school, one junior high school, two elementary schools, and one special needs school. When most California cities are applying for "Safe Routes to School Grants", which communities can apply to Caltrans for, these funds build sidewalks, bike/pedestrian safety lanes, traffic improvements, street crossing improvements, etc to ensure the safety of the community. The Elverta Specific Plan intends to increase safety hazards for these school children, bus drivers, parents driving their children to school, and any other local citizen taking a walk for exercise, riding their horse or bike on Dry Creek Road. Therefore, it is in the best interest of this community to keep Dry Creek Road a 2-lane road, add sidewalks for safety, and not even consider expanding to a four-lane road. Remember, the more lanes the roadway has, the higher the speed limit and the more traffic danger our community school children and local families will encounter. Again, when most communities are applying for "Safe Routes to School Grants", the Elverta Specific Plan developers are envisioning making this community more unsafe by increasing traffic flows.

Thank you,
April Hawkins
7128 Dry Creek Road
Rio Linda, CA 95673

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

July 9, 2009

Kathleen A. Dadey, Chief
CA Delta Branch
U. S. Army Corps of Engineers, Sacramento District
1325 J Street, Room 1480
Sacramento, California 95814-2922

Dear Ms. Dadey:

This is in response to your request for comments on the Public Notice of Intent to Prepare an Environment Impact Statement (EIS) – Elverta Specific Plan.

Please review the current effective Flood Insurance Rate Maps (FIRMs) for the County of Sacramento (Community Number 060262), Maps revised December 8, 2008. Please note that the County of Sacramento, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Sacramento County floodplain manager can be reached by calling George H. Booth, Senior Civil Engineer, Department of Water Resources, at (916) 874-6851.

If you have any questions or concerns, please do not hesitate to call Cynthia McKenzie of the Mitigation staff at (510) 627-7190.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
George H. Booth, Senior Civil Engineer, Sacramento County, Department of Water Resources
Ray Lee, State of California, Department of Water Resources, Central District
Cynthia McKenzie, Senior Floodplanner, CFM, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

Letter 15

SHEPPARD MULLIN
SHEPPARD MULLIN RICHTER & HAMPTON LLP
ATTORNEYS AT LAW

Four Embarcadero Center | 17th Floor | San Francisco, CA 94111-4109
415-434-9100 *office* | 415-434-3947 *fax* | ***www.sheppardmullin.com***

Writer's Direct Line: 415-774-3285

August 12, 2009

Our File Number: 19DC-139065

VIA E-MAIL AND U.S. MAIL

Kathleen Dadey
Regulatory Project Manager
United States Army Corps of Engineers
Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814-2922
Email: Kathleen.A.Dadey@usace.army.mil

Re: Elverta Specific Plan

Dear Ms. Dadey:

Thank you for issuing the Notice of Intent to Prepare a Draft Environmental Impact Statement ("NOI") for the Elverta Specific Plan Project and initiating environmental review subject to the National Environmental Policy Act ("NEPA"). John Hodgson on behalf of the Elverta Owners Group has asked that we clarify and confirm a few items on behalf of the Elverta Owners Group. We look forward to the timely completion of the EIS the Corps is preparing.

Pending Applications. The Elverta Owners Group submitted applications to the Corps in 2005. However, new applications will be submitted to the Corps to reflect project changes that have occurred over time during the local entitlement process and to minimize impacts to Corps jurisdiction. As noted in the NOI, the applications will include an infrastructure permit for common facilities that serve the entire proposed Specific Plan. We anticipate that the fill of waters of the United States associated with the Elverta Owners Group applications and the infrastructure will be approximately 45 acres.

Project Description. The Applicants are seeking individual permits for fill associated with the first phase of construction on 775.6 acres owned by entities participating in the Elverta Owners Group and a permit for fill associated with infrastructure necessary to serve the entire 1,745-acre Specific Plan area. We expect that non-participating landowners will choose to develop their properties at a later time according to the Specific Plan. As part of the EIS process, the Corps should consider issuing letters of permission to allow non-participating owners to fill wetlands on their lands in the Specific Plan area in a manner that is consistent with the approved permits for the Elverta Owners Group. In order to qualify for the letters of permission, the nonparticipating owners would, of course, have to conform their applications to the project footprint and fill areas the Corps identifies in the LOP and meet other conditions of the LOP. Alternatively, they would have to file separate individual permit applications.

Impacts to Waters of the U.S. The NOI only identifies impacts to waters of the U.S. on the lands owned by Elverta Owners Group participants. The EIS should also evaluate the total impacts on waters of the U.S. from implementation of the Specific Plan as an additional 980 acres of development will occur on the lands of non-participating landowners in subsequent phases of implementation of the Specific Plan.

On-Site Mitigation. The NOI did not discuss the on-site mitigation proposed as a part of the Project. Approximately 18 acres of waters within the Specific Plan area will be avoided and enhanced as part of the Elverta Owners Group actions. The Applicants will minimize impacts to these avoided areas by restoring and buffering these areas from development. Areas adjacent to these enhanced drainages will be used to create and restore wetlands within drainage corridors. Upon completion, the created, restored and enhanced aquatic features will serve to improve water quality, to provide a visual amenity for the community, and to provide habitat for wildlife. We anticipate that further enhancement will be done as part of the development of the remainder of the Specific Plan.

Elverta Specific Plan Environmental Impact Report ("EIR) & Scope of the Environmental Impact Statement. Through the scoping process, the lead agency must determine the scope of environmental review and "identify and eliminate from detailed study the issues which are not significant or have been covered by prior environmental review." 40 C.F.R. §§ 1501.7(a)(2)-(3) (2008). NEPA also requires federal agencies to cooperate with local agencies to the fullest extent possible to reduce duplication between NEPA and state and local requirements. 40 C.F.R. §§ 1506.2 (b), (c); 33 C.F.R. Pt. 325, App. B.

During the scoping process, the lead agency may work cooperatively with others to identify the significant issues to be analyzed in depth in the EIS and to eliminate insignificant issues from further study. *Id.*; *Conservation Law Found. v. Fed. Highway Admin.*, 2007 U.S. Dist. LEXIS 64465, *6 (D.N.H. Aug. 30, 2007) (upholding FHWA and state Department of Transportation decision during scoping process not to study rail alternative to roadway project). The Corps may also incorporate the contents of state and local environmental evaluations by reference into decision documents so long as it documents how it reached its own NEPA determination. *Northwest Sea Farms, Inc. v. U.S. Army Corps of Engineers*, 931 F. Supp. 1515, 1524 (W.D. Wash. 1996).

Sacramento County's EIR is both a Master EIR and a Program EIR that reviews the impacts of the entire Elverta Specific Plan. The County approved and certified the Final EIR for the Project on May 30, 2007 in accordance with the California Environmental Quality Act ("CEQA"). It will conduct further review of the Project as required to issue local entitlements and authorizations. To reduce duplication, the Corps should use the scoping process to identify areas that have been previously covered adequately under CEQA and present why they will not have any significant effect on the environment or incorporate relevant data and analysis from the County's EIR in this EIS. In accordance with subsection 320.4(j)(2) of the Corps' regulations, the EIS should also explain that primary responsibility for determining zoning and land use matters rests with the state and local governments and that the Corps accepts decisions by such governments on those matters unless the Corps identifies significant issues of overriding national importance.

We look forward to working with you.

Very truly yours,

Robert J. Uram

for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

W02-WEST:5BM1\401630213.5

cc: John Hodgson, The RCH Group
Christopher Cox, The RCH Group
Brenna Moorhead, SMRH

Appendix C
Air Quality Data

APPENDIX C

Criteria Pollutant and GHG Emissions

Introduction to the Air Quality Models and Results

The Urban Emissions model (URBEMIS 2007), version 9.2.4, was used to quantify direct emissions of criteria pollutants and CO_2 from proposed project construction and operations, including off-road equipment and fugitive dust emissions during construction activities and area source and on-road vehicle pollutant emissions during operations.

GHG emissions associated with the proposed project were calculated using the URBEMIS 2007 Version 9.2.4 model and trip generation data from the project traffic analysis. Because the only GHG that URBEMIS 2007 estimates is CO_2, scaling factors derived from the State of California Inventory of GHG Emissions were used to determine the relative emissions of methane (CH_4) and nitrous oxide (N_20) in order to generate emissions of GHG as CO_2e. In addition to on-road trafficrelated emissions, the URBEMIS 2007 model also estimates CO_2 emissions from natural gas combustion for space and water heating and fuel combustion for landscape maintenance, based on land use size (e.g., number of dwelling units, square footage of retail space, etc.). Again, the appropriate scaling factors from the State GHG Inventory were used to determine the relative amounts of NH_4 and N_2O emitted from project-related fuel combustion. Indirect emissions of GHGs from electricity generation (associated with electricity usage and water/wastewater conveyance) were based on methodologies described in the SMAQMD *Guide to Air Quality Assessment.*

Results of the URBEMIS2007 modeling (daily and annual) and GHG analysis are presented below for each alternative. This Appendix is separated into the following sub-sections:

- URBEMIS2007 MODEL RESULTS FOR CONSTRUCTION (ANNUAL AND DAILY EMISSIONS) – ALTERNATIVES A THROUGH C
- URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE A
- URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE B
- URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE C
- URBEMIS2007 MODEL RESULTS FOR CONSTRUCTION (ANNUAL AND DAILY EMISSIONS) – ALTERNATIVE D
- URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE D

- GHG ANALYSIS FOR ALTERNATIVE A
- GHG ANALYSIS FOR ALTERNATIVE B
- GHG ANALYSIS FOR ALTERNATIVE C
- GHG ANALYSIS FOR ALTERNATIVE D
- REFERENCES

URBEMIS2007 MODEL RESULTS FOR CONSTRUCTION (ANNUAL AND DAILY EMISSIONS) – ALTERNATIVES A THROUGH C

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction - Year 11.urb924

Project Name: Elverta Construction - Year 11

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2022 TOTALS (tons/year unmitigated)	13.85	2.78	4.84	0.01	26.08	0.14	26.22	5.45	0.13	5.58	1,434.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2022	13.85	2.78	4.84	0.01	26.08	0.14	26.22	5.45	0.13	5.58	1,434.99
Fine Grading 01/01/2022-04/27/2022	0.21	1.46	1.18	0.00	26.05	0.06	26.11	5.44	0.06	5.50	319.88
Fine Grading Dust	0.00	0.00	0.00	0.00	26.05	0.00	26.05	5.44	0.00	5.44	0.00
Fine Grading Off Road Diesel	0.21	1.45	1.15	0.00	0.00	0.06	0.06	0.00	0.06	0.06	299.49
Fine Grading On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 03/28/2022-05/15/2022	0.07	0.21	0.19	0.00	0.00	0.02	0.02	0.00	0.01	0.01	45.88
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.03	0.18	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.83
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.60
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
Building 04/28/2022-12/14/2022	0.21	1.11	3.42	0.01	0.04	0.06	0.10	0.01	0.06	0.07	1,051.78
Building Off Road Diesel	0.14	0.87	0.99	0.00	0.00	0.04	0.04	0.00	0.04	0.04	186.39
Building Vendor Trips	0.02	0.17	0.30	0.00	0.01	0.01	0.01	0.00	0.01	0.01	174.37
Building Worker Trips	0.04	0.08	2.12	0.01	0.03	0.01	0.05	0.01	0.01	0.02	691.02
Coating 08/08/2022-12/31/2022	13.35	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44
Architectural Coating	13.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44

Phase Assumptions

Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

Total Acres Disturbed: 125.5

Maximum Daily Acreage Disturbed: 31.38

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 59.52

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/28/2022 - 5/15/2022 - Default Paving Description

Acres to be Paved: 31.38

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2022 - 12/14/2022 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2022 - 12/31/2022 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction - Year 11 Mitigated.urb924

Project Name: Elverta Construction - Year 11 Mitigated

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2022 TOTALS (tons/year unmitigated)	13.84	2.76	4.81	0.01	12.49	0.14	12.63	2.61	0.13	2.74	1,429.89
2022 TOTALS (tons/year mitigated)	13.84	2.76	4.81	0.01	5.93	0.14	6.07	1.24	0.13	1.37	1,429.89
Percent Reduction	0.00	0.00	0.00	0.00	52.52	0.00	51.95	52.41	0.00	50.00	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/10/2011 3:48:37 PM

2022	13.84	2.76	4.81	0.01	12.49	0.14	12.63	2.61	0.13	2.74	1,429.89
Fine Grading 01/01/2022-04/27/2022	0.21	1.44	1.15	0.00	12.45	0.06	12.51	2.60	0.05	2.65	314.79
Fine Grading Dust	0.00	0.00	0.00	0.00	12.45	0.00	12.45	2.60	0.00	2.60	0.00
Fine Grading Off Road Diesel	0.21	1.42	1.11	0.00	0.00	0.06	0.06	0.00	0.05	0.05	294.39
Fine Grading On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 03/28/2022-05/15/2022	0.07	0.21	0.19	0.00	0.00	0.02	0.02	0.00	0.01	0.01	45.88
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.03	0.18	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.83
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.60
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
Building 04/28/2022-12/14/2022	0.21	1.11	3.42	0.01	0.04	0.06	0.10	0.01	0.06	0.07	1,051.78
Building Off Road Diesel	0.14	0.87	0.99	0.00	0.00	0.04	0.04	0.00	0.04	0.04	186.39
Building Vendor Trips	0.02	0.17	0.30	0.00	0.01	0.01	0.01	0.00	0.01	0.01	174.37
Building Worker Trips	0.04	0.08	2.12	0.01	0.03	0.01	0.05	0.01	0.01	0.02	691.02
Coating 08/08/2022-12/31/2022	13.35	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44
Architectural Coating	13.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44

Phase Assumptions

Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

Total Acres Disturbed: 125.5

Maximum Daily Acreage Disturbed: 15

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

3/10/2011 3:48:37 PM

On Road Truck Travel (VMT): 59.52

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/28/2022 - 5/15/2022 - Default Paving Description

Acres to be Paved: 31.38

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2022 - 12/14/2022 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2022 - 12/31/2022 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2022	13.84	2.76	4.81	0.01	5.93	0.14	6.07	1.24	0.13	1.37	1,429.89
Fine Grading 01/01/2022-04/27/2022	0.21	1.44	1.15	0.00	5.89	0.06	5.95	1.23	0.05	1.28	314.79
Fine Grading Dust	0.00	0.00	0.00	0.00	5.89	0.00	5.89	1.23	0.00	1.23	0.00
Fine Grading Off Road Diesel	0.21	1.42	1.11	0.00	0.00	0.06	0.06	0.00	0.05	0.05	294.39
Fine Grading On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.95
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 03/28/2022-05/15/2022	0.07	0.21	0.19	0.00	0.00	0.02	0.02	0.00	0.01	0.01	45.88
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.03	0.18	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.83
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.60
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
Building 04/28/2022-12/14/2022	0.21	1.11	3.42	0.01	0.04	0.06	0.10	0.01	0.06	0.07	1,051.78
Building Off Road Diesel	0.14	0.87	0.99	0.00	0.00	0.04	0.04	0.00	0.04	0.04	186.39
Building Vendor Trips	0.02	0.17	0.30	0.00	0.01	0.01	0.01	0.00	0.01	0.01	174.37
Building Worker Trips	0.04	0.08	2.12	0.01	0.03	0.01	0.05	0.01	0.01	0.02	691.02
Coating 08/08/2022-12/31/2022	13.35	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44
Architectural Coating	13.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44

3/10/2011 3:48:37 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction - Year 11.urb924

Project Name: Elverta Construction - Year 11

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2022 TOTALS (lbs/day unmitigated)	256.85	47.16	52.17	0.11	627.66	2.34	630.00	131.09	2.15	133.24	15,370.42

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2022-3/25/2022 Active Days: 60	5.17	35.23	28.54	0.00	627.62	1.46	629.08	131.07	1.34	132.42	7,708.06
Fine Grading 01/01/2022-04/27/2022	5.17	35.23	28.54	0.00	627.62	1.46	629.08	131.07	1.34	132.42	7,708.06
Fine Grading Dust	0.00	0.00	0.00	0.00	627.60	0.00	627.60	131.07	0.00	131.07	0.00
Fine Grading Off Road Diesel	5.11	34.88	27.61	0.00	0.00	1.44	1.44	0.00	1.33	1.33	7,216.54
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88

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Time Slice 3/28/2022-4/27/2022 Active Days: 23	9.38	**47.16**	39.32	0.02	**627.66**	**2.34**	**630.00**	**131.09**	**2.15**	**133.24**	10,329.59
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Fine Grading 01/01/2022-04/27/2022	5.17	35.23	28.54	0.00	627.62	1.46	629.08	131.07	1.34	132.42	7,708.06
Fine Grading Dust	0.00	0.00	0.00	0.00	627.60	0.00	627.60	131.07	0.00	131.07	0.00
Fine Grading Off Road Diesel	5.11	34.88	27.61	0.00	0.00	1.44	1.44	0.00	1.33	1.33	7,216.54
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88
Time Slice 4/28/2022-5/13/2022 Active Days: 12	6.74	25.40	**52.17**	**0.11**	0.49	1.65	2.14	0.17	1.49	1.67	**15,370.42**
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01

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Time Slice 5/16/2022-8/5/2022 Active Days: 60	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Time Slice 8/8/2022-12/14/2022 Active Days: 93	**256.85**	13.50	42.42	0.11	0.46	0.78	1.24	0.17	0.69	0.86	13,081.13
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Time Slice 12/15/2022-12/30/2022 Active Days: 12	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24

Phase Assumptions

Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

Total Acres Disturbed: 125.5

Maximum Daily Acreage Disturbed: 31.38

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

3/10/2011 2:14:07 PM

On Road Truck Travel (VMT): 59.52

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/28/2022 - 5/15/2022 - Default Paving Description

Acres to be Paved: 31.38

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2022 - 12/14/2022 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2022 - 12/31/2022 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction - Year 11 Mitigated.urb924

Project Name: Elverta Construction - Year 11 Mitigated

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2022 TOTALS (lbs/day unmitigated)	256.85	46.58	52.17	0.11	300.06	2.30	302.37	62.67	2.12	64.79	15,370.42
2022 TOTALS (lbs/day mitigated)	256.85	46.58	52.17	0.11	141.99	2.30	144.30	29.66	2.12	31.78	15,370.42

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 1/3/2022-3/25/2022 Active Days: 60	5.08	34.64	27.73	0.00	300.02	1.43	301.45	62.66	1.31	63.97	7,585.26
Fine Grading 01/01/2022- 04/27/2022	5.08	34.64	27.73	0.00	300.02	1.43	301.45	62.66	1.31	63.97	7,585.26
Fine Grading Dust	0.00	0.00	0.00	0.00	300.00	0.00	300.00	62.65	0.00	62.65	0.00
Fine Grading Off Road Diesel	5.03	34.30	26.80	0.00	0.00	1.41	1.41	0.00	1.30	1.30	7,093.74
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88
Time Slice 3/28/2022-4/27/2022 Active Days: 23	9.30	**46.58**	38.51	0.02	**300.06**	**2.30**	**302.37**	**62.67**	**2.12**	**64.79**	10,206.80
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Fine Grading 01/01/2022- 04/27/2022	5.08	34.64	27.73	0.00	300.02	1.43	301.45	62.66	1.31	63.97	7,585.26
Fine Grading Dust	0.00	0.00	0.00	0.00	300.00	0.00	300.00	62.65	0.00	62.65	0.00
Fine Grading Off Road Diesel	5.03	34.30	26.80	0.00	0.00	1.41	1.41	0.00	1.30	1.30	7,093.74
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88

3/10/2011 3:49:00 PM

Time Slice 4/28/2022-5/13/2022 Active Days: 12	6.74	25.40	**52.17**	**0.11**	0.49	1.65	2.14	0.17	1.49	1.67	**15,370.42**
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Time Slice 5/16/2022-8/5/2022 Active Days: 60	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Time Slice 8/8/2022-12/14/2022 Active Days: 93	**256.85**	13.50	42.42	0.11	0.46	0.78	1.24	0.17	0.69	0.86	13,081.13
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24

3/10/2011 3:49:00 PM

Time Slice 12/15/2022-12/30/2022 Active Days: 12	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24

Phase Assumptions

Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

Total Acres Disturbed: 125.5

Maximum Daily Acreage Disturbed: 15

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 59.52

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/28/2022 - 5/15/2022 - Default Paving Description

Acres to be Paved: 31.38

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2022 - 12/14/2022 - Default Building Construction Description

3/10/2011 3:49:00 PM

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2022 - 12/31/2022 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2022-3/25/2022 Active Days: 60	5.08	34.64	27.73	0.00	141.95	1.43	143.38	29.65	1.31	30.96	7,585.26
Fine Grading 01/01/2022-04/27/2022	5.08	34.64	27.73	0.00	141.95	1.43	143.38	29.65	1.31	30.96	7,585.26
Fine Grading Dust	0.00	0.00	0.00	0.00	141.93	0.00	141.93	29.64	0.00	29.64	0.00
Fine Grading Off Road Diesel	5.03	34.30	26.80	0.00	0.00	1.41	1.41	0.00	1.30	1.30	7,093.74
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88

3/10/2011 3:49:00 PM

Time Slice 3/28/2022-4/27/2022 Active Days: 23	9.30	**46.58**	38.51	0.02	141.99	**2.30**	144.30	29.66	**2.12**	31.78	10,206.80
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Fine Grading 01/01/2022-04/27/2022	5.08	34.64	27.73	0.00	141.95	1.43	143.38	29.65	1.31	30.96	7,585.26
Fine Grading Dust	0.00	0.00	0.00	0.00	141.93	0.00	141.93	29.64	0.00	29.64	0.00
Fine Grading Off Road Diesel	5.03	34.30	26.80	0.00	0.00	1.41	1.41	0.00	1.30	1.30	7,093.74
Fine Grading On Road Diesel	0.04	0.31	0.16	0.00	0.01	0.01	0.02	0.00	0.01	0.01	239.64
Fine Grading Worker Trips	0.02	0.03	0.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.88
Time Slice 4/28/2022-5/13/2022 Active Days: 12	6.74	25.40	**52.17**	**0.11**	0.49	1.65	2.14	0.17	1.49	1.67	**15,370.42**
Asphalt 03/28/2022-05/15/2022	4.21	11.94	10.77	0.01	0.04	0.88	0.92	0.01	0.81	0.82	2,621.53
Paving Off-Gas	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.16	1.39	0.69	0.01	0.04	0.05	0.09	0.01	0.05	0.06	1,062.79
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01

3/10/2011 3:49:00 PM

Time Slice 5/16/2022-8/5/2022 Active Days: 60	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Time Slice 8/8/2022-12/14/2022 Active Days: 93	**256.85**	13.50	42.42	0.11	0.46	0.78	1.24	0.17	0.69	0.86	13,081.13
Building 04/28/2022-12/14/2022	2.52	13.46	41.40	0.10	0.45	0.77	1.22	0.16	0.69	0.85	12,748.89
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	0.28	2.03	3.62	0.02	0.08	0.10	0.18	0.03	0.09	0.12	2,113.60
Building Worker Trips	0.54	0.94	25.75	0.08	0.37	0.17	0.55	0.13	0.14	0.28	8,376.01
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Time Slice 12/15/2022-12/30/2022 Active Days: 12	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Coating 08/08/2022-12/31/2022	254.32	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24
Architectural Coating	254.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	1.02	0.00	0.01	0.01	0.02	0.01	0.01	0.01	332.24

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2022 - 4/27/2022 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE A

11/19/2010 3:28:15 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Preferred Alt.urb924

Project Name: Elverta Operations - Preferred Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	94.55	21.90	238.57	0.68	34.17	32.89	28,189.59

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	42.69	29.80	390.39	0.96	164.59	31.28	97,053.96

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	137.24	51.70	628.96	1.64	198.76	64.17	125,243.55

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.35	17.54	7.72	0.00	0.03	0.03	22,340.10
Hearth	23.03	4.11	208.93	0.68	34.08	32.80	5,814.18
Landscape	3.91	0.25	21.92	0.00	0.06	0.06	35.31
Consumer Products	51.00						
Architectural Coatings	15.26						
TOTALS (tons/year, unmitigated)	94.55	21.90	238.57	0.68	34.17	32.89	28,189.59

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	33.58	24.37	320.24	0.79	135.28	25.71	79,774.95
Apartments low rise	4.24	2.91	38.21	0.09	16.14	3.07	9,519.51
Elementary school	1.57	0.33	4.24	0.01	1.77	0.34	1,043.38
Strip mall	3.01	1.99	25.08	0.06	10.28	1.95	6,059.66
General office building	0.29	0.20	2.62	0.01	1.12	0.21	656.46
TOTALS (tons/year, unmitigated)	42.69	29.80	390.39	0.96	164.59	31.28	97,053.96

Operational Settings:

11/19/2010 3:28:15 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 12.93 Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	7.97	dwelling units	5,317.00	42,360.29	431,871.54
Apartments low rise	37.70	5.79	dwelling units	873.00	5,054.84	51,535.06
Elementary school		0.64	students	1,200.00	774.00	5,653.30
Strip mall		25.27	1000 sq ft	233.00	5,887.91	32,796.54
General office building		7.89	1000 sq ft	48.00	378.96	3,564.45
					54,456.00	525,420.89

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:28:15 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:27:32 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Preferred Alt.urb924

Project Name: Elverta Operations - Preferred Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	413.87	98.85	285.81	0.01	0.83	0.82	122,803.83

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	245.28	138.86	2,261.99	5.68	901.86	171.39	569,959.94

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	659.15	237.71	2,547.80	5.69	902.69	172.21	692,763.77

11/19/2010 3:27:32 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	7.41	96.09	42.28	0.00	0.18	0.18	122,411.49
Hearth - No Summer Emissions							
Landscape	43.39	2.76	243.53	0.01	0.65	0.64	392.34
Consumer Products	279.44						
Architectural Coatings	83.63						
TOTALS (lbs/day, unmitigated)	413.87	98.85	285.81	0.01	0.83	0.82	122,803.83

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	191.25	113.49	1,857.48	4.67	741.28	140.87	468,486.65
Apartments low rise	24.61	13.54	221.65	0.56	88.46	16.81	55,904.32
Elementary school	11.27	1.54	24.41	0.06	9.70	1.84	6,127.71
Strip mall	16.50	9.35	143.29	0.35	56.30	10.71	35,585.37
General office building	1.65	0.94	15.16	0.04	6.12	1.16	3,855.89
TOTALS (lbs/day, unmitigated)	245.28	138.86	2,261.99	5.68	901.86	171.39	569,959.94

Operational Settings:

11/19/2010 3:27:32 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 12.93   Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	7.97	dwelling units	5,317.00	42,360.29	431,871.54
Apartments low rise	37.70	5.79	dwelling units	873.00	5,054.84	51,535.06
Elementary school		0.64	students	1,200.00	774.00	5,653.30
Strip mall		25.27	1000 sq ft	233.00	5,887.91	32,796.54
General office building		7.89	1000 sq ft	48.00	378.96	3,564.45
					54,456.00	525,420.89

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:27:32 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:28:05 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Preferred Alt.urb924

Project Name: Elverta Operations - Preferred Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	933.44	227.64	5,151.43	16.83	834.01	802.81	304,324.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	211.24	212.18	1,893.41	4.52	901.86	171.39	455,487.70

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,144.68	439.82	7,044.84	21.35	1,735.87	974.20	759,812.32

11/19/2010 3:28:05 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	7.41	96.09	42.28	0.00	0.18	0.18	122,411.49
Hearth	562.96	131.55	5,109.15	16.83	833.83	802.63	181,913.13
Landscaping - No Winter Emissions							
Consumer Products	279.44						
Architectural Coatings	83.63						
TOTALS (lbs/day, unmitigated)	933.44	227.64	5,151.43	16.83	834.01	802.81	304,324.62

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	169.56	173.62	1,549.31	3.72	741.28	140.87	374,395.79
Apartments low rise	20.40	20.72	184.88	0.44	88.46	16.81	44,676.50
Elementary school	3.34	2.34	20.82	0.05	9.70	1.84	4,896.04
Strip mall	16.49	14.06	125.73	0.28	56.30	10.71	28,440.06
General office building	1.45	1.44	12.67	0.03	6.12	1.16	3,079.31
TOTALS (lbs/day, unmitigated)	211.24	212.18	1,893.41	4.52	901.86	171.39	455,487.70

Operational Settings:

11/19/2010 3:28:05 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 12.93   Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	7.97	dwelling units	5,317.00	42,360.29	431,871.54
Apartments low rise	37.70	5.79	dwelling units	873.00	5,054.84	51,535.06
Elementary school		0.64	students	1,200.00	774.00	5,653.30
Strip mall		25.27	1000 sq ft	233.00	5,887.91	32,796.54
General office building		7.89	1000 sq ft	48.00	378.96	3,564.45
					54,456.00	525,420.89

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:28:05 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE B

11/19/2010 3:41:31 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Minimal Impact Alt.urb924

Project Name: Elverta Operations - Minimal Impact Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	92.05	20.43	233.50	0.68	34.16	32.88	26,394.45

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	40.61	28.63	375.24	0.94	158.27	30.07	93,319.96

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	132.66	49.06	608.74	1.62	192.43	62.95	119,714.41

11/19/2010 3:41:31 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.24	16.13	7.06	0.00	0.03	0.03	20,553.29
Hearth	23.03	4.10	208.93	0.68	34.08	32.80	5,812.92
Landscape	3.11	0.20	17.51	0.00	0.05	0.05	28.24
Consumer Products	51.00						
Architectural Coatings	13.67						
TOTALS (tons/year, unmitigated)	92.05	20.43	233.50	0.68	34.16	32.88	26,394.45

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	27.31	19.90	261.52	0.65	110.48	20.99	65,146.06
Apartments low rise	9.74	6.72	88.27	0.22	37.29	7.09	21,989.97
Elementary school	0.79	0.17	2.12	0.01	0.89	0.17	521.69
Strip mall	2.47	1.63	20.57	0.05	8.43	1.60	4,970.22
General office building	0.30	0.21	2.76	0.01	1.18	0.22	692.02
TOTALS (tons/year, unmitigated)	40.61	28.63	375.24	0.94	158.27	30.07	93,319.96

Operational Settings:

11/19/2010 3:41:31 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 10.82   Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,055.25	8.20	dwelling units	4,221.00	34,592.39	352,676.21
Apartments low rise	85.61	5.93	dwelling units	1,969.00	11,676.62	119,045.42
Elementary school		0.64	students	600.00	387.00	2,826.65
Strip mall		25.27	1000 sq ft	191.11	4,829.35	26,900.20
General office building		7.90	1000 sq ft	50.60	399.49	3,757.52
					51,884.85	505,206.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:41:31 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:40:54 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Minimal Impact Alt.urb924

Project Name: Elverta Operations - Minimal Impact Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	395.72	90.58	233.28	0.01	0.69	0.69	112,934.55

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	232.66	133.39	2,174.58	5.46	867.17	164.78	548,031.58

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	628.38	223.97	2,407.86	5.47	867.86	165.47	660,966.13

11/19/2010 3:40:54 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	6.81	88.37	38.67	0.00	0.17	0.17	112,620.77
Hearth - No Summer Emissions							
Landscape	34.55	2.21	194.61	0.01	0.52	0.52	313.78
Consumer Products	279.44						
Architectural Coatings	74.92						
TOTALS (lbs/day, unmitigated)	395.72	90.58	233.28	0.01	0.69	0.69	112,934.55

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	155.27	92.68	1,516.86	3.81	605.35	115.03	382,576.95
Apartments low rise	56.49	31.28	512.01	1.29	204.34	38.83	129,138.38
Elementary school	5.63	0.77	12.20	0.03	4.85	0.92	3,063.86
Strip mall	13.53	7.67	117.53	0.29	46.18	8.78	29,187.64
General office building	1.74	0.99	15.98	0.04	6.45	1.22	4,064.75
TOTALS (lbs/day, unmitigated)	232.66	133.39	2,174.58	5.46	867.17	164.78	548,031.58

Operational Settings:

11/19/2010 3:40:54 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 10.82   Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,055.25	8.20	dwelling units	4,221.00	34,592.39	352,676.21
Apartments low rise	85.61	5.93	dwelling units	1,969.00	11,676.62	119,045.42
Elementary school		0.64	students	600.00	387.00	2,826.65
Strip mall		25.27	1000 sq ft	191.11	4,829.35	26,900.20
General office building		7.90	1000 sq ft	50.60	399.49	3,757.52
					51,884.85	505,206.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:40:54 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:41:22 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Minimal Impact Alt.urb924

Project Name: Elverta Operations - Minimal Impact Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	924.02	217.95	5,146.99	16.82	833.84	802.64	292,019.55

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	202.19	203.86	1,819.16	4.34	867.17	164.78	437,963.49

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,126.21	421.81	6,966.15	21.16	1,701.01	967.42	729,983.04

11/19/2010 3:41:22 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	6.81	88.37	38.67	0.00	0.17	0.17	112,620.77
Hearth	562.85	129.58	5,108.32	16.82	833.67	802.47	179,398.78
Landscaping - No Winter Emissions							
Consumer Products	279.44						
Architectural Coatings	74.92						
TOTALS (lbs/day, unmitigated)	924.02	217.95	5,146.99	16.82	833.84	802.64	292,019.55

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	138.38	141.78	1,265.20	3.04	605.35	115.03	305,740.19
Apartments low rise	47.09	47.86	427.07	1.02	204.34	38.83	103,202.22
Elementary school	1.67	1.17	10.41	0.02	4.85	0.92	2,448.02
Strip mall	13.52	11.53	103.12	0.23	46.18	8.78	23,326.95
General office building	1.53	1.52	13.36	0.03	6.45	1.22	3,246.11
TOTALS (lbs/day, unmitigated)	202.19	203.86	1,819.16	4.34	867.17	164.78	437,963.49

Operational Settings:

11/19/2010 3:41:22 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 10.82   Nonresidential Trip % Reduction: 50

Analysis Year: 2030 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,055.25	8.20	dwelling units	4,221.00	34,592.39	352,676.21
Apartments low rise	85.61	5.93	dwelling units	1,969.00	11,676.62	119,045.42
Elementary school		0.64	students	600.00	387.00	2,826.65
Strip mall		25.27	1000 sq ft	191.11	4,829.35	26,900.20
General office building		7.90	1000 sq ft	50.60	399.49	3,757.52
					51,884.85	505,206.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:41:22 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE C

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Approved SP Alt.urb924

Project Name: Elverta Operations - Approved SP Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	94.52	21.84	238.52	0.68	34.17	32.89	28,125.90

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	42.95	30.09	394.40	0.98	166.33	31.62	98,081.93

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	137.47	51.93	632.92	1.66	200.50	64.51	126,207.83

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.35	17.48	7.67	0.00	0.03	0.03	22,276.41
Hearth	23.03	4.11	208.93	0.68	34.08	32.80	5,814.18
Landscape	3.91	0.25	21.92	0.00	0.06	0.06	35.31
Consumer Products	51.00						
Architectural Coatings	15.23						
TOTALS (tons/year, unmitigated)	94.52	21.84	238.52	0.68	34.17	32.89	28,125.90

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	34.15	24.85	326.57	0.81	137.96	26.22	81,351.37
Apartments low rise	4.30	2.97	38.97	0.10	16.46	3.13	9,707.63
Elementary school	1.58	0.33	4.29	0.01	1.79	0.34	1,057.29
Strip mall	2.57	1.70	21.42	0.05	8.77	1.67	5,174.59
General office building	0.35	0.24	3.15	0.01	1.35	0.26	791.05
TOTALS (tons/year, unmitigated)	42.95	30.09	394.40	0.98	166.33	31.62	98,081.93

Operational Settings:

11/19/2010 3:47:14 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 11.21   Nonresidential Trip % Reduction: 49.33

Analysis Year: 2030 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	8.12	dwelling units	5,317.00	43,197.36	440,405.66
Apartments low rise	37.70	5.90	dwelling units	873.00	5,154.72	52,553.43
Elementary school		0.65	students	1,200.00	784.32	5,728.69
Strip mall		25.61	1000 sq ft	196.35	5,027.93	28,006.34
General office building		8.00	1000 sq ft	57.08	456.66	4,295.25
					54,620.99	530,989.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:46:38 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Approved SP Alt.urb924

Project Name: Elverta Operations - Approved SP Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	413.68	98.56	285.57	0.01	0.83	0.82	122,454.86

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	246.57	140.23	2,285.57	5.74	911.42	173.20	575,997.05

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	660.25	238.79	2,571.14	5.75	912.25	174.02	698,451.91

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	7.38	95.80	42.04	0.00	0.18	0.18	122,062.52
Hearth - No Summer Emissions							
Landscape	43.39	2.76	243.53	0.01	0.65	0.64	392.34
Consumer Products	279.44						
Architectural Coatings	83.47						
TOTALS (lbs/day, unmitigated)	413.68	98.56	285.57	0.01	0.83	0.82	122,454.86

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	194.25	115.73	1,894.18	4.76	755.93	143.65	477,744.31
Apartments low rise	24.97	13.81	226.03	0.57	90.21	17.14	57,009.03
Elementary school	11.30	1.57	24.73	0.06	9.83	1.87	6,209.43
Strip mall	14.07	7.98	122.36	0.30	48.08	9.14	30,387.84
General office building	1.98	1.14	18.27	0.05	7.37	1.40	4,646.44
TOTALS (lbs/day, unmitigated)	246.57	140.23	2,285.57	5.74	911.42	173.20	575,997.05

Operational Settings:

11/19/2010 3:46:38 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 11.21   Nonresidential Trip % Reduction: 49.33

Analysis Year: 2030 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	8.12	dwelling units	5,317.00	43,197.36	440,405.66
Apartments low rise	37.70	5.90	dwelling units	873.00	5,154.72	52,553.43
Elementary school		0.65	students	1,200.00	784.32	5,728.69
Strip mall		25.61	1000 sq ft	196.35	5,027.93	28,006.34
General office building		8.00	1000 sq ft	57.08	456.66	4,295.25
					54,620.99	530,989.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

11/19/2010 3:46:38 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

11/19/2010 3:47:05 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - Approved SP Alt.urb924

Project Name: Elverta Operations - Approved SP Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	933.25	227.35	5,151.19	16.83	834.01	802.81	303,975.65

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	212.84	214.31	1,912.19	4.57	911.42	173.20	460,311.62

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,146.09	441.66	7,063.38	21.40	1,745.43	976.01	764,287.27

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	7.38	95.80	42.04	0.00	0.18	0.18	122,062.52
Hearth	562.96	131.55	5,109.15	16.83	833.83	802.63	181,913.13
Landscaping - No Winter Emissions							
Consumer Products	279.44						
Architectural Coatings	83.47						
TOTALS (lbs/day, unmitigated)	933.25	227.35	5,151.19	16.83	834.01	802.81	303,975.65

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	172.84	177.05	1,579.93	3.79	755.93	143.65	381,794.14
Apartments low rise	20.79	21.13	188.53	0.45	90.21	17.14	45,559.34
Elementary school	3.38	2.38	21.10	0.05	9.83	1.87	4,961.33
Strip mall	14.08	12.01	107.36	0.24	48.08	9.14	24,286.16
General office building	1.75	1.74	15.27	0.04	7.37	1.40	3,710.65
TOTALS (lbs/day, unmitigated)	212.84	214.31	1,912.19	4.57	911.42	173.20	460,311.62

Operational Settings:

11/19/2010 3:47:05 PM

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 11.21 Nonresidential Trip % Reduction: 49.33

Analysis Year: 2030 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,302.50	8.12	dwelling units	5,317.00	43,197.36	440,405.66
Apartments low rise	37.70	5.90	dwelling units	873.00	5,154.72	52,553.43
Elementary school		0.65	students	1,200.00	784.32	5,728.69
Strip mall		25.61	1000 sq ft	196.35	5,027.93	28,006.34
General office building		8.00	1000 sq ft	57.08	456.66	4,295.25
					54,620.99	530,989.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

URBEMIS2007 MODEL RESULTS FOR CONSTRUCTION (ANNUAL AND DAILY EMISSIONS) – ALTERNATIVE D

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction No Fed Alt - Year 4.urb924

Project Name: Elverta Construction No Fed Permit - Year 4

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (tons/year unmitigated)	8.40	4.16	5.42	0.01	20.77	0.22	21.00	4.34	0.20	4.55	1,032.94

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2015	8.40	4.16	5.42	0.01	20.77	0.22	21.00	4.34	0.20	4.55	1,032.94
Fine Grading 01/01/2015-04/27/2015	0.29	2.29	1.38	0.00	20.75	0.11	20.86	4.33	0.10	4.43	312.96
Fine Grading Dust	0.00	0.00	0.00	0.00	20.75	0.00	20.75	4.33	0.00	4.33	0.00
Fine Grading Off Road Diesel	0.29	2.27	1.31	0.00	0.00	0.11	0.11	0.00	0.10	0.10	299.49
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 04/15/2015-05/15/2015	0.06	0.20	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	31.06
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.15	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.63
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.82
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Building 04/28/2015-12/14/2015	0.31	1.67	3.85	0.00	0.02	0.10	0.12	0.01	0.09	0.10	678.82
Building Off Road Diesel	0.22	1.33	1.06	0.00	0.00	0.08	0.08	0.00	0.08	0.08	186.39
Building Vendor Trips	0.02	0.23	0.28	0.00	0.00	0.01	0.01	0.00	0.01	0.01	93.56
Building Worker Trips	0.06	0.10	2.51	0.00	0.02	0.01	0.03	0.01	0.01	0.01	398.87
Coating 08/08/2015-12/31/2015	7.74	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10
Architectural Coating	7.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10

Phase Assumptions

Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 100

Maximum Daily Acreage Disturbed: 25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 18.07

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 4/15/2015 - 5/15/2015 - Default Paving Description

Acres to be Paved: 25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2015 - 12/14/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction No Fed Alt - Year 4 Mitigated.urb924

Project Name: Elverta Construction No Fed Permit - Year 4 Mitigated

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (tons/year unmitigated)	8.39	4.12	5.39	0.01	12.47	0.22	12.69	2.61	0.20	2.81	1,027.84
2015 TOTALS (tons/year mitigated)	8.39	4.12	5.39	0.01	5.91	0.22	6.13	1.24	0.20	1.44	1,027.84
Percent Reduction	0.00	0.00	0.00	0.00	52.59	0.00	51.68	52.53	0.00	48.75	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/10/2011 4:03:49 PM

2015	8.39	4.12	5.39	0.01	12.47	0.22	12.69	2.61	0.20	2.81	1,027.84
Fine Grading 01/01/2015-04/27/2015	0.29	2.25	1.34	0.00	12.45	0.10	12.55	2.60	0.10	2.70	307.86
Fine Grading Dust	0.00	0.00	0.00	0.00	12.45	0.00	12.45	2.60	0.00	2.60	0.00
Fine Grading Off Road Diesel	0.28	2.23	1.27	0.00	0.00	0.10	0.10	0.00	0.09	0.09	294.39
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 04/15/2015-05/15/2015	0.06	0.20	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	31.06
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.15	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.63
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.82
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Building 04/28/2015-12/14/2015	0.31	1.67	3.85	0.00	0.02	0.10	0.12	0.01	0.09	0.10	678.82
Building Off Road Diesel	0.22	1.33	1.06	0.00	0.00	0.08	0.08	0.00	0.08	0.08	186.39
Building Vendor Trips	0.02	0.23	0.28	0.00	0.00	0.01	0.01	0.00	0.01	0.01	93.56
Building Worker Trips	0.06	0.10	2.51	0.00	0.02	0.01	0.03	0.01	0.01	0.01	398.87
Coating 08/08/2015-12/31/2015	7.74	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10
Architectural Coating	7.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10

Phase Assumptions

Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 100

Maximum Daily Acreage Disturbed: 15

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 18.07

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 4/15/2015 - 5/15/2015 - Default Paving Description

Acres to be Paved: 25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2015 - 12/14/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

3/10/2011 4:03:49 PM

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015	8.39	4.12	5.39	0.01	5.91	0.22	6.13	1.24	0.20	1.44	1,027.84
Fine Grading 01/01/2015-04/27/2015	0.29	2.25	1.34	0.00	5.89	0.10	5.99	1.23	0.10	1.33	307.86
Fine Grading Dust	0.00	0.00	0.00	0.00	5.89	0.00	5.89	1.23	0.00	1.23	0.00
Fine Grading Off Road Diesel	0.28	2.23	1.27	0.00	0.00	0.10	0.10	0.00	0.09	0.09	294.39
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45
Asphalt 04/15/2015-05/15/2015	0.06	0.20	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	31.06
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.15	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.63
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.82
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61
Building 04/28/2015-12/14/2015	0.31	1.67	3.85	0.00	0.02	0.10	0.12	0.01	0.09	0.10	678.82
Building Off Road Diesel	0.22	1.33	1.06	0.00	0.00	0.08	0.08	0.00	0.08	0.08	186.39
Building Vendor Trips	0.02	0.23	0.28	0.00	0.00	0.01	0.01	0.00	0.01	0.01	93.56
Building Worker Trips	0.06	0.10	2.51	0.00	0.02	0.01	0.03	0.01	0.01	0.01	398.87
Coating 08/08/2015-12/31/2015	7.74	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10
Architectural Coating	7.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

3/10/2011 4:06:22 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction No Fed Alt - Year 4.urb924

Project Name: Elverta Construction No Fed Permit - Year 4

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (lbs/day unmitigated)	152.52	72.61	58.18	0.07	500.07	3.84	503.91	104.44	3.54	107.98	10,928.94

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2015-4/14/2015 Active Days: 74	7.05	55.08	33.21	0.00	500.01	2.56	502.58	104.42	2.36	106.78	7,541.11
Fine Grading 01/01/2015-04/27/2015	7.05	55.08	33.21	0.00	500.01	2.56	502.58	104.42	2.36	106.78	7,541.11
Fine Grading Dust	0.00	0.00	0.00	0.00	500.00	0.00	500.00	104.42	0.00	104.42	0.00
Fine Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34	7,216.54
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81

3/10/2011 4:06:22 PM

Time Slice 4/15/2015-4/27/2015 Active Days: 9	12.40	**72.61**	44.73	0.02	**500.07**	**3.84**	**503.91**	**104.44**	**3.54**	**107.98**	10,241.88
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Fine Grading 01/01/2015-04/27/2015	7.05	55.08	33.21	0.00	500.01	2.56	502.58	104.42	2.36	106.78	7,541.11
Fine Grading Dust	0.00	0.00	0.00	0.00	500.00	0.00	500.00	104.42	0.00	104.42	0.00
Fine Grading Off Road Diesel	6.99	54.76	31.53	0.00	0.00	2.55	2.55	0.00	2.34	2.34	7,216.54
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81
Time Slice 4/28/2015-5/15/2015 Active Days: 14	9.11	37.78	**58.18**	**0.07**	0.31	2.53	2.83	0.11	2.31	2.42	**10,928.94**
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77

3/10/2011 4:06:22 PM

Time Slice 5/18/2015-8/7/2015 Active Days: 60	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Time Slice 8/10/2015-12/14/2015 Active Days: 91	**152.52**	20.30	47.89	0.06	0.27	1.25	1.51	0.09	1.13	1.23	8,422.42
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Time Slice 12/15/2015-12/31/2015 Active Days: 13	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25

Phase Assumptions

Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 100

Maximum Daily Acreage Disturbed: 25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

3/10/2011 4:06:22 PM

On Road Truck Travel (VMT): 18.07

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 4/15/2015 - 5/15/2015 - Default Paving Description

Acres to be Paved: 25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2015 - 12/14/2015 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Construction No Fed Alt - Year 4 Mitigated.urb924

Project Name: Elverta Construction No Fed Permit - Year 4 Mitigated

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (lbs/day unmitigated)	152.52	71.69	58.18	0.07	300.07	3.77	303.84	62.67	3.47	66.15	10,928.94
2015 TOTALS (lbs/day mitigated)	152.52	71.69	58.18	0.07	142.00	3.77	145.77	29.66	3.47	33.13	10,928.94

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

3/10/2011 4:04:06 PM

Time Slice 1/1/2015-4/14/2015 Active Days: 74	6.91	54.16	32.39	0.00	300.01	2.49	302.50	62.66	2.29	64.95	7,418.31
Fine Grading 01/01/2015- 04/27/2015	6.91	54.16	32.39	0.00	300.01	2.49	302.50	62.66	2.29	64.95	7,418.31
Fine Grading Dust	0.00	0.00	0.00	0.00	300.00	0.00	300.00	62.65	0.00	62.65	0.00
Fine Grading Off Road Diesel	6.85	53.84	30.71	0.00	0.00	2.48	2.48	0.00	2.28	2.28	7,093.74
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81
Time Slice 4/15/2015-4/27/2015 Active Days: 9	12.26	**71.69**	43.91	0.02	**300.07**	**3.77**	**303.84**	**62.67**	**3.47**	**66.15**	10,119.09
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Fine Grading 01/01/2015- 04/27/2015	6.91	54.16	32.39	0.00	300.01	2.49	302.50	62.66	2.29	64.95	7,418.31
Fine Grading Dust	0.00	0.00	0.00	0.00	300.00	0.00	300.00	62.65	0.00	62.65	0.00
Fine Grading Off Road Diesel	6.85	53.84	30.71	0.00	0.00	2.48	2.48	0.00	2.28	2.28	7,093.74
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81

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Time Slice 4/28/2015-5/15/2015 Active Days: 14	9.11	37.78	**58.18**	**0.07**	0.31	2.53	2.83	0.11	2.31	2.42	**10,928.94**
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Time Slice 5/18/2015-8/7/2015 Active Days: 60	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Time Slice 8/10/2015-12/14/2015 Active Days: 91	**152.52**	20.30	47.89	0.06	0.27	1.25	1.51	0.09	1.13	1.23	8,422.42
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25

3/10/2011 4:04:06 PM

Time Slice 12/15/2015-12/31/2015 Active Days: 13	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25

Phase Assumptions

Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

Total Acres Disturbed: 100

Maximum Daily Acreage Disturbed: 15

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 18.07

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 4/15/2015 - 5/15/2015 - Default Paving Description

Acres to be Paved: 25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/28/2015 - 12/14/2015 - Default Building Construction Description

3/10/2011 4:04:06 PM

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2015-4/14/2015 Active Days: 74	6.91	54.16	32.39	0.00	141.94	2.49	144.43	29.65	2.29	31.94	7,418.31
Fine Grading 01/01/2015-04/27/2015	6.91	54.16	32.39	0.00	141.94	2.49	144.43	29.65	2.29	31.94	7,418.31
Fine Grading Dust	0.00	0.00	0.00	0.00	141.93	0.00	141.93	29.64	0.00	29.64	0.00
Fine Grading Off Road Diesel	6.85	53.84	30.71	0.00	0.00	2.48	2.48	0.00	2.28	2.28	7,093.74
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81

3/10/2011 4:04:06 PM

Time Slice 4/15/2015-4/27/2015 Active Days: 9	12.26	**71.69**	43.91	0.02	142.00	**3.77**	145.77	29.66	**3.47**	33.13	10,119.09
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Fine Grading 01/01/2015-04/27/2015	6.91	54.16	32.39	0.00	141.94	2.49	144.43	29.65	2.29	31.94	7,418.31
Fine Grading Dust	0.00	0.00	0.00	0.00	141.93	0.00	141.93	29.64	0.00	29.64	0.00
Fine Grading Off Road Diesel	6.85	53.84	30.71	0.00	0.00	2.48	2.48	0.00	2.28	2.28	7,093.74
Fine Grading On Road Diesel	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	72.76
Fine Grading Worker Trips	0.04	0.06	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.81
Time Slice 4/28/2015-5/15/2015 Active Days: 14	9.11	37.78	**58.18**	**0.07**	0.31	2.53	2.83	0.11	2.31	2.42	**10,928.94**
Asphalt 04/15/2015-05/15/2015	5.35	17.53	11.52	0.01	0.05	1.28	1.33	0.02	1.18	1.20	2,700.77
Paving Off-Gas	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.12	13.07	8.93	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,272.41
Paving On Road Diesel	0.36	4.42	1.70	0.01	0.05	0.17	0.22	0.01	0.16	0.17	1,288.47
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77

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Time Slice 5/18/2015-8/7/2015 Active Days: 60	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Time Slice 8/10/2015-12/14/2015 Active Days: 91	**152.52**	20.30	47.89	0.06	0.27	1.25	1.51	0.09	1.13	1.23	8,422.42
Building 04/28/2015-12/14/2015	3.76	20.25	46.67	0.06	0.26	1.24	1.50	0.09	1.13	1.22	8,228.17
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	0.28	2.84	3.41	0.01	0.04	0.12	0.16	0.01	0.11	0.12	1,134.11
Building Worker Trips	0.78	1.24	30.45	0.05	0.22	0.10	0.32	0.08	0.08	0.16	4,834.77
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Time Slice 12/15/2015-12/31/2015 Active Days: 13	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Coating 08/08/2015-12/31/2015	148.76	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25
Architectural Coating	148.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	194.25

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2015 - 4/27/2015 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

URBEMIS2007 MODEL RESULTS FOR OPERATIONS (ANNUAL, SUMMER, WINTER EMISSIONS) - ALTERNATIVE D

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - No Federal Action Alt Revised.urb924

Project Name: Elverta Operations - No Federal Action Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	12.82	2.99	32.25	0.09	4.56	4.39	3,840.28

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	9.23	10.02	100.44	0.15	25.30	4.83	14,939.78

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	22.05	13.01	132.69	0.24	29.86	9.22	18,780.06

3/6/2011 6:27:20 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.19	2.40	1.02	0.00	0.00	0.00	3,058.03
Hearth	3.07	0.55	27.91	0.09	4.55	4.38	776.92
Landscape	0.60	0.04	3.32	0.00	0.01	0.01	5.33
Consumer Products	6.81						
Architectural Coatings	2.15						
TOTALS (tons/year, unmitigated)	12.82	2.99	32.25	0.09	4.56	4.39	3,840.28

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	9.23	10.02	100.44	0.15	25.30	4.83	14,939.78
TOTALS (tons/year, unmitigated)	9.23	10.02	100.44	0.15	25.30	4.83	14,939.78

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00   Nonresidential Trip % Reduction: 0.00

Analysis Year: 2017 Season: Annual

3/6/2011 6:27:20 PM

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	275.67	9.57	dwelling units	827.00	7,914.39	80,688.77
					7,914.39	80,688.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	99.8	0.2
Light Truck < 3750 lbs	10.0	0.0	96.0	4.0
Light Truck 3751-5750 lbs	22.7	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	45.7	54.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

3/6/2011 6:27:20 PM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - No Federal Action Alt Revised.urb924

Project Name: Elverta Operations - No Federal Action Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	56.77	13.55	42.51	0.00	0.13	0.12	16,815.62

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	52.31	47.19	583.80	0.88	138.66	26.45	87,649.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	109.08	60.74	626.31	0.88	138.79	26.57	104,464.68

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.01	13.13	5.59	0.00	0.03	0.02	16,756.34
Hearth - No Summer Emissions							
Landscape	6.67	0.42	36.92	0.00	0.10	0.10	59.28
Consumer Products	37.33						
Architectural Coatings	11.76						
TOTALS (lbs/day, unmitigated)	56.77	13.55	42.51	0.00	0.13	0.12	16,815.62

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	52.31	47.19	583.80	0.88	138.66	26.45	87,649.06
TOTALS (lbs/day, unmitigated)	52.31	47.19	583.80	0.88	138.66	26.45	87,649.06

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00   Nonresidential Trip % Reduction: 0.00

Analysis Year: 2017 Temperature (F): 95 Season: Summer

3/6/2011 6:26:01 PM

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	275.67	9.57	dwelling units	827.00	7,914.39	80,688.77
					7,914.39	80,688.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	99.8	0.2
Light Truck < 3750 lbs	10.0	0.0	96.0	4.0
Light Truck 3751-5750 lbs	22.7	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	45.7	54.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Projects\Elverta Operations - No Federal Action Alt Revised.urb924

Project Name: Elverta Operations - No Federal Action Alt

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	125.33	30.92	688.28	2.25	111.45	107.27	41,327.98

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	47.11	70.31	483.43	0.70	138.66	26.45	70,287.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	172.44	101.23	1,171.71	2.95	250.11	133.72	111,615.35

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	1.01	13.13	5.59	0.00	0.03	0.02	16,756.34
Hearth	75.23	17.79	682.69	2.25	111.42	107.25	24,571.64
Landscaping - No Winter Emissions							
Consumer Products	37.33						
Architectural Coatings	11.76						
TOTALS (lbs/day, unmitigated)	125.33	30.92	688.28	2.25	111.45	107.27	41,327.98

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	47.11	70.31	483.43	0.70	138.66	26.45	70,287.37
TOTALS (lbs/day, unmitigated)	47.11	70.31	483.43	0.70	138.66	26.45	70,287.37

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00   Nonresidential Trip % Reduction: 0.00

Analysis Year: 2017 Temperature (F): 50 Season: Winter

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Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	275.67	9.57	dwelling units	827.00	7,914.39	80,688.77
					7,914.39	80,688.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	99.8	0.2
Light Truck < 3750 lbs	10.0	0.0	96.0	4.0
Light Truck 3751-5750 lbs	22.7	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.2	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	45.7	54.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

GHG ANALYSIS FOR ALTERNATIVE A

Alternative A

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Typical SMUD Residential Customer Annual Household Energy Use:	9250	kWh/yr	per household	per SMAQMD, 2009
Typical SMUD Commercial Customer Annual Energy Use (per square foot):	17	kWh/yr	per square foot	per SMAQMD, 2009
School Annual Energy Use (per student):	941	kWh/yr	per student	DGS, 2007
Water Conveyance Electricity:	2275775	kWh/year		CEC, 2005
Wastewater Conveyance Electricity:	2920000	kWh/year		CEC, 2005
Residential Units:	6190			
Commercial Square Feet:	281000			
Students:	1200	At all schools proposed		

Estimated Project Annual Electrical Use: 68,359,475 kWh (kilowatt hours)/yr
68,359 mWh (megawatt hours)/yr

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO_2 Equivalent Factor	Annual CO_2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO_2)	555.26	68,359	17,217	1	17217.2
Nitrous Oxide (N_2O)	0.011	68,359	0.3	296	101.0
Methane (CH_4)	0.029	68,359	0.9	23	20.7

Total Indirect GHG Emissions from Project Electricity Use= 17339 annual average

Summary (Metric Tons CO2e)

93,857	On-road vehicles
26,949	Area Sources
17,339	Indirect Electricity
138,145	Total CO2e

Notes and References:

Total Emissions from Indirect Electricity Use

CO_2, CH_4, and N_2O Emission Factor Source: Local Government Operations Protocol (CARB et al., 2008)
Specifically Tables G.5 and G.6 (Appendix G)

lbs/metric ton = 2204.62

CALCULATION OF METHANE AND N2O EMISSIONS

Vehicles:

From URBEMIS 2007:	97,053.96	tons per year of CO_2				total
Vehicle Emissions =	88045.87	metric tons per year of CO_2				93857

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 transportation fossil fuel combustion was	188	MMT CO_2	
Mobile source combustion	0.6	MMT CH_4	as eCO_2
Mobile Source Combustion	11.8	MMT N_2O	as eCO_2

So for Mobile sources…	CH_4 emission =	0.32	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	6.28	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	281.75	metric tons/year	as eCO_2
	N_2O emissions =	5529.28	metric tons/year	as eCO_2

Area Sources

From URBEMIS 2007:	28,189.59	tons per year of CO_2				total
Natural Gas =	25573.16	metric tons per year of CO_2				26949

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 residential fossil fuel combustion was	27.9	MMT CO_2	
Stationary source combustion	1.3	MMT CH_4	as eCO_2
Stationary Source Combustion	0.2	MMT N_2O	as eCO_2

So for Stationary sources…	CH_4 emission =	4.66	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	0.72	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	1191.71	metric tons/year	as eCO_2
	N_2O emissions =	184.13	metric tons/year	as eCO_2

GHG ANALYSIS FOR ALTERNATIVE B

Alternative B
Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Typical SMUD Residential Customer Annual Household Energy Use:	9250	kWh/yr	per household	per SMAQMD, 2009
Typical SMUD Commercial Customer Annual Energy Use (per square foot):	17	kWh/yr	per square foot	per SMAQMD, 2009
School Annual Energy Use (per student):	941	kWh/yr	per student	DGS, 2007
Water Conveyance Electricity:	1905300	kWh/year		CEC, 2005
Wastewater Conveyance Electricity:	2920000	kWh/year		CEC, 2005
Residential Units:	6190			
Commercial Square Feet:	241710			
Students:	600	At all schools proposed		

Estimated Project Annual Electrical Use: 66,756,470 kWh (kilowatt hours)/yr
66,756 mWh (megawatt hours)/yr

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO_2)	555.26	66,756	16,813	1	16813.4
Nitrous Oxide (N_2O)	0.011	66,756	0.3	296	98.6
Methane (CH_4)	0.029	66,756	0.9	23	20.2

Total Indirect GHG Emissions from Project Electricity Use= 16932 annual average

Summary (Metric Tons CO2e)		
	90,246	On-road vehicles
	25,233	Area Sources
	16,932	Indirect Electricity
	132,411	Total CO2e

Notes and References:

Total Emissions from Indirect Electricity Use

CO2, CH4, and N2O Emission Factor Source: Local Government Operations Protocol (CARB et al., 2008)
Specifically Tables G.5 and G.6 (Appendix G)

lbs/metric ton = 2204.62

CALCULATION OF METHANE AND N2O EMISSIONS

Vehicles:

From URBEMIS 2007:	93,319.96	tons per year of CO2			
					total
Vehicle Emissions =	84658.44	metric tons per year of CO2			90246

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 transportation fossil fuel combustion was	188	MMT CO2	
Mobile source combustion	0.6	MMT CH4	as eCO2
Mobile Source Combustion	11.8	MMT N2O	as eCO2

So for Mobile sources…	CH4 emission =	0.32	percent of CO2 Emissions	as eCO2
	N2O emissions =	6.28	percent of CO2 Emissions	as eCO2
	CH4 emissions =	270.91	metric tons/year	as eCO2
	N2O emissions =	5316.55	metric tons/year	as eCO2

Area Sources

From URBEMIS 2007:	26,394.45	tons per year of CO2			
					total
Natural Gas =	23944.64	metric tons per year of CO2			25233

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 residential fossil fuel combustion was	27.9	MMT CO2	
Stationary source combustion	1.3	MMT CH4	as eCO2
Stationary Source Combustion	0.2	MMT N2O	as eCO2

So for Stationary sources…	CH4 emission =	4.66	percent of CO2 Emissions	as eCO2
	N2O emissions =	0.72	percent of CO2 Emissions	as eCO2
	CH4 emissions =	1115.82	metric tons/year	as eCO2
	N2O emissions =	172.40	metric tons/year	as eCO2

GHG ANALYSIS FOR ALTERNATIVE C

Alternative C

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Typical SMUD Residential Customer Annual Household Energy Use:	9250	kWh/yr	per household	per SMAQMD, 2009
Typical SMUD Commercial Customer Annual Energy Use (per square foot):	17	kWh/yr	per square foot	per SMAQMD, 2009
School Annual Energy Use (per student):	941	kWh/yr	per student	DGS, 2007
Water Conveyance Electricity:	2275775	kWh/year		CEC, 2005
Wastewater Conveyance Electricity:	2920000	kWh/year		CEC, 2005
Residential Units:	6190			
Commercial Square Feet:	253430			
Students:	1200	At all schools proposed		

Estimated Project Annual Electrical Use: 67,890,785 kWh (kilowatt hours)/yr
67,891 mWh (megawatt hours)/yr

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	555.26	67,891	17,099	1	17099.1
Nitrous Oxide (N2O)	0.011	67,891	0.3	296	100.3
Methane (CH4)	0.029	67,891	0.9	23	20.5

Total Indirect GHG Emissions from Project Electricity Use= 17220 annual average

Summary (Metric Tons CO2e)		
	94,851	On-road vehicles
	26,888	Area Sources
	17,220	Indirect Electricity
	138,959	Total CO2e

Notes and References:

Total Emissions from Indirect Electricity Use

CO2, CH4, and N2O Emission Factor Source: Local Government Operations Protocol (CARB et al., 2008)
Specifically Tables G.5 and G.6 (Appendix G)

lbs/metric ton = 2204.62

CALCULATION OF METHANE AND N2O EMISSIONS

Vehicles:

From URBEMIS 2007:	98,081.93	tons per year of CO_2					
							total
Vehicle Emissions =	88978.43	metric tons per year of CO_2					94851

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 transportation fossil fuel combustion was	188	MMT CO_2	
Mobile source combustion	0.6	MMT CH_4	as eCO_2
Mobile Source Combustion	11.8	MMT N_2O	as eCO_2

So for Mobile sources…	CH_4 emission =	0.32	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	6.28	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	284.73	metric tons/year	as eCO_2
	N_2O emissions =	5587.85	metric tons/year	as eCO_2

Area Sources

From URBEMIS 2007:	28,125.90	tons per year of CO_2					
							total
Natural Gas =	25515.39	metric tons per year of CO_2					26888

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 residential fossil fuel combustion was	27.9	MMT CO_2	
Stationary source combustion	1.3	MMT CH_4	as eCO_2
Stationary Source Combustion	0.2	MMT N_2O	as eCO_2

So for Stationary sources…	CH_4 emission =	4.66	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	0.72	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	1189.02	metric tons/year	as eCO_2
	N_2O emissions =	183.71	metric tons/year	as eCO_2

GHG ANALYSIS FOR ALTERNATIVE D

Alternative D

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Typical SMUD Residential Customer Annual Household Energy Use:	9250	kWh/yr	per household	per SMAQMD, 2009
Typical SMUD Commercial Customer Annual Energy Use (per square foot):	17	kWh/yr	per square foot	per SMAQMD, 2009
School Annual Energy Use (per student):	941	kWh/yr	per student	DGS, 2007
Water Conveyance Electricity:	2011150	kWh/year		CEC, 2005
Wastewater Conveyance Electricity:	2920000	kWh/year		CEC, 2005
Residential Units:	827			
Commercial Square Feet:	0			
Students:	0	At all schools proposed		

Estimated Project Annual Electrical Use: 12,580,900 kWh (kilowatt hours)/yr
12,581 mWh (megawatt hours)/yr

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	555.26	12,581	3,169	1	3168.7
Nitrous Oxide (N2O)	0.011	12,581	0.1	296	18.6
Methane (CH4)	0.029	12,581	0.2	23	3.8

Total Indirect GHG Emissions from Project Electricity Use= 3191 annual average

Summary (Metric Tons CO2e)		
	14,448	On-road vehicles
	3,671	Area Sources
	3,191	Indirect Electricity
	21,310	Total CO2e

Notes and References:

Total Emissions from Indirect Electricity Use

CO2, CH4, and N2O Emission Factor Source: Local Government Operations Protocol (CARB et al., 2008)
Specifically Tables G.5 and G.6 (Appendix G)

lbs/metric ton = 2204.62

CALCULATION OF METHANE AND N2O EMISSIONS

Vehicles:

From URBEMIS 2007:	14,939.78	tons per year of CO_2				
						total
Vehicle Emissions =	13553.14	metric tons per year of CO_2				14448

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 transportation fossil fuel combustion was	188	MMT CO_2	
Mobile source combustion	0.6	MMT CH_4	as eCO_2
Mobile Source Combustion	11.8	MMT N_2O	as eCO_2

So for Mobile sources…	CH_4 emission =	0.32	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	6.28	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	43.37	metric tons/year	as eCO_2
	N_2O emissions =	851.14	metric tons/year	as eCO_2

Area Sources

From URBEMIS 2007:	3,840.28	tons per year of CO_2				
						total
Natural Gas =	3483.843	metric tons per year of CO_2				3671

From Table 6 California Greenouse Gas Emisssions and Sink Summary:

in 2004 residential fossil fuel combustion was	27.9	MMT CO_2	
Stationary source combustion	1.3	MMT CH_4	as eCO_2
Stationary Source Combustion	0.2	MMT N_2O	as eCO_2

So for Stationary sources…	CH_4 emission =	4.66	percent of CO_2 Emissions	as eCO_2
	N_2O emissions =	0.72	percent of CO_2 Emissions	as eCO_2
	CH_4 emissions =	162.35	metric tons/year	as eCO_2
	N_2O emissions =	25.08	metric tons/year	as eCO_2

REFERENCES

California Air Resources Board (CARB), California Climate Action Registry, ICLEI, and the Climate Registry, *Local Government Operations Protocol*, September 25, 2008.

Department of General Services (DGS), 2007. *Green California Schools – "Grid Neutral By Design"*, prepared by David Thorman, A.I.A., Roy McBrayer, and Rob Cook.

Sacramento Metropolitan Air Quality Management District (SMAQMD), 2009. *Guide to Air Quality Assessment*. December 2009.

Appendix D
Biological Database Reports

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 9 items - Tue, Nov. 9, 2010, 12:13 b

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Balsamorhiza macrolepis var. macrolepis	Asteraceae	perennial herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/sometimes serpentinite	90 - 1555 meters	List 1B.2
Cordylanthus mollis ssp. hispidus	Scrophulariaceae	annual herb hemiparasitic	Jun-Sep	•Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline	1 - 155 meters	List 1B.1
Downingia pusilla	Campanulaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	1 - 445 meters	List 2.2
Gratiola heterosepala	Scrophulariaceae	annual herb	Apr-Aug	•Marshes and swamps (MshSw)(lake margins) •Vernal pools (VnPls)/clay	10 - 2375 meters	List 1B.2
Hibiscus lasiocarpos var. occidentalis	Malvaceae	perennial rhizomatous herb emergent	Jun-Sep	•Marshes and swamps (MshSw)(freshwater)	0 - 120 meters	List 1B.2
Juncus leiospermus var. ahartii	Juncaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs)(mesic)	30 - 229 meters	List 1B.2
Juncus leiospermus var. leiospermus	Juncaceae	annual herb	Mar-May	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/vernally mesic	35 - 1020 meters	List 1B.1
Legenere limosa	Campanulaceae	annual herb	Apr-Jun	•Vernal pools (VnPls)	1 - 880 meters	List 1B.1
Sagittaria sanfordii	Alismataceae	perennial rhizomatous herb emergent	May-Oct	•Marshes and swamps (MshSw)(assorted shallow freshwater)	0 - 650 meters	List 1B.2

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the RIO LINDA (512B) U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011
Report Date: October 16, 2011

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

October 16, 2011

Document Number: 111016021306

Erich L Fischer
ESA
2600 Capitol Avenue
Suite 200
Sacramento, CA 95816

Subject: Species List for Mather Specific Plan

Dear: Mr. Fischer

We are sending this official species list in response to your October 16, 2011 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 14, 2012.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Accipiter cooperii Cooper's hawk	G5 S3	CDFG:	Fed: None Cal: None	101 S:3	1	0	1	0	0	1	1	2	3	0	0
Agelaius tricolor tricolored blackbird	G2G3 S2	CDFG: SC	Fed: None Cal: None	427 S:17	2	0	1	0	7	7	7	10	10	4	3
Alkali Meadow	G3 S2.1		Fed: None Cal: None	8 S:1	0	0	0	0	0	1	1	0	1	0	0
Alkali Seep	G3 S2.1		Fed: None Cal: None	10 S:1	0	0	0	0	0	1	1	0	1	0	0
Ammodramus savannarum grasshopper sparrow	G5 S2	CDFG: SC	Fed: None Cal: None	16 S:1	0	1	0	0	0	0	0	1	1	0	0
Andrena subapasta A vernal pool andrenid bee	G1G3 S1S3	CDFG:	Fed: None Cal: None	5 S:2	0	0	0	0	0	2	2	0	2	0	0
Aquila chrysaetos golden eagle	G5 S3	CDFG:	Fed: None Cal: None	141 S:1	0	1	0	0	0	0	0	1	1	0	0
Archoplites interruptus Sacramento perch	G3 S1	CDFG: SC	Fed: None Cal: None	5 S:1	0	0	0	0	0	1	1	0	1	0	0
Ardea alba great egret	G5 S4	CDFG:	Fed: None Cal: None	35 S:5	3	2	0	0	0	0	1	4	5	0	0
Ardea herodias great blue heron	G5 S4	CDFG:	Fed: None Cal: None	132 S:7	2	4	1	0	0	0	0	7	7	0	0
Athene cunicularia burrowing owl	G4 S2	CDFG: SC	Fed: None Cal: None	1231 S:39	2	5	15	1	5	11	11	28	34	3	2
Balsamorhiza macrolepis var. macrolepis big-scale balsamroot	G3G4T2 S2.2	CNPS: 1B.2	Fed: None Cal: None	25 S:1	0	0	0	0	0	1	1	0	1	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S2S3	CDFG:	Fed: Threatened Cal: None	601 S:60	8	12	6	3	0	31	0	60	60	0	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2	CDFG:	Fed: None Cal: None	99 S:6	0	1	0	0	0	5	1	5	6	0	0
Buteo regalis ferruginous hawk	G4 S3S4	CDFG:	Fed: None Cal: None	76 S:1	1	0	0	0	0	0	0	1	1	0	0

					Element Occ Ranks						Population Status		Presence		
Name (Scientific/Common)	**CNDDB Ranks**	**Other Lists**	**Listing Status**	**Total EO's**	**A**	**B**	**C**	**D**	**X**	**U**	**Historic >20 yr**	**Recent <=20 yr**	**Pres. Extant**	**Poss. Extirp.**	**Extirp.**
Buteo swainsoni Swainson's hawk	G5 S2	CDFG:	Fed: None Cal: Threatened	1680 S:98	6	25	8	0	1	58	4	94	97	1	0
Cordylanthus mollis ssp. hispidus hispid bird's-beak	G2T2 S2.1	CNPS: 1B.1	Fed: None Cal: None	29 S:1	0	1	0	0	0	0	0	1	1	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	CDFG:	Fed: Threatened Cal: None	201 S:14	0	0	2	0	0	12	11	3	14	0	0
Downingia pusilla dwarf downingia	G3 S3.1	CNPS: 2.2	Fed: None Cal: None	117 S:16	2	7	3	0	3	1	4	12	13	1	2
Dumontia oregonensis hairy water flea	G1G3 S1	CDFG:	Fed: None Cal: None	2 S:1	0	0	0	0	0	1	0	1	1	0	0
Egretta thula snowy egret	G5 S4	CDFG:	Fed: None Cal: None	15 S:1	1	0	0	0	0	0	1	0	1	0	0
Elanus leucurus white-tailed kite	G5 S3	CDFG:	Fed: None Cal: None	156 S:22	4	11	1	0	0	6	9	13	22	0	0
Elderberry Savanna	G2 S2.1		Fed: None Cal: None	4 S:3	0	0	1	0	0	2	3	0	3	0	0
Emys marmorata western pond turtle	G3G4 S3	CDFG: SC	Fed: None Cal: None	1109 S:4	0	3	0	0	0	1	0	4	4	0	0
Fritillaria agrestis stinkbells	G3 S3.2	CNPS: 4.2	Fed: None Cal: None	32 S:4	0	1	1	0	2	0	2	2	2	2	0
Gratiola heterosepala Boggs Lake hedge-hyssop	G3 S3.1	CNPS: 1B.2	Fed: None Cal: Endangered	90 S:4	1	2	0	0	1	0	2	2	3	1	0
Great Valley Cottonwood Riparian Forest	G2 S2.1		Fed: None Cal: None	56 S:1	0	0	0	0	0	1	1	0	1	0	0
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	G4 S2.2	CNPS: 2.2	Fed: None Cal: None	132 S:1	0	0	0	1	0	0	1	0	1	0	0
Hydrochara rickseckeri Ricksecker's water scavenger beetle	G1G2 S1S2	CDFG:	Fed: None Cal: None	13 S:2	0	0	0	0	0	2	1	1	2	0	0
Juncus leiospermus var. ahartii Ahart's dwarf rush	G2T1 S1.2	CNPS: 1B.2	Fed: None Cal: None	13 S:1	0	0	1	0	0	0	0	1	1	0	0

					Element Occ Ranks						Population Status		Presence		
Name (Scientific/Common)	**CNDDB Ranks**	**Other Lists**	**Listing Status**	**Total EO's**	**A**	**B**	**C**	**D**	**X**	**U**	**Historic >20 yr**	**Recent <=20 yr**	**Pres. Extant**	**Poss. Extirp.**	**Extirp.**
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	G2T2 S2.2	CNPS: 1B.1	Fed: None Cal: None	56 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasiurus cinereus hoary bat	G5 S4?	CDFG:	Fed: None Cal: None	235 S:1	0	0	0	0	0	1	0	1	1	0	0
Legenere limosa legenere	G2 S2.2	CNPS: 1B.1	Fed: None Cal: None	72 S:10	0	6	1	0	2	1	2	8	8	0	2
Lepidurus packardi vernal pool tadpole shrimp	G3 S2S3	CDFG:	Fed: Endangered Cal: None	249 S:28	4	5	2	0	0	17	0	28	28	0	0
Linderiella occidentalis California linderiella	G3 S2S3	CDFG:	Fed: None Cal: None	369 S:71	6	5	6	1	0	53	0	71	71	0	0
Northern Claypan Vernal Pool	G1 S1.1		Fed: None Cal: None	21 S:1	0	0	0	0	0	1	1	0	1	0	0
Northern Hardpan Vernal Pool	G3 S3.1		Fed: None Cal: None	126 S:12	0	0	0	0	0	12	12	0	12	0	0
Northern Volcanic Mud Flow Vernal Pool	G1 S1.1		Fed: None Cal: None	7 S:3	0	0	0	0	0	3	3	0	3	0	0
Nycticorax nycticorax black-crowned night heron	G5 S3	CDFG:	Fed: None Cal: None	25 S:2	2	0	0	0	0	0	1	1	2	0	0
Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	G5 S1	CDFG:	Fed: Threatened Cal: Threatened	13 S:1	0	0	0	1	0	0	0	1	1	0	0
Oncorhynchus tshawytscha chinook salmon - Sacramento River winter-run ESU	G5 S1	CDFG:	Fed: Endangered Cal: Endangered	2 S:1	0	0	0	1	0	0	0	1	1	0	0
Orcuttia viscida Sacramento Orcutt grass	G1 S1.1	CNPS: 1B.1	Fed: Endangered Cal: Endangered	11 S:1	0	0	0	0	0	1	0	1	1	0	0
Pogonichthys macrolepidotus Sacramento splittail	G2 S2	CDFG: SC	Fed: None Cal: None	15 S:1	0	1	0	0	0	0	0	1	1	0	0
Progne subis purple martin	G5 S3	CDFG: SC	Fed: None Cal: None	45 S:11	0	1	1	0	0	9	0	11	11	0	0
Riparia riparia bank swallow	G5 S2S3	CDFG:	Fed: None Cal: Threatened	190 S:5	0	3	0	0	0	2	4	1	5	0	0

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Sagittaria sanfordii Sanford's arrowhead	G3 S3.2	CNPS: 1B.2	Fed: None Cal: None	68 S:16	2	4	6	1	3	0	0	16	13	3	0
Spea hammondii western spadefoot	G3 S3	CDFG: SC	Fed: None Cal: None	406 S:7	0	1	1	2	0	3	1	6	7	0	0
Taxidea taxus American badger	G5 S4	CDFG: SC	Fed: None Cal: None	442 S:2	0	0	0	0	0	2	1	1	2	0	0
Thamnophis gigas giant garter snake	G2G3 S2S3	CDFG:	Fed: Threatened Cal: Threatened	260 S:76	10	20	15	4	2	25	16	60	74	2	0

Appendix E
Confidential Cultural Appendix

APPENDIX E
Cultural Resources Report

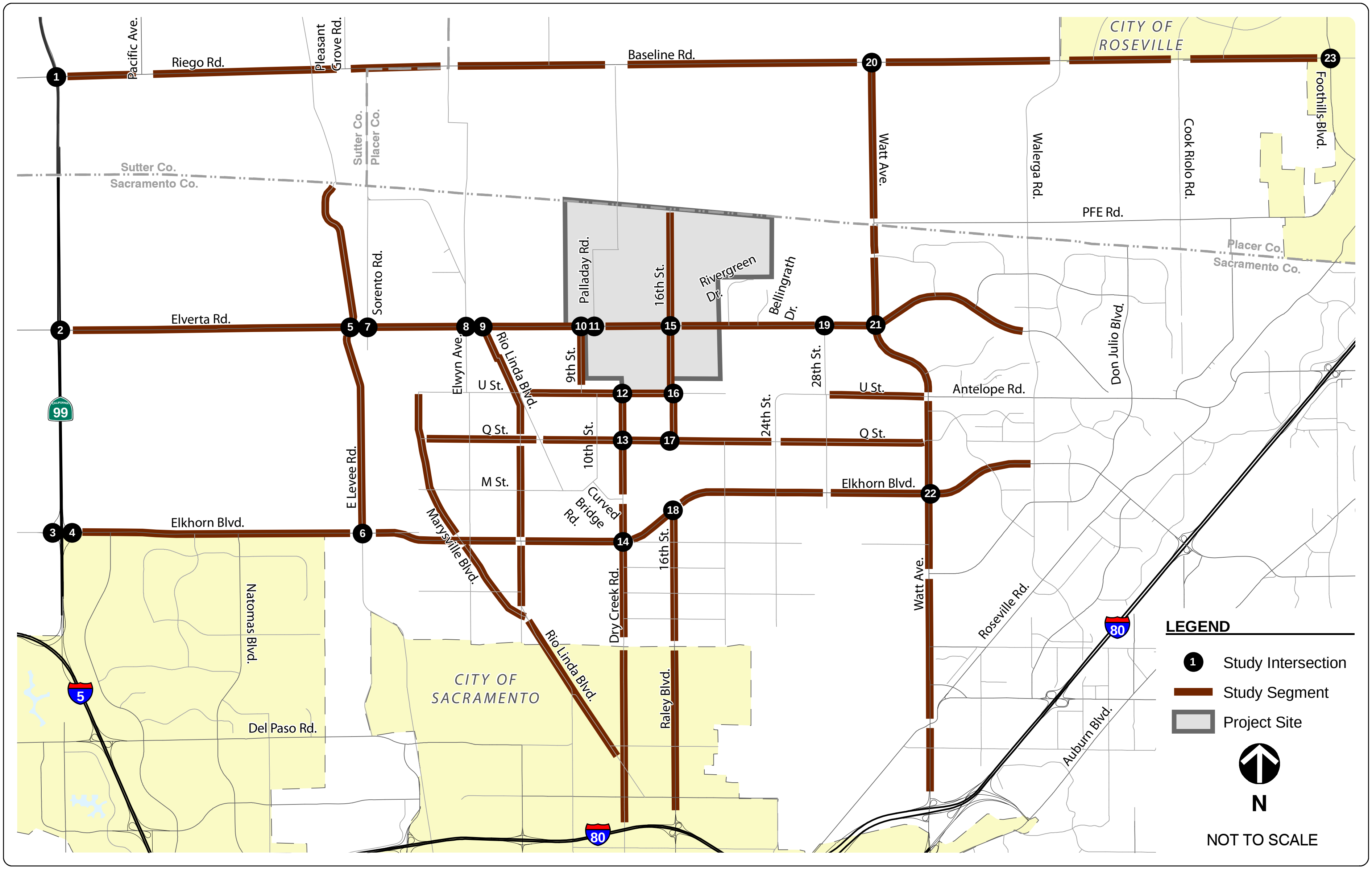
The Cultural Resources Report is confidential and therefore not included in this distribution.

Appendix F
Transportation Analysis

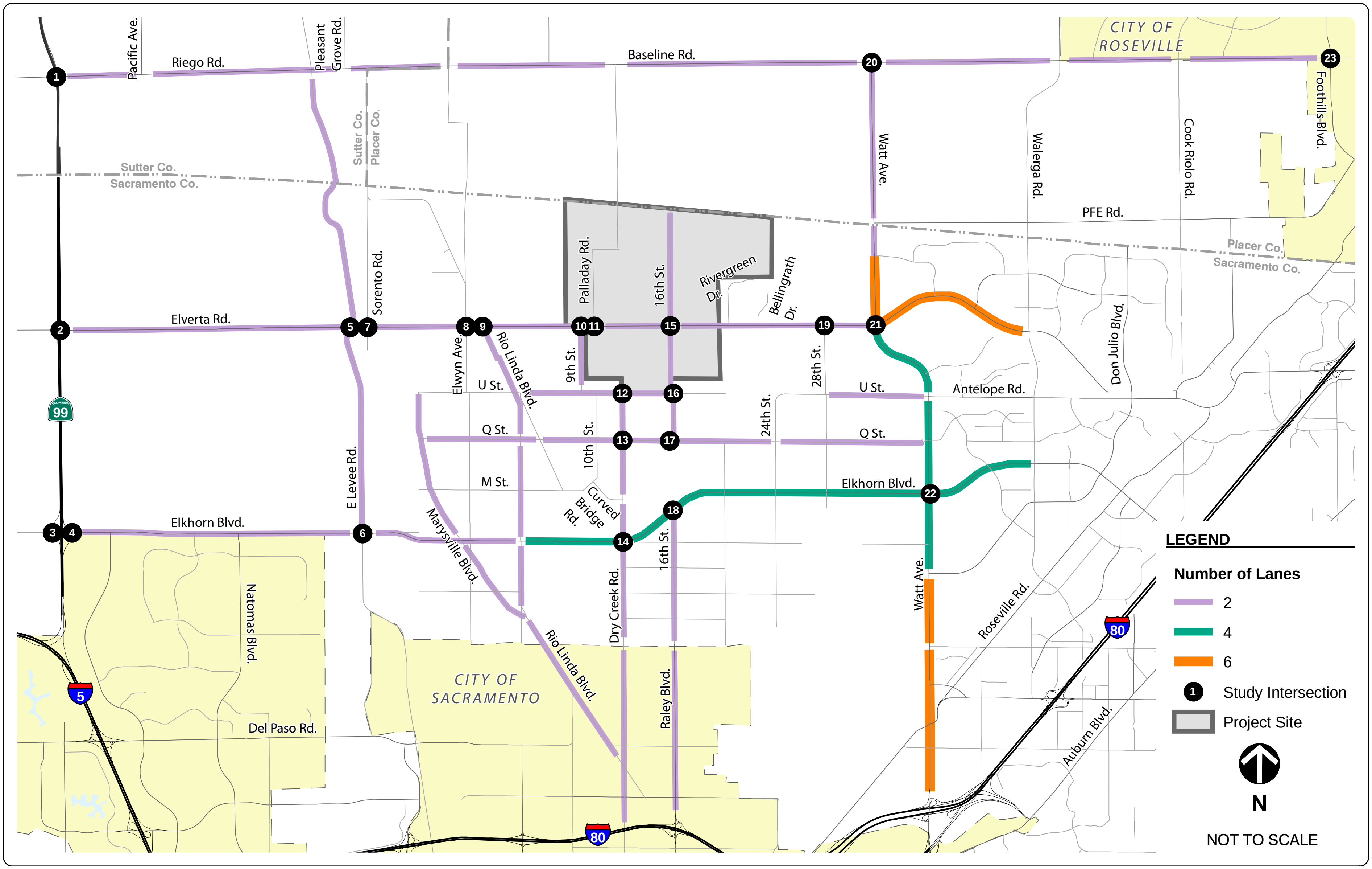
APPENDIX F

Transportation and Traffic

Note to reviewers: The first part of this Appendix contains materials removed from the transportation and traffic review to streamline Section 3.14 and 4.14 of the EIS. The level of service (LOS) calculations sheets associated with the transportation and traffic analysis (500 pages+) are not provided in the paper version of the EIS. They are available on the CD version and online version of the EIS.



STUDY AREA
FIGURE 3.14-1



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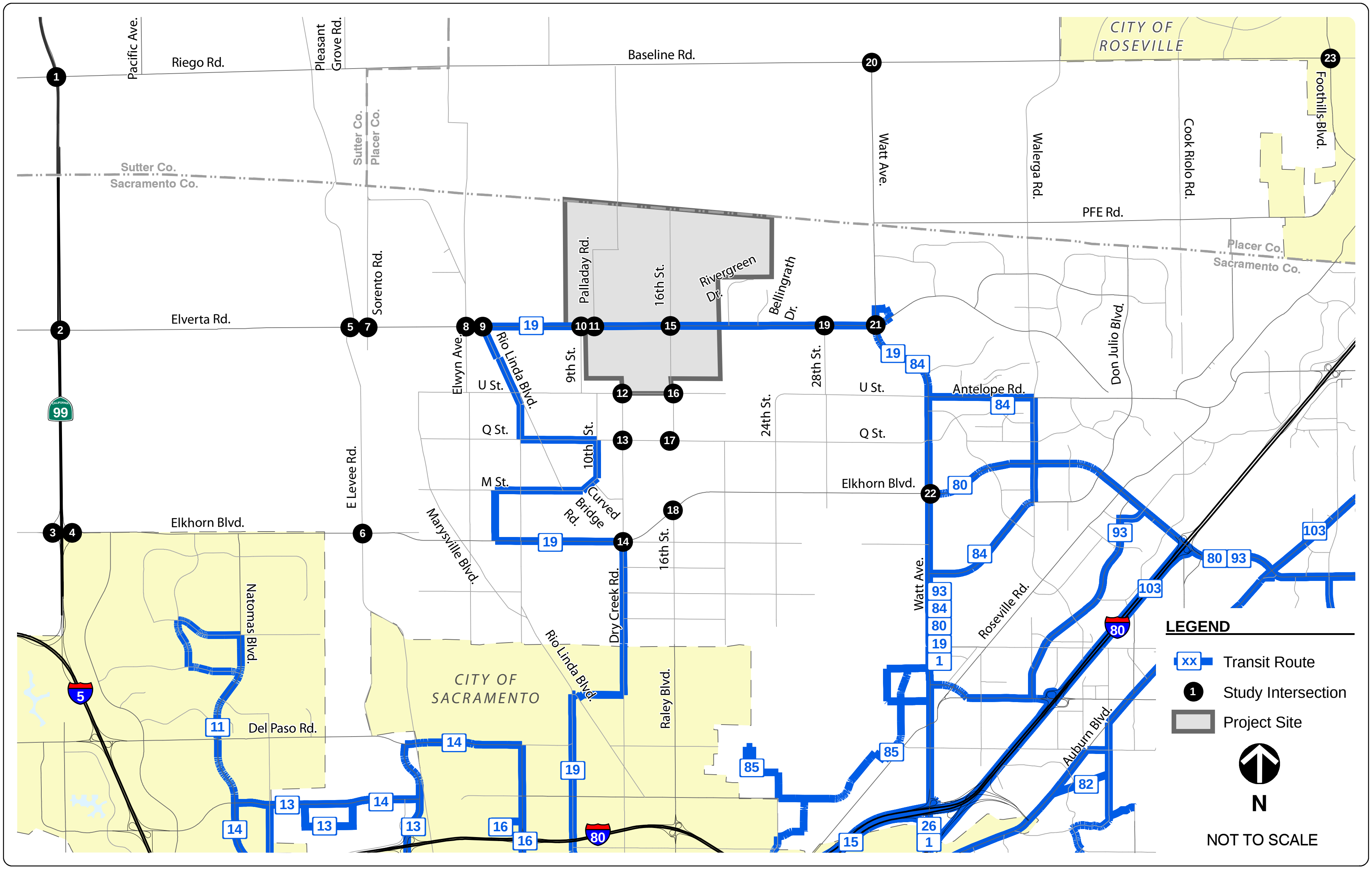
NUMBER OF LANES - EXISTING CONDITIONS

FIGURE 3.14-2



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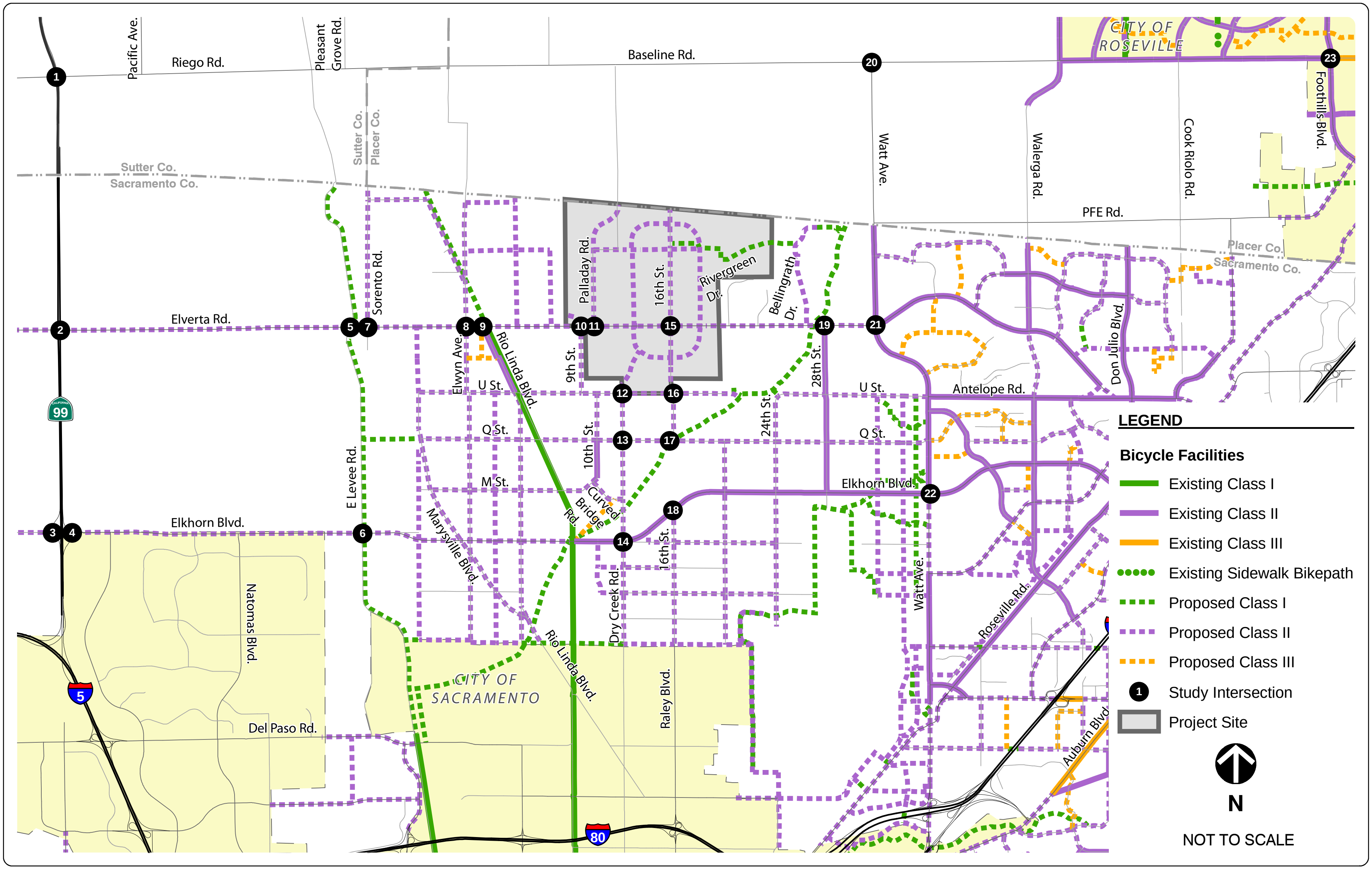
EXISTING TRANSIT SERVICE

FIGURE 3.14-3



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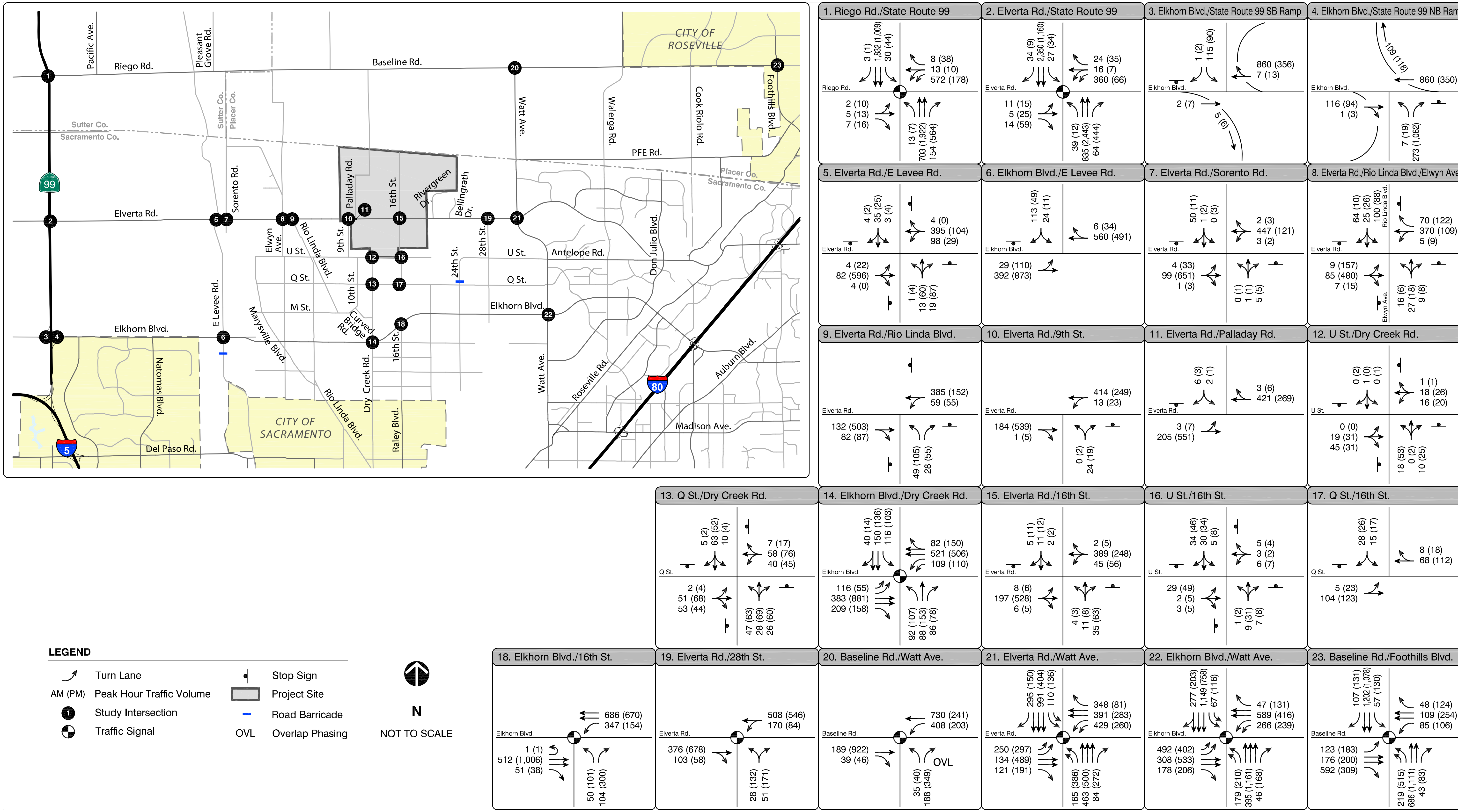
EXISTING AND PLANNED BICYCLE FACILITIES

FIGURE 3.14-4



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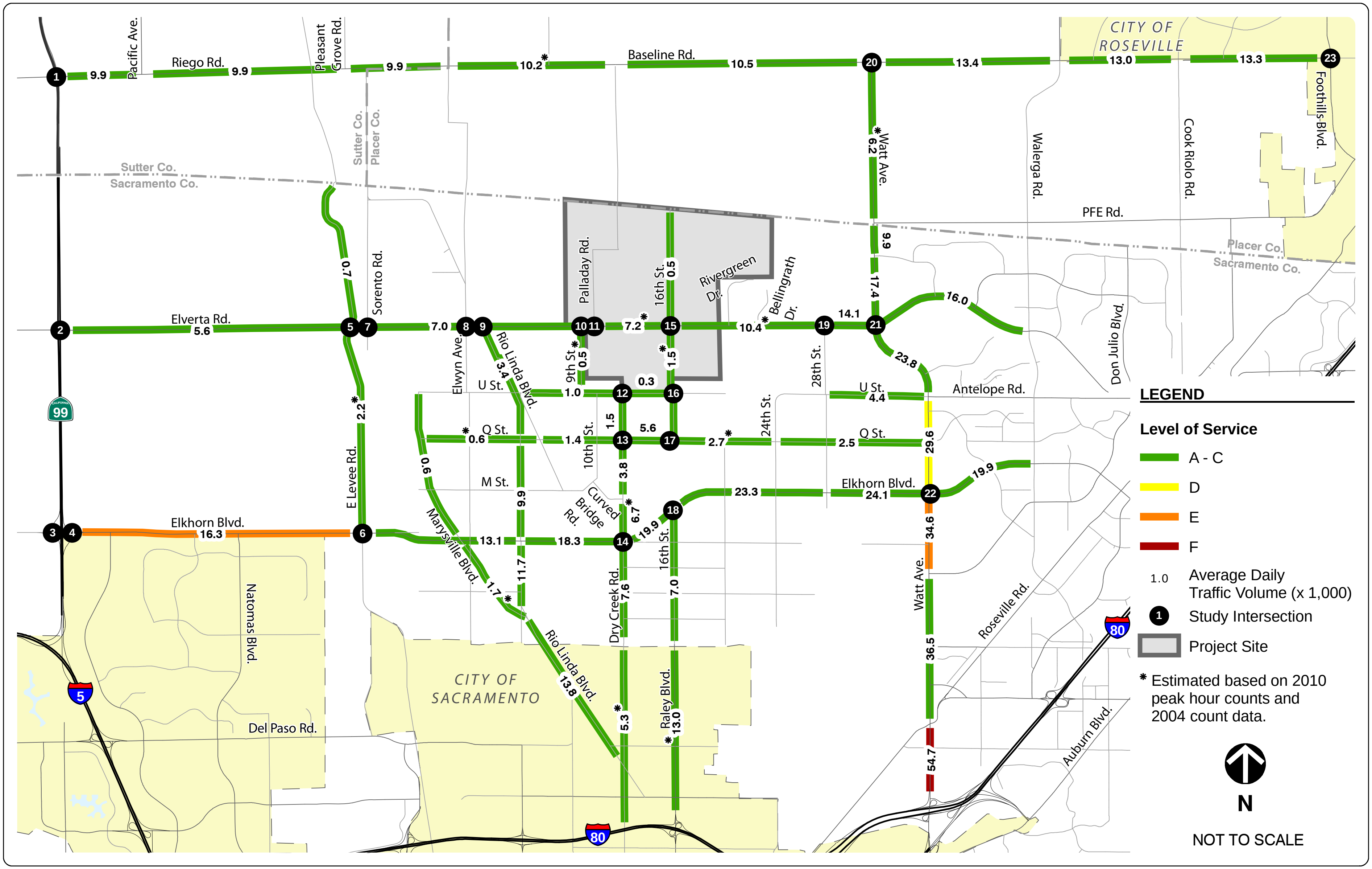
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 3.14-5

TABLE 1
PEAK HOUR INTERSECTION LOS – EXISTING CONDITIONS

	Intersection	Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Delay (sec/veh)	LOS
1	SR 99 / Riego Road	Caltrans (E)	Traffic Signal	AM	57	E
				PM	21	C
2	SR 99 / Elverta Road	Caltrans (E)	Traffic Signal	AM	70	E
				PM	26	C
3	SR 99 SB Off-Ramp/Elkhorn	Caltrans (E)	Side Street Stop	AM	15	B
				PM	11	B
4	SR 99 NB Off-Ramp/Elkhorn	Caltrans (E)	Side Street Stop	AM	23	C
				PM	**141**	**F**
5	Elverta Road / E. Levee Rd	Sacramento Co. (E)	All Way Stop	AM	15	C
				PM	27	D
6	Elkhorn Blvd / E. Levee Rd	Sacramento Co. (E)	Side Street Stop	AM	21	C
				PM	16	C
7	Elverta Road / Sorento Rd	Sacramento Co. (E)	Side Street Stop	AM	13	B
				PM	29	D
8	Elverta Road / Elwyn Road	Sacramento Co. (E)	All Way Stop	AM	14	B
				PM	37	E
9	Elverta Rd / Rio Linda Blvd	Sacramento Co. (E)	All Way Stop	AM	13	B
				PM	19	C
10	Elverta Road / 9th Street	Sacramento Co. (E)	Side Street Stop	AM	10	A
				PM	13	B
11	Elverta Road / Palladay Rd	Sacramento Co. (E)	Side Street Stop	AM	12	B
				PM	12	B
12	U Street / Dry Creek Road	Sacramento Co. (E)	All Way Stop	AM	7	A
				PM	8	A
13	Q Street / Dry Creek Road	Sacramento Co. (E)	All Way Stop	AM	9	A
				PM	9	A
14	Elkhorn Blvd/Dry Creek Rd	Sacramento Co. (E)	Traffic Signal	AM	20	B
				PM	20	B
15	Elverta Road / 16th Street	Sacramento Co. (E)	Side Street Stop	AM	16	C
				PM	18	C
16	U Street / 16th Street	Sacramento Co. (E)	All Way Stop	AM	7	A
				PM	8	A
17	Q Street / 16th Street	Sacramento Co. (E)	Side Street Stop	AM	9	A
				PM	10	A
18	Elkhorn Blvd / 16th Street	Sacramento Co. (E)	Traffic Signal	AM	15	B
				PM	64	E
19	Elverta Road / 28th Street	Sacramento Co. (E)	Traffic Signal	AM	69	E
				PM	**137**	**F**
20	Baseline Road / Watt Ave	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	76	E
				PM	33	C
21	Elverta Road / Watt Avenue	Sacramento Co. (E)	Traffic Signal	AM	35	C
				PM	31	C
22	Elkhorn Blvd / Watt Avenue	Sacramento Co. (E)	Traffic Signal	AM	52	D
				PM	37	D
23	Baseline Rd/Foothills Blvd	City of Roseville (C)	Traffic Signal	AM	**49**	**D**
				PM	**40**	**D**

Note: Bolded cells represent unacceptable operations.
SOURCE: Fehr & Peers, 2010



AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - EXISTING CONDITIONS

FIGURE 3.14-6

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Table 2
Daily Roadway Segment LOS – Existing Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	Number of Lanes	ADT	V/C Ratio	LOS
Riego Road /Baseline Road	SR 99 to Pacific Avenue	County of Sutter (D)	2	9,900	0.60	C
	Pacific Avenue to Pleasant Grove Road (South)	County of Sutter (D)	2	9,900	0.60	C
	Pleasant Grove Road (South) to Locust Road	County of Placer - Placer Vineyards Frontage (D)	2	9,900	0.60	C
	Locust Road to Palladay Road	County of Placer - Placer Vineyards Frontage (D)	2	10,200	0.57	A
	Palladay Road to Watt Avenue	County of Placer - Placer Vineyards Frontage (D)	2	10,500	0.58	A
	Watt Avenue to Walerga Road	County of Placer - Placer Vineyards Frontage (D)	2	13,400	0.74	C
	Walerga Road to Cook-Riolo Road	County of Placer (C)	2	13,000	0.72	C
	Cook-Riolo Road to Foothills Boulevard	County of Placer (C)	2	13,300	0.74	C
Elverta Road	SR 99 to E. Levee Road	County of Sacramento - Rural (D)	2	5,600	0.31	A
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	2	7,000	0.39	A
	Palladay Road to 16th Street	County of Sacramento - Urban (E)	2	7,200	0.40	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	2	10,400	0.58	A
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	2	14,100	0.78	C
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	6	16,000	0.30	A

Table 2
Daily Roadway Segment LOS – Existing Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	Number of Lanes	ADT	V/C Ratio	LOS
Elkhorn Boulevard	SR 99 to E. Levee Road	County of Sacramento - Urban (E)	2	16,300	0.91	E
	E. Levee Road to Rio Linda Boulevard	County of Sacramento - Urban (E)	2	13,100	0.73	C
	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	4	18,300	0.51	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	4	19,900	0.55	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	23,300	0.65	B
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	4	24,100	0.67	B
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	4	19,900	0.55	A
Watt Avenue	Baseline Road to PFE Road	County of Placer - Placer Vineyards Frontage (D)	2	6,200	0.34	A
	PFE Road to Black Eagle Drive	County of Sacramento - Urban (E)	2	9,900	0.55	A
	Black Eagle Drive to Elverta Road	County of Sacramento - Urban (E)	6	17,400	0.32	A
	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	4	23,800	0.66	B
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	4	29,600	0.82	D
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	4	34,600	0.96	E
	Don Julio Boulevard to Roseville Road	County of Sacramento - Urban (E)	6	36,500	0.68	B
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	54,700	**1.01**	**F**

Table 2
Daily Roadway Segment LOS – Existing Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	Number of Lanes	ADT	V/C Ratio	LOS
U Street	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	1,000	0.06	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	300	0.02	A
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	2	4,400	0.24	A
Q Street	Marysville Boulevard to Rio Linda Boulevard	County of Sacramento - Urban (E)	2	600	0.03	A
	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	1,400	0.08	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	5,600	0.31	A
	16th Street to 24th Street	County of Sacramento - Urban (E)	2	2,700	0.15	A
	24th Street to Watt Avenue	County of Sacramento - Urban (E)	2	2,500	0.14	A
East Levee Road	Sutter County Line to Elverta Road	County of Sacramento - Urban (E)	2	700	0.04	A
	Elverta Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	2,200	0.12	A
Marysville Boulevard	Dry Creek Road to Rio Linda Boulevard	City of Sacramento (D)	2	13,800	0.77	C
	Rio Linda Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	1,700	0.09	A
	Elkhorn Boulevard to U Street	County of Sacramento - Urban (E)	2	600	0.03	A

Table 2
Daily Roadway Segment LOS – Existing Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	Number of Lanes	ADT	V/C Ratio	LOS
Rio Linda Blvd	Marysville Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	11,700	0.65	B
	Elkhorn Boulevard to Q Street	County of Sacramento - Urban (E)	2	9,900	0.55	A
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	3,400	0.19	A
9th Street	Elverta Road to U Street	County of Sacramento - Urban (E)	2	500	0.03	A
Dry Creek Road	I-80 to Ascot Avenue	City of Sacramento (D)	2	5,300	0.29	A
	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	7,600	0.42	A
	Elkhorn Boulevard to Curved Bridge Road	County of Sacramento - Urban (E)	2	6,700	0.37	A
	Curved Bridge Road to Q Street	County of Sacramento - Urban (E)	2	3,800	0.21	A
	Q Street to U Street	County of Sacramento - Urban (E)	2	1,500	0.08	A
16th Street	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	7,000	0.39	A
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	1,500	0.08	A
	Elverta Road to County Line	County of Sacramento - Urban (E)	2	500	0.03	A
Raley Blvd	I-80 to Ascot Avenue	City of Sacramento (D)	2	13,000	0.72	C

Notes: Bolded cells represent unacceptable operations.
SOURCE: Fehr & Peers, 2010

Table 3
Freeway Mainline LOS – Existing Conditions

Freeway	Segment	Peak Hour	Volume	Density (pc/ln/mi)	LOS
SR 99 SB	Sankey Road to Riego Road	AM	1,865	17	B
		PM	1,054	10	A
	Riego Road to Elverta Road	AM	2,411	22	C
		PM	1,203	11	B
	Elverta Road to Elkhorn Boulevard	AM	2,724	25	C
		PM	1,285	12	B
	Elkhorn Boulevard to I-5	AM	3,473	33	D
		PM	1,555	14	B
SR 99 NB	I -5 to Elkhorn Boulevard	AM	1,108	11	B
		PM	3,859	42	E
	Elkhorn Boulevard to Elverta Road	AM	938	9	A
		PM	2,899	28	D
	Elverta Road to Riego Road	AM	870	9	A
		PM	2,493	24	C
	Riego Road to Sankey Road	AM	713	7	A
		PM	1,970	19	C

SOURCE: Fehr & Peers, 2010.

Table 4
Minimum Acceptable Level of Service by Jurisdiction

Jurisdiction	LOS Criteria
Sacramento County (within the Urban Service Boundary)	E
Sacramento County (outside the Urban Service Boundary)	D
City of Sacramento	D
Sutter County	D
Placer County	C
Placer County (Adjacent to Placer Vineyards)	D
City of Roseville	C
Caltrans (SR 99)	E

SOURCE: Fehr & Peers, 2010.

Table 5
Intersection LOS Criteria

LOS	Control Delay (sec/veh)[a]		General Description
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10	≤ 10	Little to no congestion or delays.
B	> 10 – 20	> 10 – 15	Limited congestion. Short delays.
C	> 20 – 35	> 15 – 25	Some congestion with average delays.
D	> 35 – 55	> 25 – 35	Significant congestion and delays.
E	> 55 – 80	> 35 - 50	Severe congestion and delays.
F	> 80	> 50	Total breakdown with extreme delays.

[a] Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay and is measured for the overall intersection.

SOURCE: *Highway Capacity Manual* (Transportation Research Board 2000), Fehr & Peers 2010

Table 6
Roadway Segment LOS Criteria

Facility Type	Number of Lanes	Daily Volume Threshold				
		LOS A	LOS B	LOS C	LOS D	LOS E
Sutter County						
Urban Arterial [a]	2	-	-	13,170	14,800	16,460
	4	-	-	26,340	29,640	32,930
	6	-	-	39,510	44,460	49,395
Placer County/Sacramento County/City of Sacramento						
Arterial – Moderate Access Control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000

Both **Number of Lanes** and **Daily Volume Threshold** are two-way totals.

[a] Urban Arterial thresholds extrapolated for six-lane facilities.

SOURCES:

Sutter County General Plan, 1996

Placer County General Plan, 1994

Sacramento County Traffic Impact Analysis Guidelines, 2004

City of Sacramento General Plan, 2009

Table 7
Freeway Mainline and Ramp Junction LOS Criteria

LOS	Mainline Density (pc/mi/ln)	Ramp Junction Density (pc/mi/ln)
A	≤ 11	≤ 10.0
B	> 11 – 18	> 10 – 20
C	> 18 – 26	> 20 – 28
D	> 26 – 35	> 28 – 35
E	> 35 – 45	> 35 – 43[a]
F	Demand exceeds capacity	

[a] The HCM 2000 does not define maximum density for ramp junctions under LOS E. Fehr & Peers uses the maximum density of 43 identified for weaving sections in the HCM 2000.

Density is measured in pc/mi/ln (passenger car per mile per lane).

SOURCE: *Highway Capacity Manual* (Transportation Research Board 2000)

Table 8
Comparison of Land Use by Project Alternative

Land Use Type	Alternative			
	Preferred Alternative	Approved Specific Plan	Minimal Impact	No Permit
Single Family (dwelling units)	5,317	5,317	4,221	827
Multi-Family (dwelling units)	873	873	1,969	0
Total	6,190	6,190	6,190	827
Retail (acres)	17.8	15.0	14.6	0
Office (acres)	3.7	4.4	3.9	0
School (acres)	19.5	20.2	10.0	0

Note: Multi-family land use is assumed to have a density of 20 units per acre or more.

SOURCE: RCH Group, February 2010.

Project Trip Generation

The trip generation estimates were developed for each land use type for the Preferred Alternative. The estimates were developed by applying the trip rates from *Trip Generation*, 8th Edition (Institute of Transportation Engineers, 2008), then adjusted for internal and pass-by trips, as described below.

An *internal trip* is one that begins and ends within the project site, like a trip from home to a retail center, or from home to school. Since these trips do not leave the project site, they are deducted from the total external trip generation of the project. The retail, office, and school land uses would all attract trips from within the project site. Internalization rates were developed by considering the proposed land uses, the proximity of comparable land use, and trip purpose.

A *pass-by trip* occurs when a motorist stops en route to their primary destination. These trips usually occur at retail-based land uses, like gas stations or grocery stores. These types of land uses attract traffic that is already passing on the adjacent street; therefore, these are not "new" trips added to the roadway system. The amount of pass-by trips is a function of the type and size of the land use and the traffic volume on the adjacent street.

For the Preferred Alternative, 23 percent of all project trips are internal to the project site. Approximately 50 percent of retail trip ends, 40 percent of office trip ends, and 80 percent of school trip ends are expected to be internalized. These rates are based on the proposed project's land uses, the proximity of comparable land use, and trip purpose. The pass-by reduction is 15 percent in the AM peak hour and 25 percent for Daily and the PM peak hour. The pass-by reduction was applied after the internalization reduction.

The net trip generation of the project is developed by subtracting the internal and pass-by trips from the gross trip generation. **Table 9** (*next page*) displays the trip generation for the Preferred Alternative. The project trip generation for the other alternatives was developed in the same manner. **Table 10** displays the trip generation of all four project scenarios.

Table 10
Comparison of Trip Generation by Project Alternative

Time Period		Trips Generated			
		Preferred Alternative	Approved Specific Plan	Minimal Impact	No Permit
AM Peak Hour	In	914	918	910	
	Out	3,198	3,197	3,102	
PM Peak Hour	In	3,618	3,624	3,399	
	Out	2,072	2,081	1,937	
Daily	Total	54,444	54,621	51,890	7,914

SOURCE: Fehr & Peers, 2010.

Table 11
SACMET Base Year Model Validation Results

Statistic	Target Value	Daily Base Year Model
Model / Count Ratio	0.90 - 1.10	0.93
% of Links Within Caltrans Maximum Deviations	>75%	75%
% Root Mean Square Error	<40%	30%
Correlation Coefficient	>0.88	0.95

SOURCE: Fehr & Peers, 2010.

Table 9
Project Trip Generation – Preferred Alternative

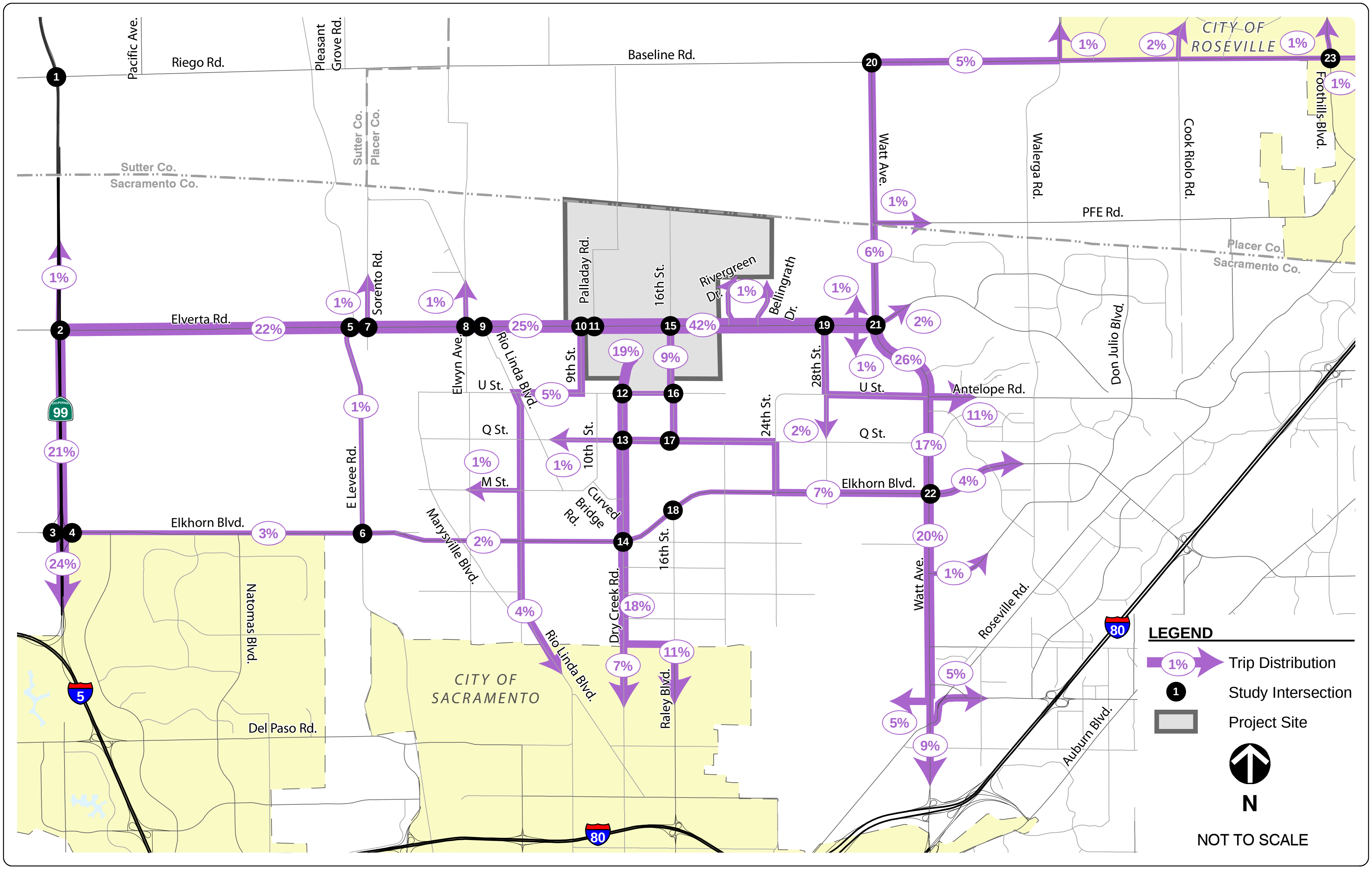
Land Use	ITE Land Use Code	Amount	Daily		AM Peak Hour				PM Peak Hour			
						Trips				Trips		
			Rate [a]	Trips	Rate	Total	In	Out	Rate	Total	In	Out
Single-Family Homes	210	5,317 du	9.57	50,884	0.75	3,988	997	2,991	1.01	5,370	3,383	1,987
Apartments	220	873 du	6.65	5,805	0.51	445	89	356	0.62	541	352	189
Retail	820	233 ksf	50.54	11,755	1.09	253	155	99	4.81	1,120	549	571
Office	710	48 ksf	15.79	758	2.17	104	92	13	2.76	133	23	110
School	520	1,200 st	1.29	1,548	0.45	540	297	243	0.15	180	88	92
Gross Trip Generation				70,751		5,331	1,629	3,701		7,344	4,395	2,949
Internalized Trip End Reduction				-14,838		-1,202	-704	-496		-1,514	-708	-806
Pass-by Trip Reduction				-1,469		-19	-12	-7		-140	-69	-71
Net Trip Generation				54,444		4,110	914	3,198		5,690	3,618	2,072
Total Trip Reduction				23%		23%	44%	14%		23%	18%	30%

[a] Residential and school trips are based on average rates, while retail and office trips are based on the best-fit equation of Trip Generation (Institute of Transportation Engineers, 2008).

du = dwelling units, ksf = thousand square feet, st = students

Retail and Office land use assumes a floor-to-area ratio (FAR) of 0.30.

SOURCES: RCH Group, February 2010 and Fehr & Peers, 2010.



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PROJECT TRIP DISTRIBUTION - EXISTING CONDITIONS

FIGURE 3.14-7

Cumulative Travel Demand Forecasts

The cumulative no project and cumulative plus project traffic forecasts were developed for each alternative using the most recent version of the SACMET regional TDF model that is maintained by the Sacramento Area Council of Governments (SACOG). This model is based on the SACOG *2035 Metropolitan Transportation Plan* (MTP).

As is the case with most regional TDF models, the SACMET model lacks sufficient traffic analysis zone (TAZ) and roadway network detail to produce reasonable peak hour forecasts for study intersections and freeway facilities for project-scale analysis. Therefore, Fehr & Peers made the following modifications to increase the detail of the model for project-level application:

- Disaggregated TAZs within the Elverta Specific Plan project site
- Added existing and future roadways within the study area
- Evaluated existing and cumulative land use

The SACMET model was used to develop cumulative no project and cumulative plus project forecasts.

Fehr & Peers used a traffic forecasting procedure known as the "difference method" to develop cumulative year (2035) traffic forecasts. For a given turning movement or roadway segment, this forecasting procedure is calculated as follows:

Forecast = Existing Counts + (Future Year Model Volume – Base Year Model Volume)

This method accounts for potential differences between the base year model and existing counts that could otherwise transfer to the future year traffic forecast.

Two key inputs of a travel demand model are the land use assumptions and the roadway network improvements. Both were evaluated for accuracy and coded into the TDF model.

Cumulative Land Use Assumptions

Fehr & Peers has reviewed the cumulative land use assumptions from the latest version of the SACMET TDF model. We checked land use totals for future planned developments in the area and adjusted as necessary. Land use in the area west of SR 99 was increased to account for partial buildout of the planned Metro Air Parkway and Greenbriar developments. Land use adjustments were made to TAZs surrounding the study area to return each land use category closer to SACMET control totals. Table 11 compares the official SACMET control totals and the Elverta Specific Plan Preferred Alternative model assumptions.

Employment forecasted by SACOG in the Sutter Pointe and Natomas Joint Vision Area developments was reduced to help maintain the regional jobs/housing ratio.

Table 12
Comparison of Cumulative Year Land Use Inputs

Model Land Use Inputs	Model	
	Official SACMET Land Use (2035)	**Preferred Alternative Model Land Use (2035)**
Total Households	177,334	178,974
Retail Employment	46,119	47,300
Total Non-Retail Employment	160,248	165,769
College Students	2,500	2,500
K-12 Students	106,819	104,827
Office Employment	81,043	83,638
Medical Employment	11,208	11,708
Educational Employment	10,928	10,609
Manufacturing / Other Employment	57,069	59,814
Single Family Households	115,082	116,713
Multi-Family Households < 5 Units	15,513	16,714
Multi-Family Households $\geq$ 5 Units	46,739	46,739

Notes: Numbers represent area bounded by the Garden Highway to the west, Sankey Road/Placer Parkway, SR 65, I-80 and I-5/SR 99.

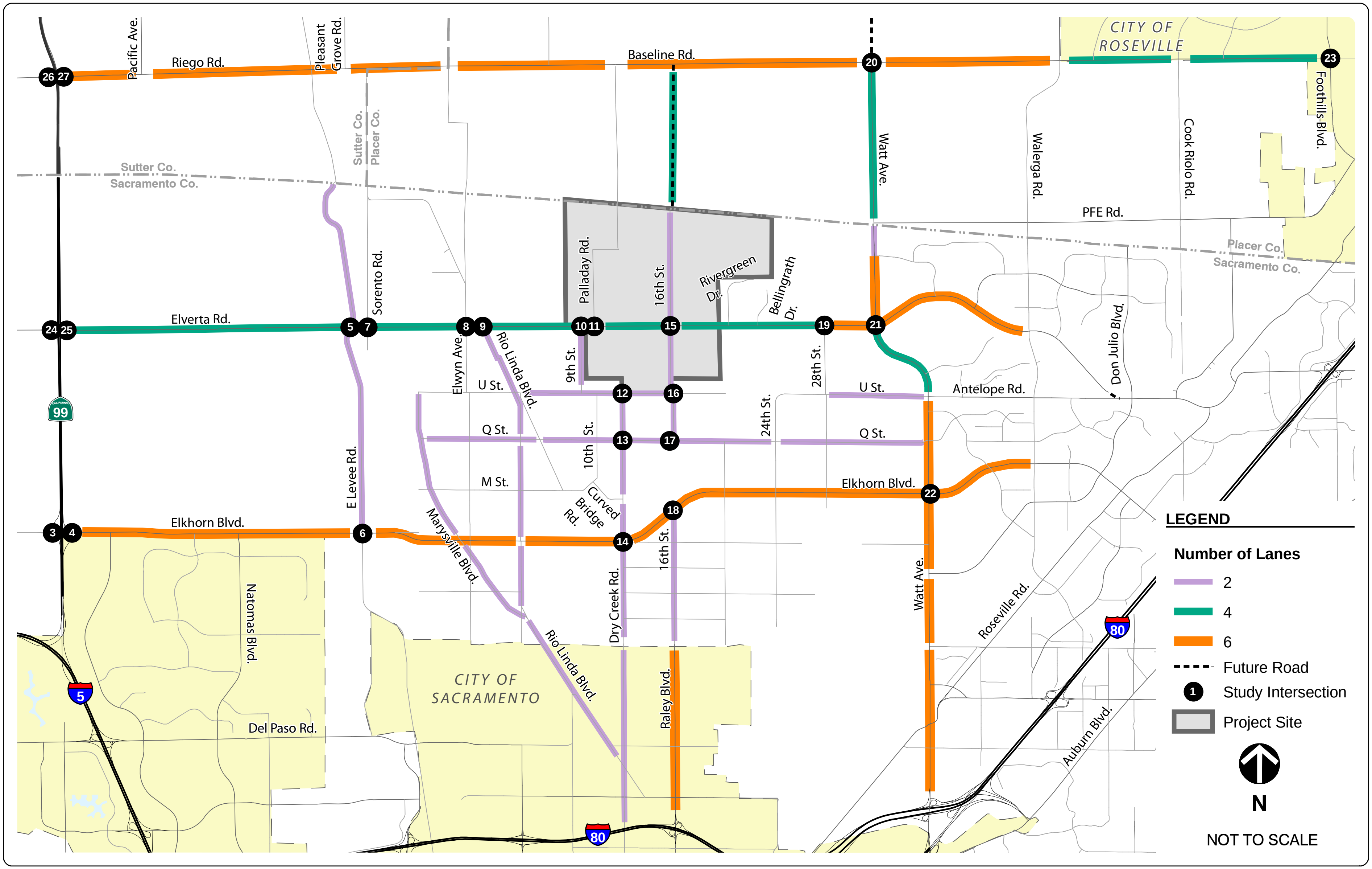
SOURCE: Fehr & Peers, 2010.

Cumulative Roadway Improvement Assumptions

The funded "tier one" transportation improvements, as listed in the 2035 MTP, were included in the travel demand forecasting and operational analysis. Many improvements were identified within the study area. Some of the key projects include:

- Constructing two new interchanges along SR 99 at Elverta Road and Riego Road
- Widening Elkhorn Boulevard to six lanes from SR 99 to Don Julio Boulevard
- Widening Elverta Road to four lanes from SR 99 to Dutch Haven Boulevard and to six lanes from Dutch Haven Boulevard to Watt Avenue
- Widening Baseline Road/Riego Road to six lanes from SR 99 to Fiddyment Road
- Widening Watt Avenue to six lanes from I-80 to Antelope Road and to four lanes from PFE Road to Baseline Road, and extending Watt Avenue from Baseline Road to Blue Oaks Boulevard (four lanes)

The County of Sacramento has indicated the widening of 16th Street, including a new bridge over Dry Creek, may not be fully funded (based on email correspondence with Dean Blank at Sacramento County Department of Transportation, Sept. 2010); therefore, it will not be assumed for cumulative conditions. Fehr & Peers has verified that these projects and the others listed in the 2035 MTP Project List are included in the SACMET cumulative model roadway network and were added if necessary.



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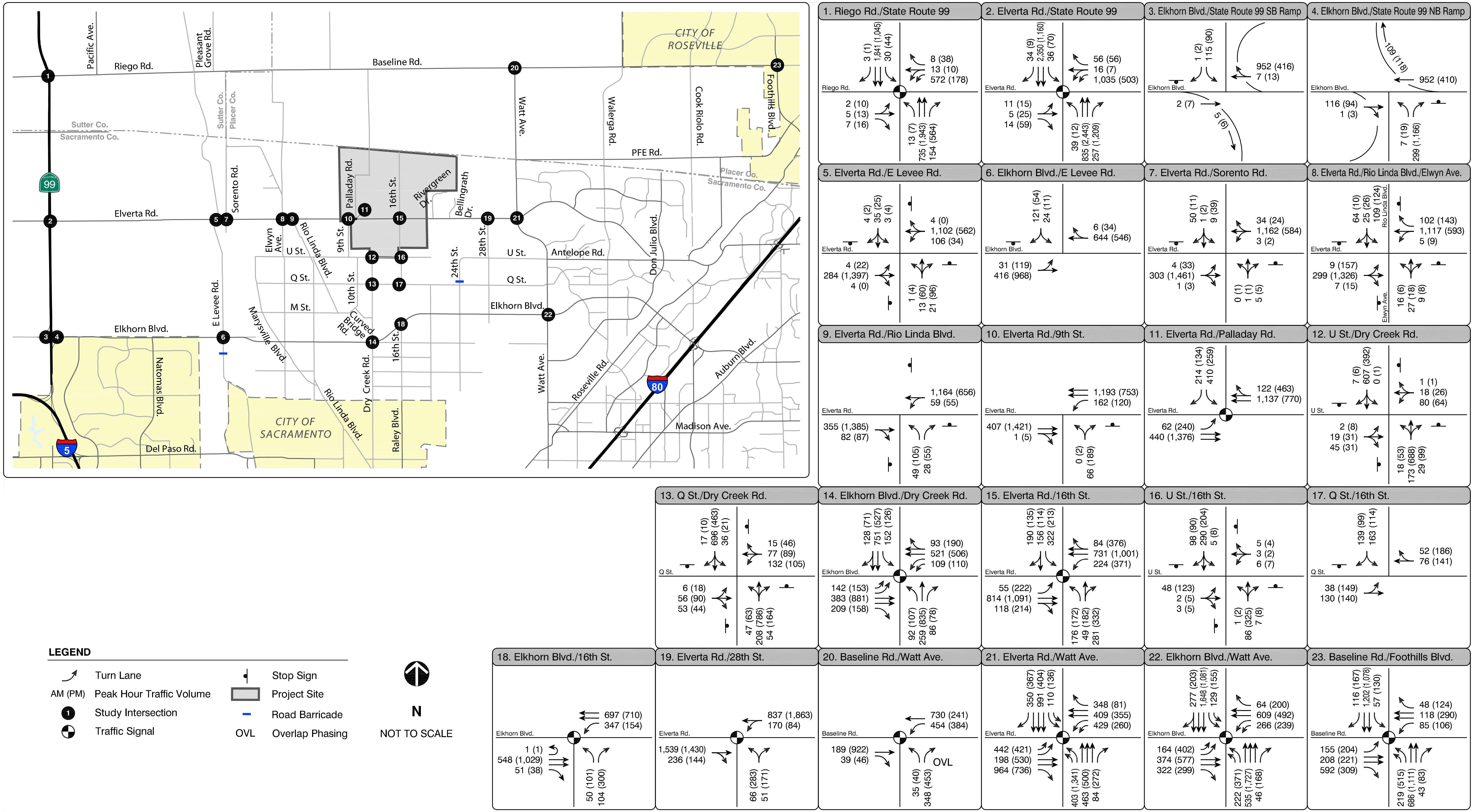
NUMBER OF LANES - CUMULATIVE CONDITIONS

FIGURE 3.14-8



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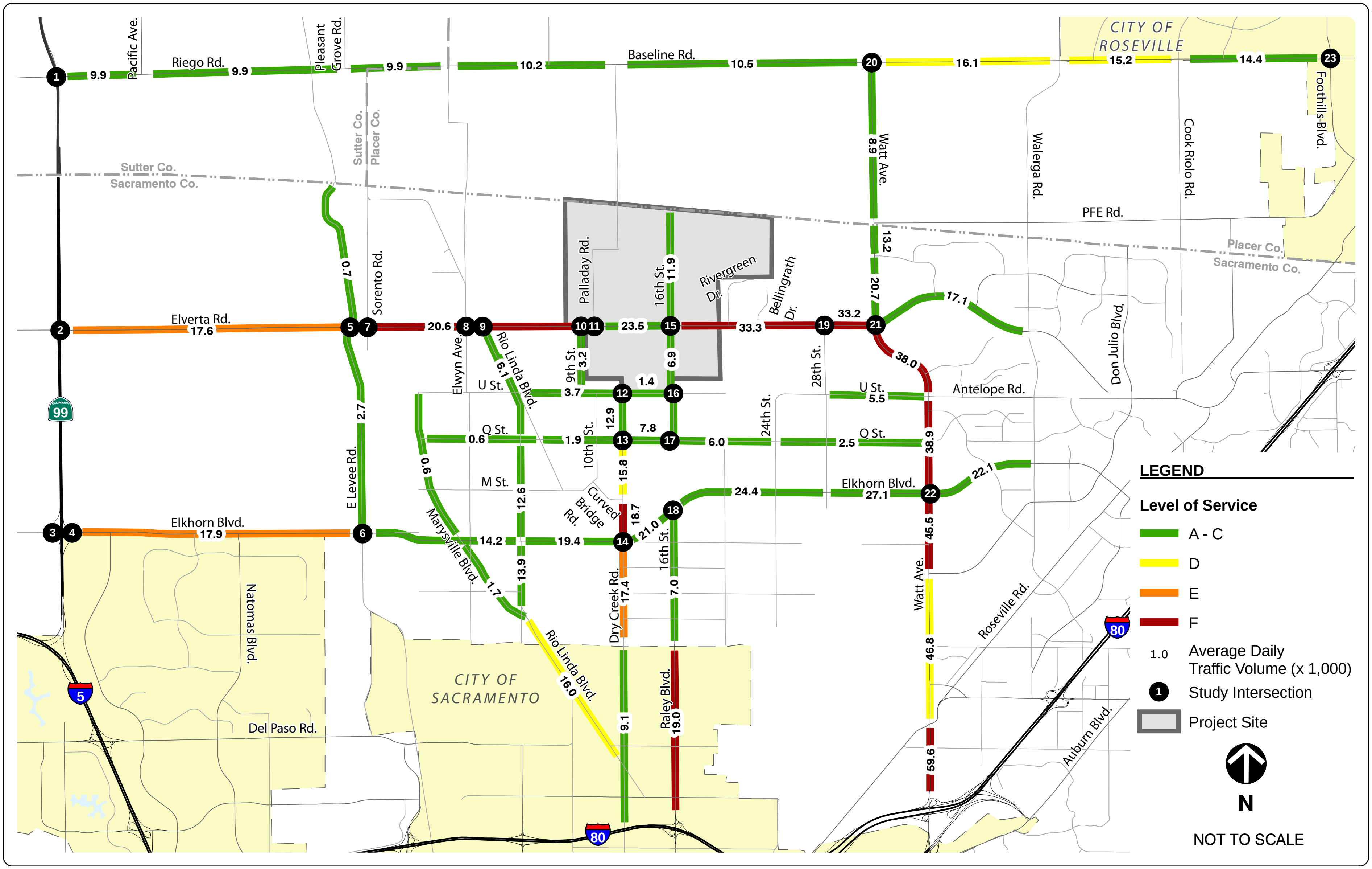
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PREFERRED ALTERNATIVE CONDITIONS

FIGURE 3.14-9



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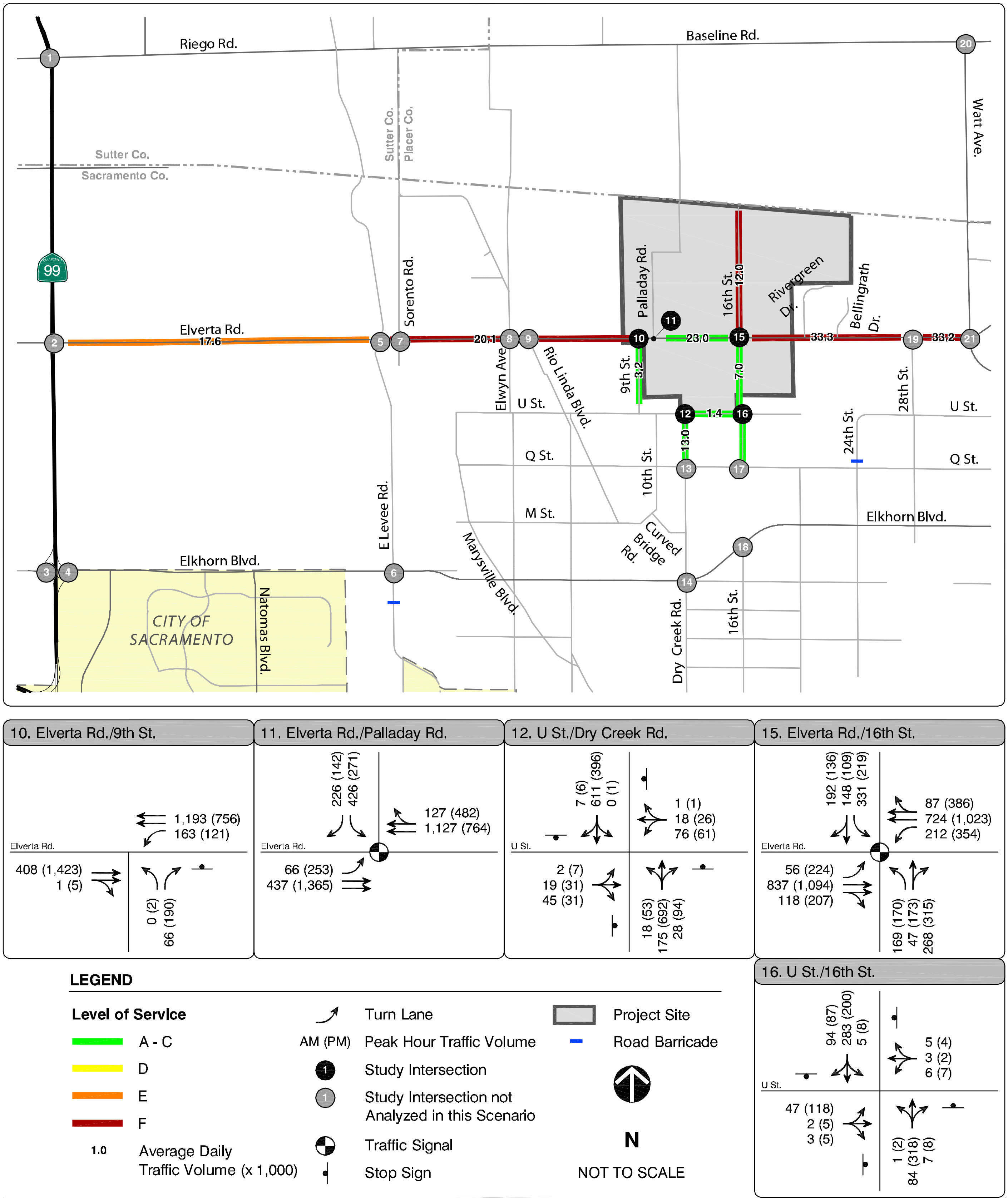
AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - EXISTING PLUS PREFERRED ALTERNATIVE CONDITIONS

FIGURE 3.14-10



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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS APPROVED SPECIFIC PLAN ALTERNATIVE

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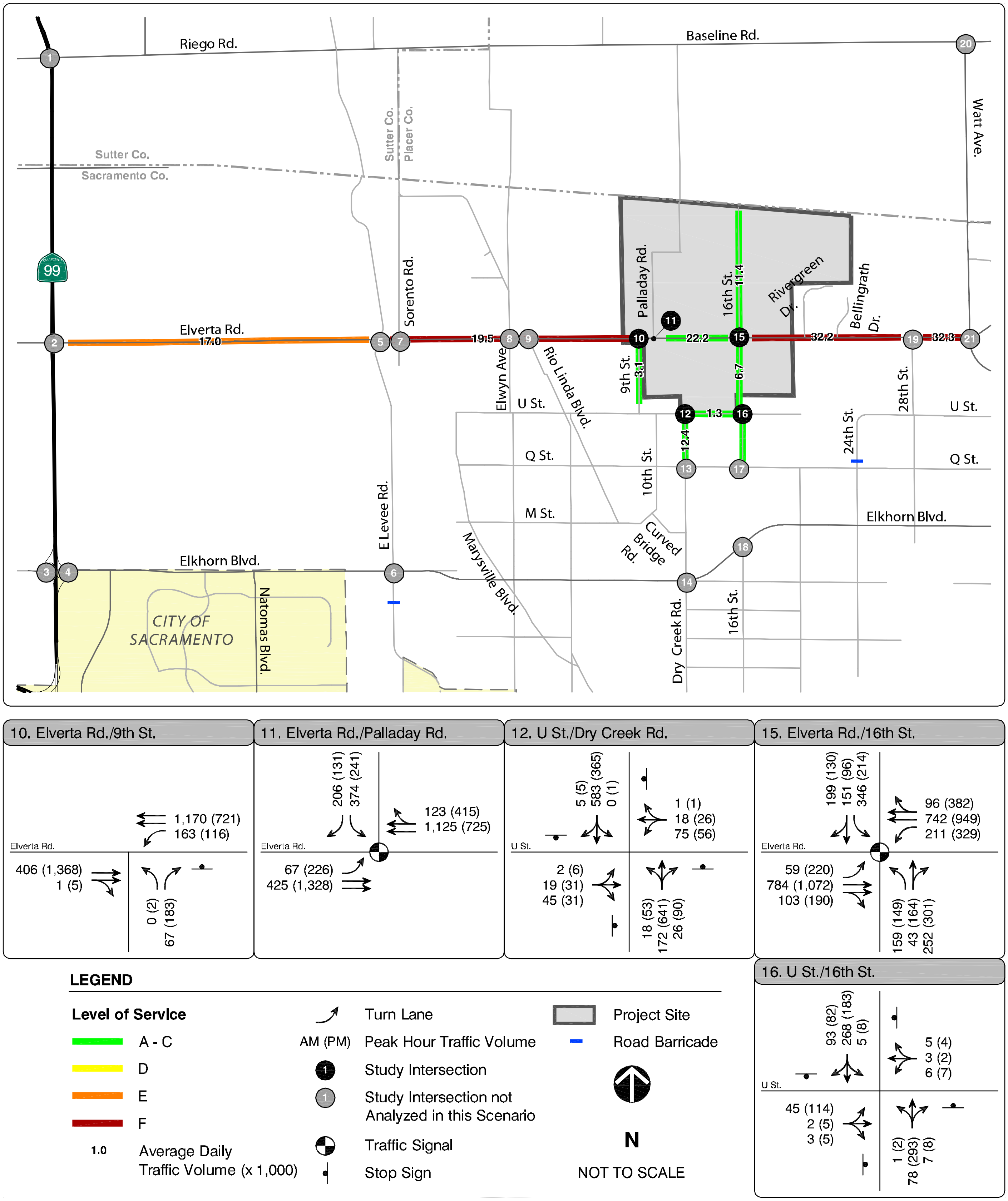
FIGURE 3.14-11



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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS MINIMAL IMPACT ALTERNATIVE

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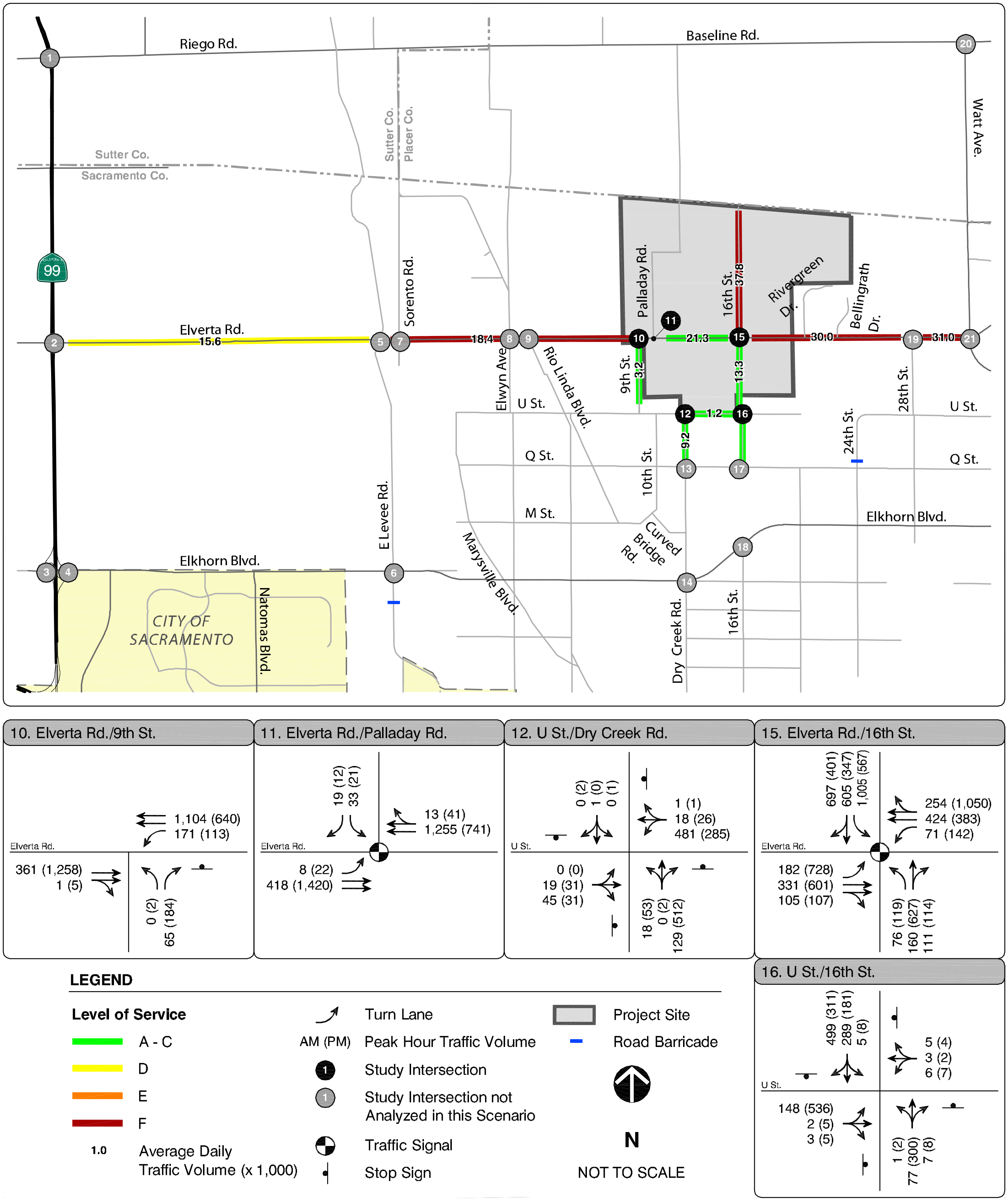
FIGURE 3.14-12



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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS NO FEDERAL ACTION ALTERNATIVE

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FIGURE 3.14-13

Table 13
Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions

	Intersection	Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Existing Conditions		Existing Plus Preferred Alternative Conditions	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	SR 99 / Riego Road	Caltrans (E)	Traffic Signal	AM	57	E	58	E
				PM	21	C	22	C
2	SR 99 / Elverta Road	Caltrans (E)	Traffic Signal	AM	70	E	**> 150**	**F**
				PM	26	C	**82**	**F**
3	SR 99 SB Off-Ramp / Elkhorn Blvd	Caltrans (E)	Side Street Stop	AM	15	B	16	C
				PM	11	B	11	B
4	SR 99 NB Off-Ramp / Elkhorn Blvd	Caltrans (E)	Side Street Stop	AM	23	C	26	D
				PM	**141**	**F**	**> 150**	**F**
5	Elverta Road / E. Levee Road	County of Sacramento (E)	All Way Stop	AM	15	C	**> 150**	**F**
				PM	27	D	**> 150**	**F**
6	Elkhorn Blvd / E. Levee Road	County of Sacramento (E)	Side Street Stop	AM	21	C	26	D
				PM	16	C	30	D
7	Elverta Road / Sorento Road	County of Sacramento (E)	Side Street Stop	AM	13	B	43	E
				PM	29	D	**> 150**	**F**
8	Elverta Road / Elwyn Road	County of Sacramento (E)	All Way Stop	AM	14	B	**> 150**	**F**
				PM	37	E	**> 150**	**F**
9	Elverta Road / Rio Linda Blvd	County of Sacramento (E)	All Way Stop	AM	13	B	**> 150**	**F**
				PM	19	C	**> 150**	**F**
10	Elverta Road / 9th Street	County of Sacramento (E)	Side Street Stop	AM	10	A	11	B
				PM	13	B	42	E
11	Elverta Road / Palladay Road	County of Sacramento (E)	Traffic Signal	AM	12	B	23	C
				PM	12	B	20	B
12	U Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	7	A	29	D
				PM	8	A	**112**	**F**
13	Q Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	9	A	**118**	**F**
				PM	9	A	**> 150**	**F**
14	Elkhorn Blvd / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	20	B	30	C
				PM	20	B	70	E
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	16	C	48	D
				PM	18	C	**131**	**F**
16	U Street / 16th Street	County of Sacramento (E)	All Way Stop	AM	7	A	11	B
				PM	8	A	12	B
17	Q Street / 16th Street	County of Sacramento (E)	Side Street Stop	AM	9	A	15	B
				PM	10	A	24	C

Table 13
Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Existing Conditions		Existing Plus Preferred Alternative Conditions	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
18	Elkhorn Blvd / 16th Street	County of Sacramento (E)	Traffic Signal	AM	15	B	15	B
				PM	64	E	67	E
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	69	E	**> 150**	**F**
				PM	**137**	**F**	**> 150**	**F**
20	Baseline Road / Watt Avenue	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	**76**	**E**	**95**	**F**
				PM	33	C	45	D
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	35	C	**127**	**F**
				PM	31	C	**> 150**	**F**
22	Elkhorn Blvd / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	52	D	49	D
				PM	37	D	53	D
23	Baseline Road / Foothills Blvd	City of Roseville (C)	Traffic Signal	AM	**49**	**D**	**49**	**D**
				PM	**40**	**D**	**41**	**D**

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

Table 14
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
Riego Road /Baseline Road	SR 99 to Pacific Avenue	County of Sutter (D)	2	9,900	0.60	C	9,900	0.60	C
	Pacific Avenue to Pleasant Grove Road (South)	County of Sutter (D)	2	9,900	0.60	C	9,900	0.60	C
	Pleasant Grove Road (South) to Locust Road	County of Placer - Placer Vineyards Frontage (D)	2	9,900	0.60	C	9,900	0.60	C
	Locust Road to Palladay Road	County of Placer - Placer Vineyards Frontage (D)	2	10,200	0.57	A	10,200	0.57	A
	Palladay Road to Watt Avenue	County of Placer - Placer Vineyards Frontage (D)	2	10,500	0.58	A	10,500	0.58	A
	Watt Avenue to Walerga Road	County of Placer - Placer Vineyards Frontage (D)	2	13,400	0.74	C	16,100	0.89	D
	Walerga Road to Cook-Riolo Road	County of Placer (C)	2	13,000	0.72	C	15,200	**0.84**	**D**
	Cook-Riolo Road to Foothills Boulevard	County of Placer (C)	2	13,300	0.74	C	14,400	0.80	C
Elverta Road	SR 99 to E. Levee Road	County of Sacramento - Rural (D)	2	5,600	0.31	A	17,600	**0.98**	**E**
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	2	7,000	0.39	A	20,600	**1.14**	**F**
	Palladay Road to 16th Street	County of Sacramento - Urban (E)	4	7,200	0.40	A	23,500	0.65	B
	16th Street to 28th Street	County of Sacramento - Urban (E)	2	10,400	0.58	A	33,300	**1.85**	**F**
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	2	14,100	0.78	C	33,200	**1.84**	**F**

Table 14
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	6	16,000	0.30	A	17,100	0.32	A
Elkhorn Boulevard	SR 99 to E. Levee Road	County of Sacramento - Urban (E)	2	16,300	0.91	E	17,900	0.99	E
	E. Levee Road to Rio Linda Boulevard	County of Sacramento - Urban (E)	2	13,100	0.73	C	14,200	0.79	C
	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	4	18,300	0.51	A	19,400	0.54	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	4	19,900	0.55	A	21,000	0.58	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	23,300	0.65	B	24,400	0.68	B
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	4	24,100	0.67	B	27,100	0.75	C
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	4	19,900	0.55	A	22,100	0.61	B
Watt Avenue	Baseline Road to PFE Road	County of Placer - Placer Vineyards Frontage (D)	2	6,200	0.34	A	8,900	0.49	A
	PFE Road to Black Eagle Drive	County of Sacramento - Urban (E)	2	9,900	0.55	A	13,200	0.73	C
	Black Eagle Drive to Elverta Road	County of Sacramento - Urban (E)	6	17,400	0.32	A	20,700	0.38	A
	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	4	23,800	0.66	B	38,000	**1.06**	**F**
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	4	29,600	0.82	D	38,900	**1.08**	**F**

Table 14
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	4	34,600	0.96	E	45,500	**1.26**	**F**
	Don Julio Boulevard to Roseville Road	County of Sacramento - Urban (E)	6	36,500	0.68	B	46,800	0.87	D
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	54,700	**1.01**	**F**	59,600	**1.10**	**F**
U Street	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	1,000	0.06	A	3,700	0.21	A
U Street	Dry Creek Road to 16^{th} Street	County of Sacramento - Urban (E)	2	300	0.02	A	1,400	0.08	A
U Street	28^{th} Street to Watt Avenue	County of Sacramento - Urban (E)	2	4,400	0.24	A	5,500	0.31	A
Q Street	Marysville Boulevard to Rio Linda Boulevard	County of Sacramento - Urban (E)	2	600	0.03	A	600	0.03	A
Q Street	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	1,400	0.08	A	1,900	0.11	A
Q Street	Dry Creek Road to 16^{th} Street	County of Sacramento - Urban (E)	2	5,600	0.31	A	7,800	0.43	A
Q Street	16^{th} Street to 24^{th} Street	County of Sacramento - Urban (E)	2	2,700	0.15	A	6,000	0.33	A
Q Street	24^{th} Street to Watt Avenue	County of Sacramento - Urban (E)	2	2,500	0.14	A	2,500	0.14	A
East Levee Road	Sutter County Line to Elverta Road	County of Sacramento - Urban (E)	2	700	0.04	A	700	0.04	A
East Levee Road	Elverta Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	2,200	0.12	A	2,700	0.15	A

Table 14
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
Marysville Boulevard	Dry Creek Road to Rio Linda Boulevard	City of Sacramento (D)	2	13,800	0.77	C	16,000	0.89	D
	Rio Linda Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	1,700	0.09	A	1,700	0.09	A
	Elkhorn Boulevard to U Street	County of Sacramento - Urban (E)	2	600	0.03	A	600	0.03	A
Rio Linda Boulevard	Marysville Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	11,700	0.65	B	13,900	0.77	C
	Elkhorn Boulevard to Q Street	County of Sacramento - Urban (E)	2	9,900	0.55	A	12,600	0.70	B
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	3,400	0.19	A	6,100	0.34	A
9th Street	Elverta Road to U Street	County of Sacramento - Urban (E)	2	500	0.03	A	3,200	0.18	A
Dry Creek Road	I-80 to Ascot Avenue	City of Sacramento (D)	2	5,300	0.29	A	9,100	0.51	A
	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	7,600	0.42	A	17,400	0.97	E
	Elkhorn Boulevard to Curved Bridge Road	County of Sacramento - Urban (E)	2	6,700	0.37	A	18,700	**1.04**	**F**
	Curved Bridge Road to Q Street	County of Sacramento - Urban (E)	2	3,800	0.21	A	15,800	0.88	D
	Q Street to U Street	County of Sacramento - Urban (E)	2	1,500	0.08	A	12,900	0.72	C
16th Street	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	7,000	0.39	A	7,000	0.39	A

Table 14
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	1,500	0.08	A	6,900	0.38	A
	Elverta Road to County Line	County of Sacramento - Urban (E)	2	500	0.03	A	11,900	0.66	B
Raley Blvd	I-80 to Ascot Avenue	City of Sacramento (D)	2	13,000	0.72	C	19,000	**1.06**	**F**

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate significant adverse effects.

SOURCE: Fehr & Peers, 2010.

Table 15
Freeway Mainline LOS – Existing Conditions

Freeway	Segment	Peak Hour	Existing Conditions			Existing Plus Preferred Alternative		
			Volume	Density (pc/ln/mi)	LOS	Volume	Density (pc/ln/mi)	LOS
SR 99 SB	Sankey Road to Riego Road	AM	1,865	17	B	1,874	17	B
		PM	1,054	10	A	1,090	10	A
	Riego Road to Elverta Road	AM	2,411	22	C	2,420	23	C
		PM	1,203	11	B	1,239	11	B
	Elverta Road to Elkhorn Boulevard	AM	2,724	25	C	3,399	32	C
		PM	1,285	12	B	1,722	16	B
	Elkhorn Boulevard to I-5	AM	3,473	33	D	4,240	**-**	**F**
		PM	1,555	14	B	2,052	19	C
SR 99 NB	I -5 to Elkhorn Boulevard	AM	1,108	11	B	1,327	13	B
		PM	3,859	42	E	4,728	**-**	**F**
	Elkhorn Boulevard to Elverta Road	AM	938	9	A	1,131	11	B
		PM	2,899	28	D	3,664	38	E
	Elverta Road to Riego Road	AM	870	9	A	902	9	A
		PM	2,493	24	C	2,514	24	C
	Riego Road to Sankey Road	AM	713	7	A	745	8	A
		PM	1,970	19	C	1,991	19	C

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.

SOURCE: Fehr & Peers, 2010.

Table 16
Peak Hour Intersection LOS – Existing Plus Project Conditions

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Existing Conditions		Existing Plus Preferred Alternative		Existing Plus Approved Specific Plan Alternative		Existing Plus Minimal Impact Alternative			
					Delay (sec/veh)	**LOS**	**Delay (sec/veh)**	**LOS**	**Delay (sec/veh)**	**LOS**	**Delay (sec/veh)**	**LOS**		
10	Elverta Road / 9th Street	County of Sacramento (E)	Side Street Stop	AM	10	A	11	B	11	B	11	B		
				PM	13	B	42	E	43	E	35	E		
11	Elverta Road / Palladay Road	County of Sacramento (E)	Traffic Signal	AM	12	B	23	C	23	C	21	C		
				PM	12	B	20	B	21	C	17	B		
12	U Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	7	A	29	D	29	D	24	C		
				PM	8	A	**112**	**F**	**111**	**F**	**83**	**F**		
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	16	C	48	D	48	D	46	D		
				PM	18	C	**131**	**F**	**130**	**F**	**114**	**F**		
16	U Street / 16th Street	County of Sacramento (E)	All Way Stop	AM	7	A	11	B	11	B	10	B		
				PM	8	A	12	B	12	B	11	B		

Notes: Bolded cells represent unacceptable operations.

Shaded cells indicate significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

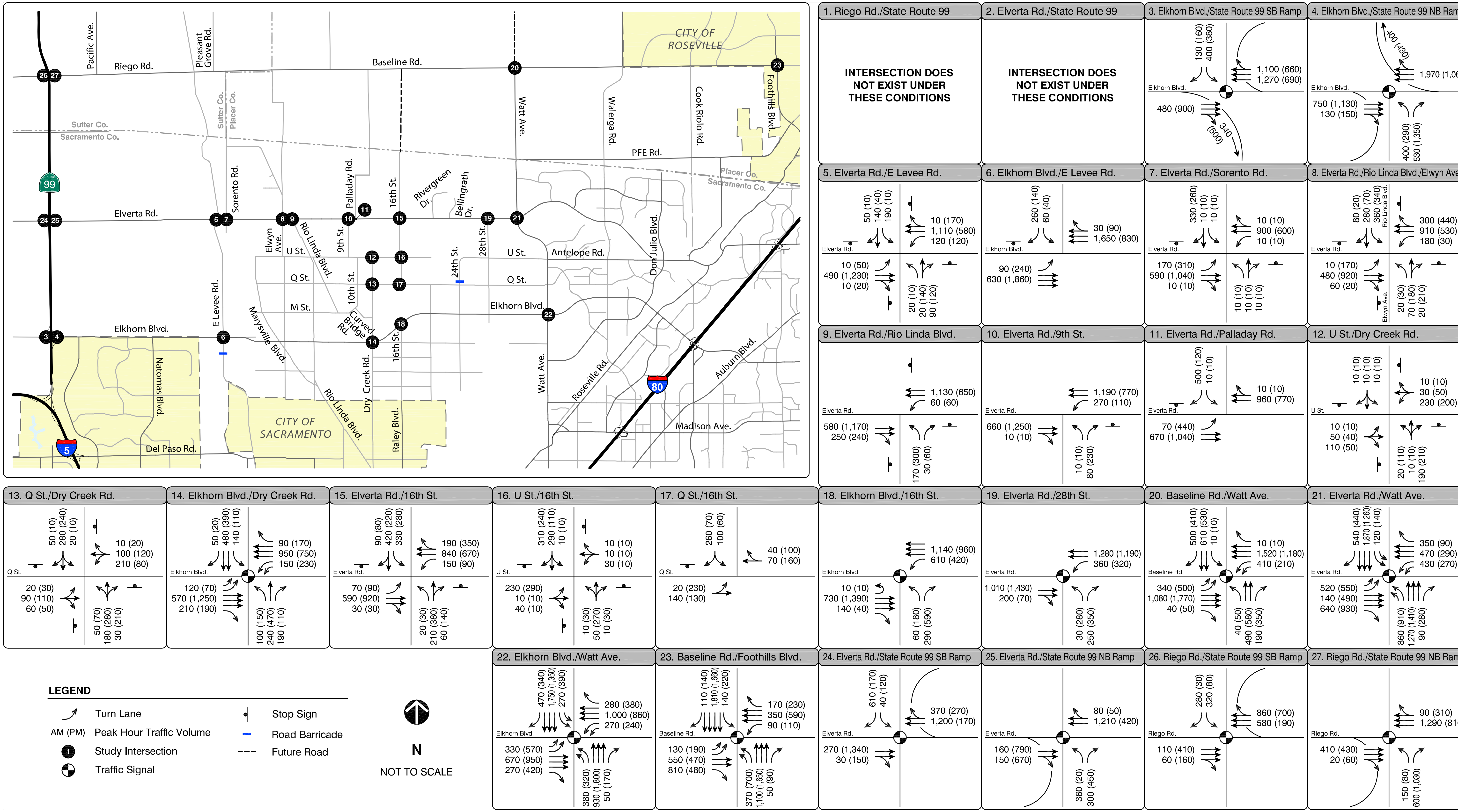
Table 17: Roadway Segment LOS – Existing Plus Project Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Existing Conditions			Existing Plus Preferred Alternative			Existing Plus Approved Specific Plan Alternative			Existing Plus Minimal Impact Alternative			Existing Plus No Permit Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Elverta Road	SR 99 to E. Levee Road	County of Sacramento - Rural (D)	2	5,600	0.31	A	17,600	**0.98**	**E**	17,600	**0.98**	**E**	17,000	**0.94**	**E**	7,300	0.41	A
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	2	7,000	0.39	A	20,600	**1.14**	**F**	20,100	**1.12**	**F**	19,500	**1.08**	**F**	9,000	0.50	A
	Palladay Road to 16th Street	County of Sacramento - Urban (E)	4	7,200	0.40	A	23,500	0.65	B	23,000	0.64	B	22,200	0.62	B	9,700	0.27	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	2	10,400	0.58	A	33,300	**1.85**	**F**	33,300	**1.84**	**F**	32,200	**1.79**	**F**	13,800	0.77	C
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	2	14,100	0.78	C	33,200	**1.84**	**F**	33,200	**1.84**	**F**	32,300	**1.79**	**F**	17,000	**0.94**	**E**
U Street	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	300	0.02	A	1,400	0.08	A	1,400	0.08	A	1,300	0.07	A	500	0.03	A
9th Street	Elverta Road to U Street	County of Sacramento - Urban (E)	2	500	0.03	A	3,200	0.18	A	3,200	0.18	A	3,100	0.17	A	1,000	0.06	A
Dry Creek Road	Q Street to U Street	County of Sacramento - Urban (E)	2	1,500	0.08	A	12,900	0.72	C	13,000	0.72	C	12,400	0.69	B	2,800	0.16	A
16th Street	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	1,500	0.08	A	6,900	0.38	A	7,000	0.39	A	6,700	0.37	A	3,600	0.20	A
	Elverta Road to County Line	County of Sacramento - Urban (E)	2	500	0.03	A	11,900	0.66	B	12,000	0.67	B	11,400	0.63	B	7,000	0.39	A

Table 18
Traffic Signal Warrant Analysis – Existing Plus Project Conditions

	Intersection	Control	Peak Hour	Peak Hour Signal Warrant Met? Existing Conditions	Existing Plus Project Conditions[1]
3	SR 99 SB Off-Ramp / Elkhorn Blvd	Side Street Stop	AM	No	No
			PM	No	No
4	SR 99 NB Off-Ramp / Elkhorn Blvd	Side Street Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
5	Elverta Road / E. Levee Road	All Way Stop	AM	No	No
			PM	No	**YES**
6	Elkhorn Blvd / E. Levee Road	Side Street Stop	AM	No	No
			PM	No	No
7	Elverta Road / Sorento Road	Side Street Stop	AM	No	No
			PM	No	No
8	Elverta Road / Elwyn Road	All Way Stop	AM	No	**YES**
			PM	No	**YES**
9	Elverta Road / Rio Linda Blvd	All Way Stop	AM	No	No
			PM	No	**YES**
10	Elverta Road / 9th Street	Side Street Stop	AM	No	No
			PM	No	**YES**
12	U Street / Dry Creek Road	All Way Stop	AM	No	No
			PM	No	No
13	Q Street / Dry Creek Road	All Way Stop	AM	No	**YES**
			PM	No	**YES**
16	U Street / 16th Street	All Way Stop	AM	No	No
			PM	No	No[2]
17	Q Street / 16th Street	Side Street Stop	AM	No	No
			PM	No	No

Notes: [1] Applies to all project alternatives unless otherwise noted.
[2] Traffic signal warranted under Existing Plus No Federal Action Alternative only.
SOURCE: Fehr & Peers, 2010.



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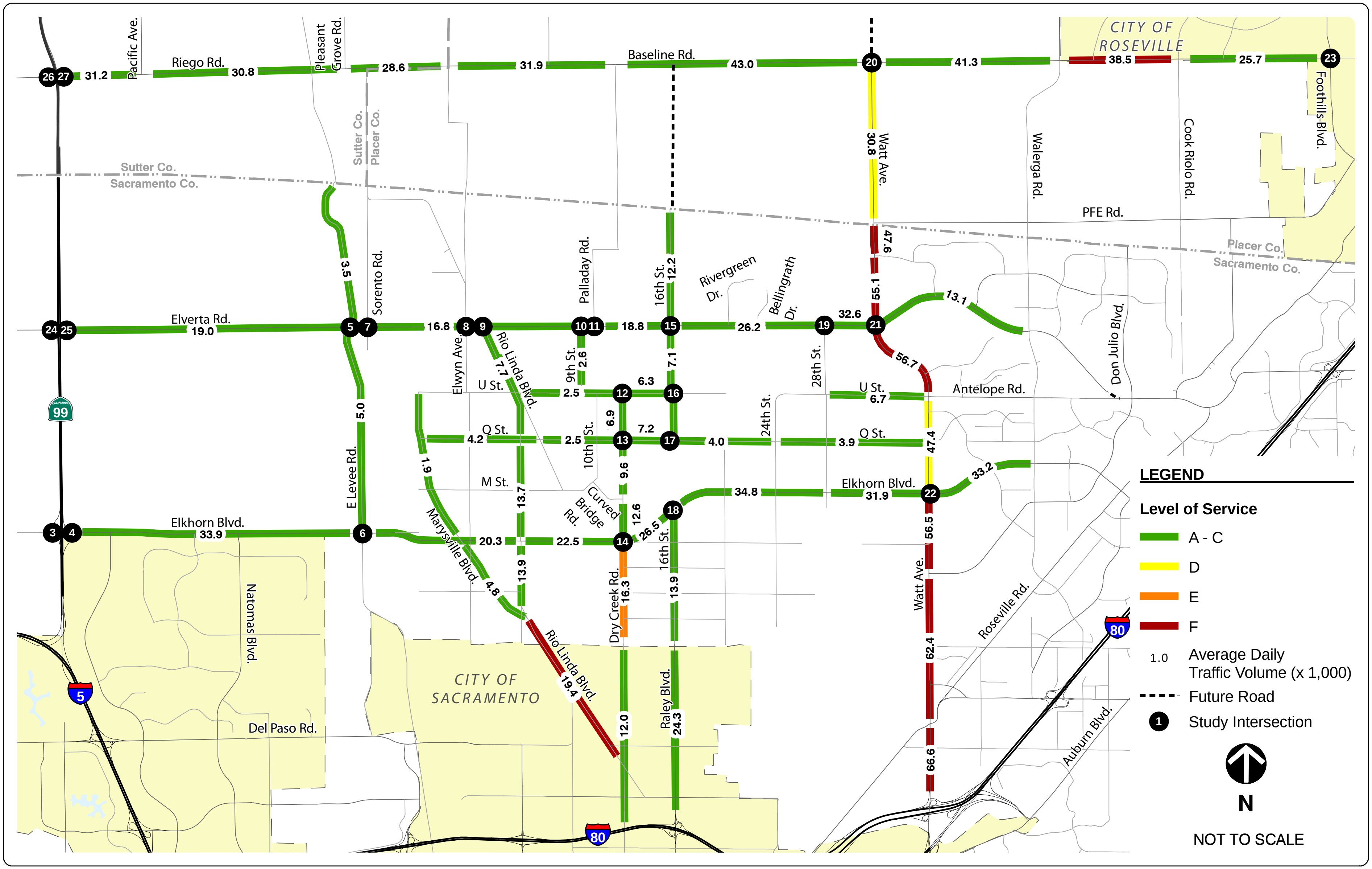
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE NO PROJECT CONDITIONS

FIGURE 3.14-14



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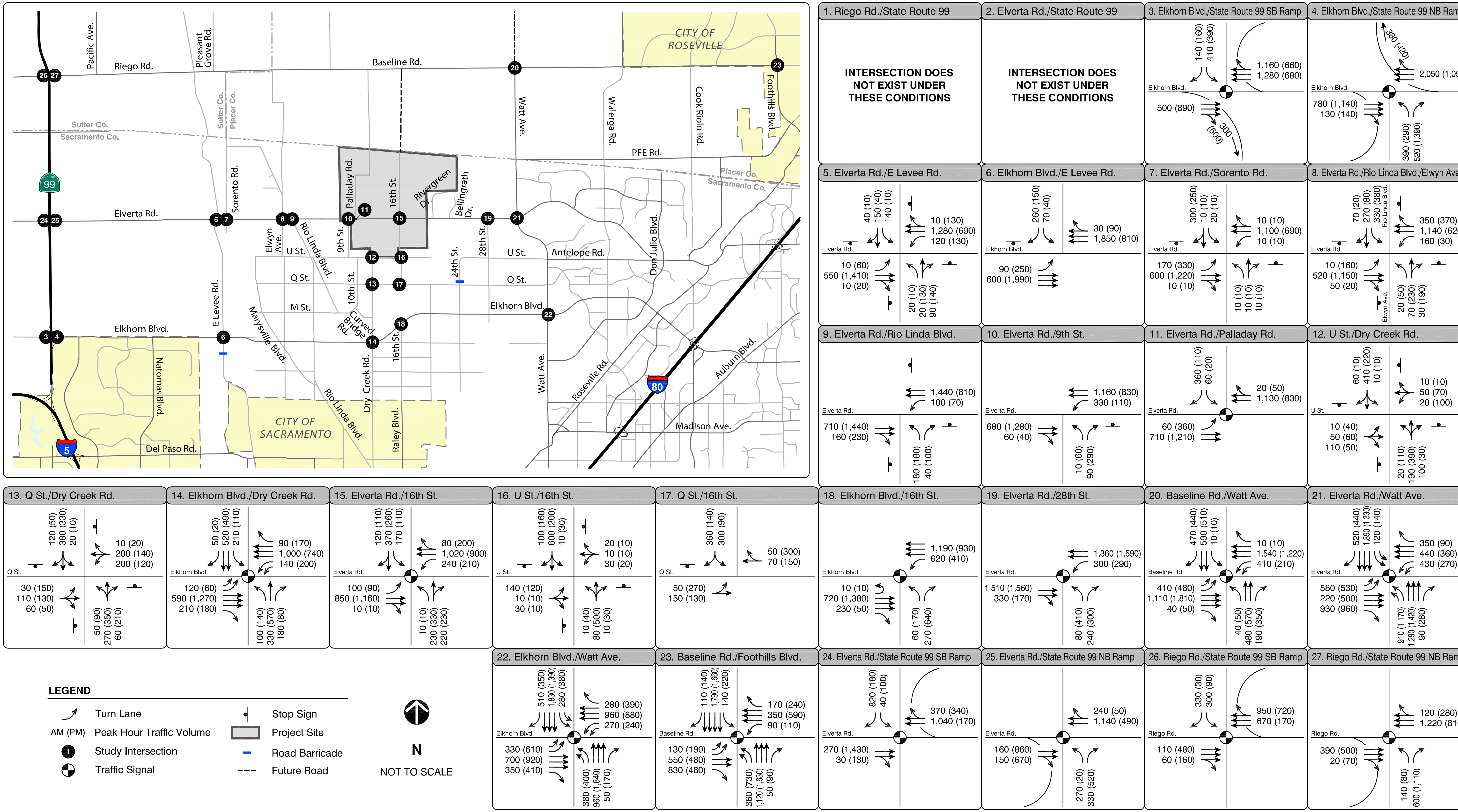
AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - CUMULATIVE NO PROJECT CONDITIONS

FIGURE 3.14-15



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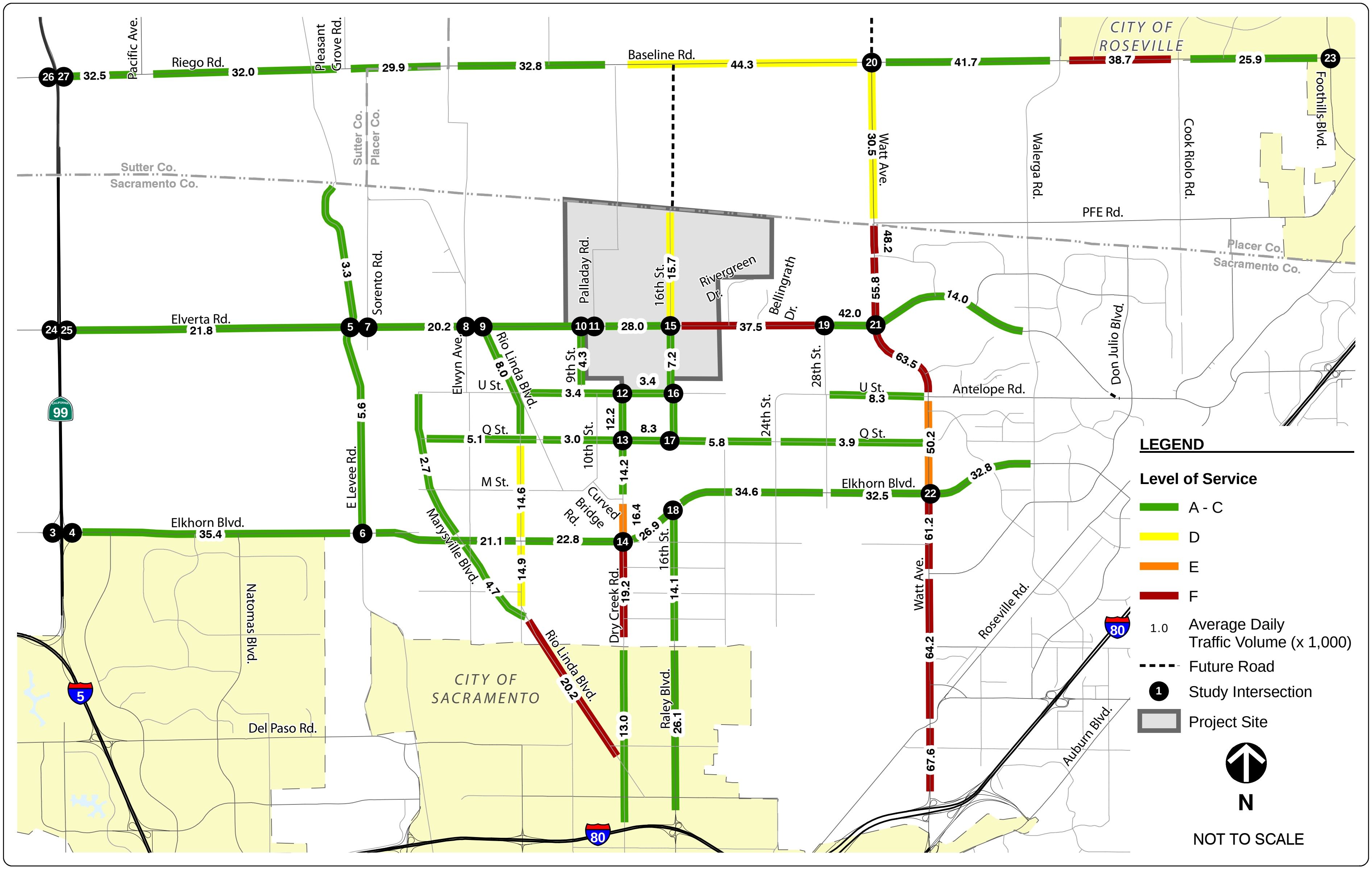
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PREFERRED ALTERNATIVE CONDITIONS

FIGURE 3.14-16



AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - CUMULATIVE PLUS PREFERRED ALTERNATIVE CONDITIONS

FIGURE 3.14-17

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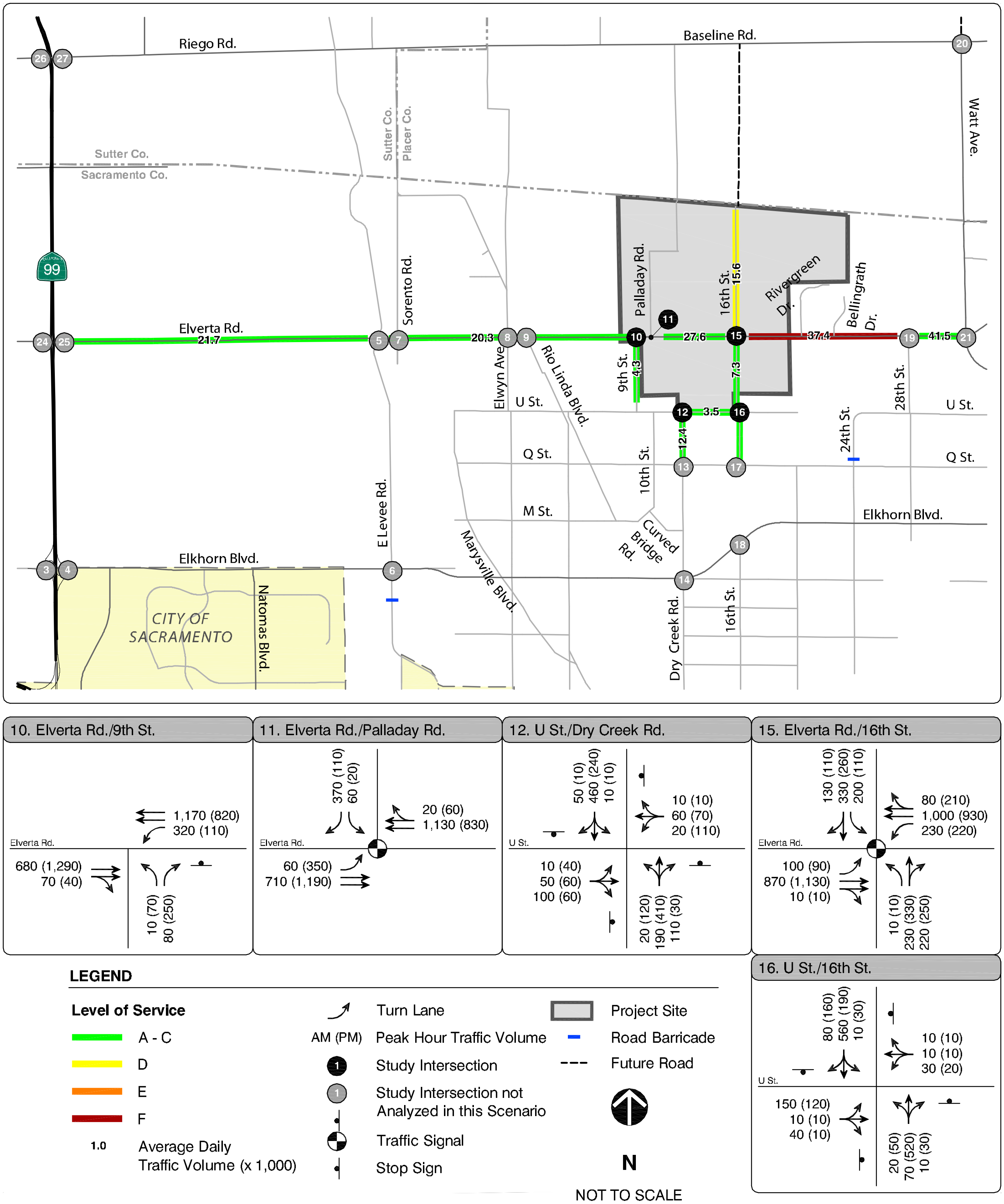

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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS APPROVED SPECIFIC PLAN ALTERNATIVE

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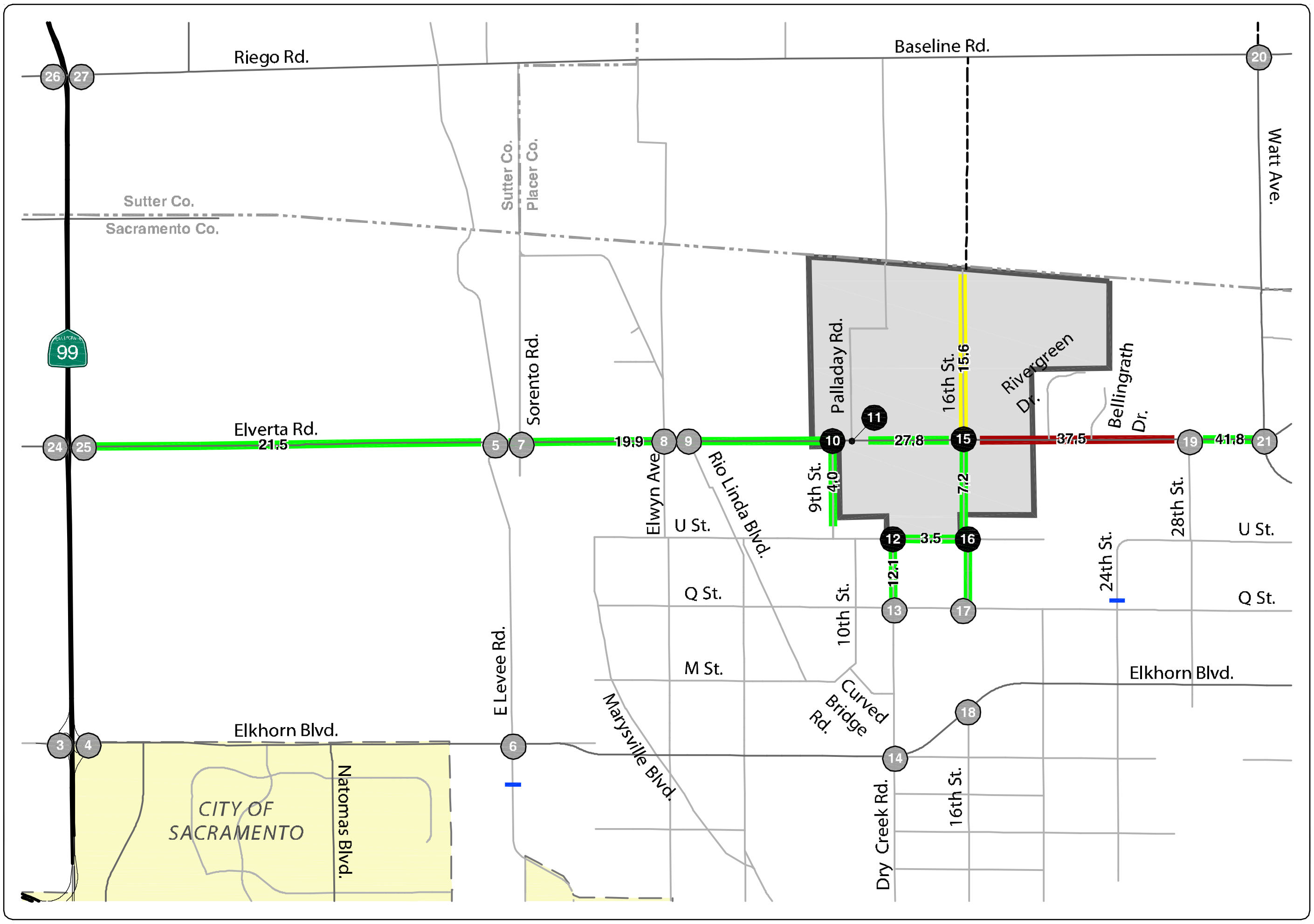
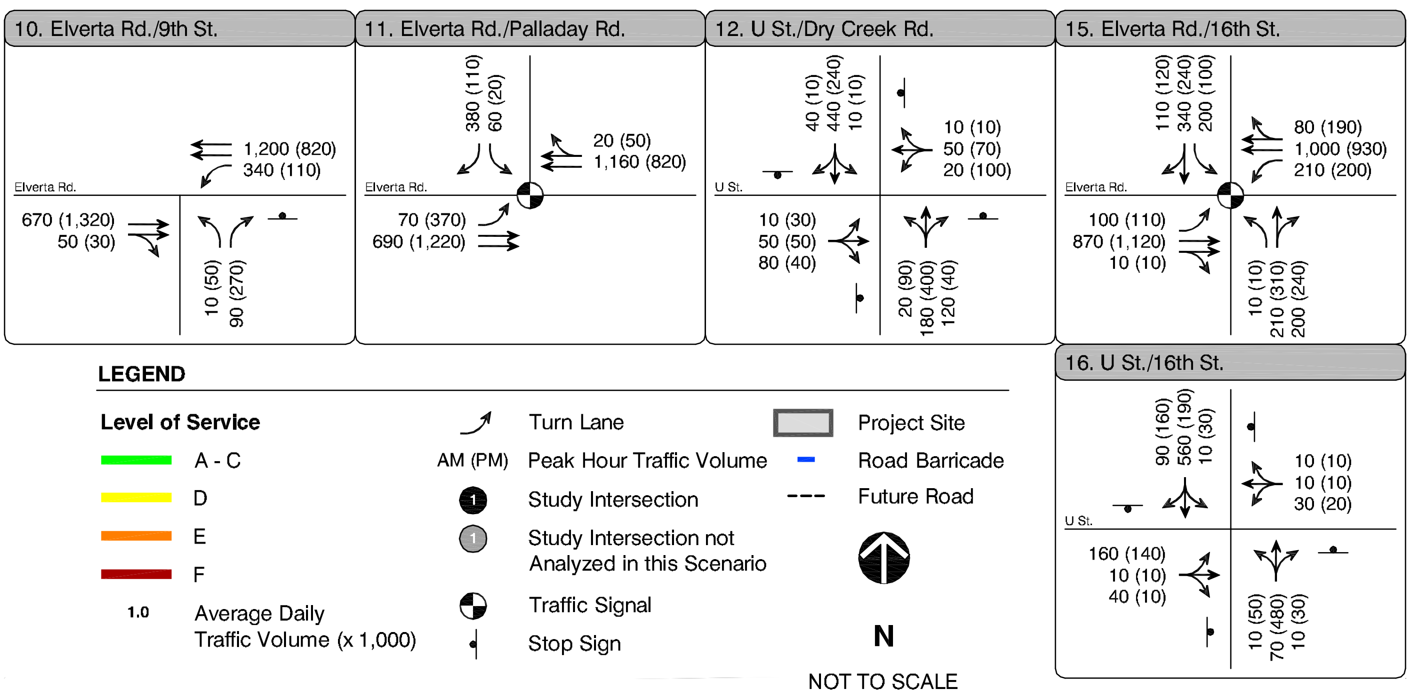
FIGURE 3.14-18





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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS MINIMAL IMPACT ALTERNATIVE

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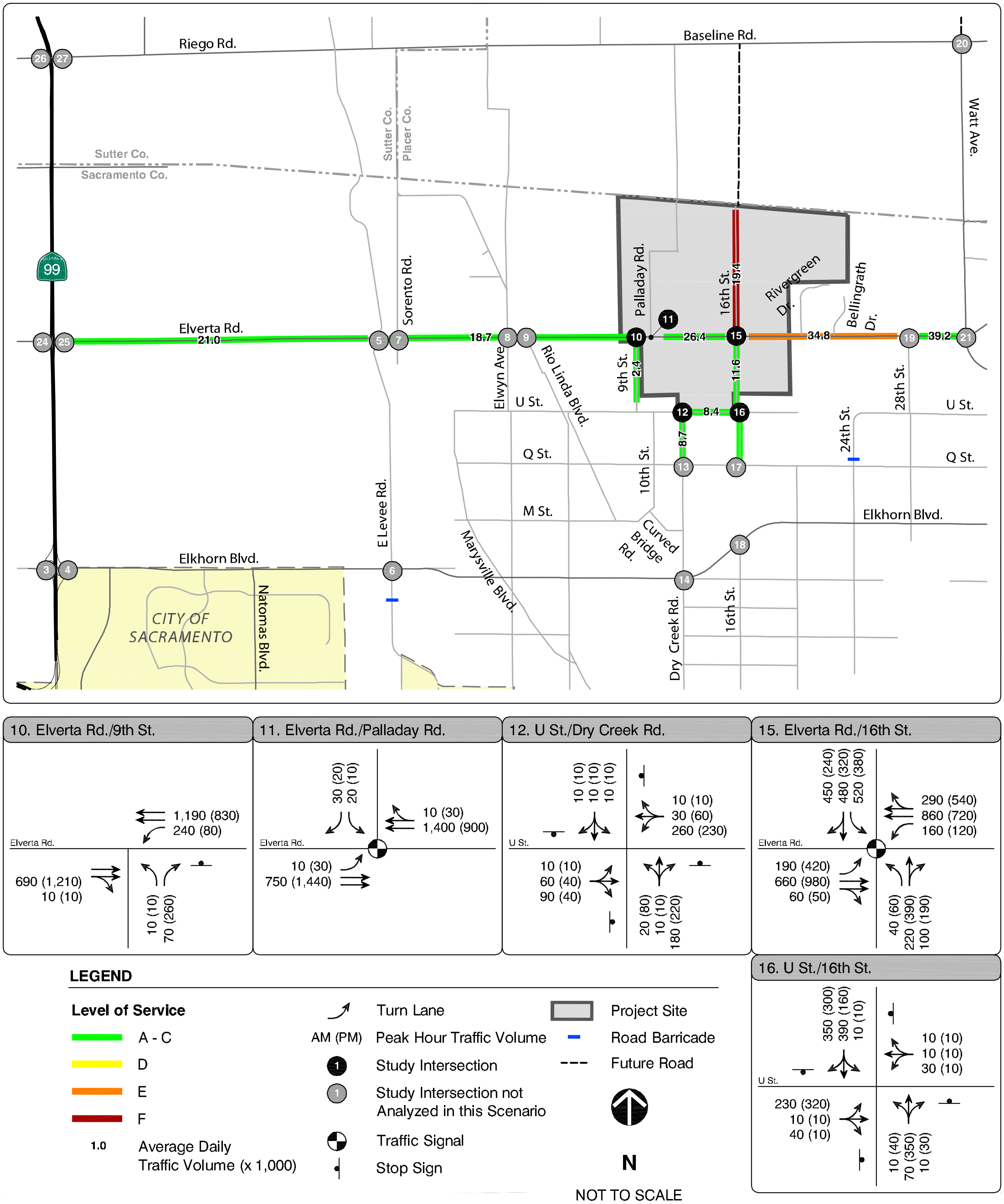
FIGURE 3.14-19



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Nov 17, 2010 TR
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AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS NO FEDERAL ACTION ALTERNATIVE

FIGURE 3.14-20

Table 19
Peak Hour Intersection LOS – Cumulative Plus Preferred Alternative Conditions

	Intersection	Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Cumulative No Project Conditions		Cumulative Plus Preferred Alternative Conditions	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
3	SR 99 SB Off-Ramp / Elkhorn Blvd	Caltrans (E)	Traffic Signal	AM	14	B	15	B
				PM	14	B	15	B
4	SR 99 NB Off-Ramp / Elkhorn Blvd	Caltrans (E)	Traffic Signal	AM	15	B	15	B
				PM	**96**	**F**	**103**	**F**
5	Elverta Road / E. Levee Road	County of Sacramento (E)	All Way Stop	AM	**102**	**F**	**>150**	**F**
				PM	**144**	**F**	**>150**	**F**
6	Elkhorn Blvd / E. Levee Road	County of Sacramento (E)	Side Street Stop	AM	**>150**	**F**	**>150**	**F**
				PM	**>150**	**F**	**>150**	**F**
7	Elverta Road / Sorento Road	County of Sacramento (E)	Side Street Stop	AM	**>150**	**F**	**>150**	**F**
				PM	**>150**	**F**	**>150**	**F**
8	Elverta Road / Elwyn Road	County of Sacramento (E)	All Way Stop	AM	**139**	**F**	**>150**	**F**
				PM	**>150**	**F**	**>150**	**F**
9	Elverta Road / Rio Linda Blvd	County of Sacramento (E)	All Way Stop	AM	**79**	**F**	**>150**	**F**
				PM	**148**	**F**	**>150**	**F**
10	Elverta Road / 9th Street	County of Sacramento (E)	Side Street Stop	AM	**107**	**F**	**>150**	**F**
				PM	**103**	**F**	**>150**	**F**
11	Elverta Road / Palladay Road	County of Sacramento (E)	Traffic Signal	AM	**68**	**F**	12	B
				PM	**>150**	**F**	11	B
12	U Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	10	A	16	C
				PM	11	B	22	C
13	Q Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	17	C	**80**	**F**
				PM	30	D	**137**	**F**
14	Elkhorn Blvd / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	20	C	25	C
				PM	41	D	41	D
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	46	D
				PM	**>150**	**F**	58	E
16	U Street / 16th Street	County of Sacramento (E)	All Way Stop	AM	22	C	38	E
				PM	15	B	21	C
17	Q Street / 16th Street	County of Sacramento (E)	Side Street Stop	AM	12	B	24	B
				PM	17	C	32	D
18	Elkhorn Blvd / 16th Street	County of Sacramento (E)	Traffic Signal	AM	58	E	59	E
				PM	50	D	48	D
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	45	D	**128**	**F**
				PM	**92**	**F**	**>150**	**F**
20	Baseline Road / Watt Avenue	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	26	C	27	C
				PM	25	C	25	C
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	**112**	**F**	**>150**	**F**
				PM	**93**	**F**	**123**	**F**

Table 19
Peak Hour Intersection LOS – Cumulative Plus Preferred Alternative Conditions

	Intersection	Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Cumulative No Project Conditions		Cumulative Plus Preferred Alternative Conditions	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
22	Elkhorn Blvd / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	48	D	49	D
				PM	57	E	62	E
23	Baseline Road / Foothills Blvd	City of Roseville (C)	Traffic Signal	AM	**55**	**D**	**56**	**E**
				PM	**45**	**D**	**46**	**D**
24	SR 99 SB Ramps / Elverta Road	Caltrans (E)	Traffic Signal	AM	31	C	55	D
				PM	7	A	7	A
25	SR 99 NB Ramps / Elverta Road	Caltrans (E)	Traffic Signal	AM	12	B	10	B
				PM	12	B	16	B
26	SR 99 SB Ramps / Riego Road	Caltrans (E)	Traffic Signal	AM	9	A	9	A
				PM	4	A	4	A
27	SR 99 NB Ramps / Riego Road	Caltrans (E)	Traffic Signal	AM	12	B	13	B
				PM	35	C	47	D

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

Table 20
Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum LOS)	No. of Lanes	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
Riego Road /Baseline Road	SR 99 to Pacific Avenue	County of Sutter (D)	6	31,200	0.40	C	32,500	0.42	C
	Pacific Avenue to Pleasant Grove Road (South)	County of Sutter (D)	6	30,800	0.40	C	32,000	0.41	C
	Pleasant Grove Road (South) to Locust Road	County of Placer - Placer Vineyards Frontage (D)	6	28,600	0.53	A	29,900	0.55	A
	Locust Road to Palladay Road	County of Placer - Placer Vineyards Frontage (D)	6	31,900	0.59	A	32,800	0.61	B
	Palladay Road to Watt Avenue	County of Placer - Placer Vineyards Frontage (D)	6	43,000	0.80	C	44,300	0.82	D
	Watt Avenue to Walerga Road	County of Placer - Placer Vineyards Frontage (D)	6	41,300	0.76	C	41,700	0.77	C
	Walerga Road to Cook-Riolo Road	County of Placer (C)	4	38,500	**1.07**	**F**	38,700	**1.08**	**F**
	Cook-Riolo Road to Foothills Boulevard	County of Placer (C)	4	25,700	0.71	C	25,900	0.72	C
Elverta Road	SR 99 to E. Levee Road	County of Sacramento - Rural (D)	4	19,000	0.53	A	21,800	0.61	B
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	4	16,800	0.47	A	20,200	0.56	A
	Palladay Road to 16th Street	County of Sacramento - Urban (E)	4	18,800	0.52	A	28,000	0.78	C
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	26,200	0.73	C	37,500	**1.04**	**F**
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	6	32,600	0.60	B	42,000	0.78	C
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	6	13,100	0.24	A	14,000	0.26	A

Table 20
Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum LOS)	No. of Lanes	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
Elkhorn Boulevard	SR 99 to E. Levee Road	County of Sacramento - Urban (E)	6	33,900	0.63	B	35,400	0.66	B
	E. Levee Road to Rio Linda Boulevard	County of Sacramento - Urban (E)	6	20,300	0.38	A	21,100	0.39	A
	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	6	22,500	0.42	A	22,800	0.42	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	6	26,500	0.49	A	26,900	0.50	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	6	34,800	0.64	B	34,600	0.64	B
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	6	31,900	0.59	A	32,500	0.60	B
	Watt Avenue to Walerga Road	County of Sacramento - Urban (E)	6	33,200	0.61	B	32,800	0.61	B
Watt Avenue	Baseline Road to PFE Road	County of Placer - Placer Vineyards Frontage (D)	4	30,800	0.86	D	30,500	0.85	D
	PFE Road to Black Eagle Drive	County of Sacramento - Urban (E)	2	47,600	**2.64**	**F**	48,200	**2.68**	**F**
	Black Eagle Drive to Elverta Road	County of Sacramento - Urban (E)	6	55,100	**1.02**	**F**	55,800	**1.03**	**F**
	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	4	56,700	**1.58**	**F**	63,500	**1.76**	**F**
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	6	47,400	0.88	D	50,200	0.93	E
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	56,500	**1.05**	**F**	61,200	**1.13**	**F**
	Don Julio Boulevard to Roseville Road	County of Sacramento - Urban (E)	6	62,400	**1.16**	**F**	64,200	**1.19**	**F**
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	66,600	**1.23**	**F**	67,600	**1.25**	**F**

Table 20
Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum LOS)	No. of Lanes	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
U Street	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	2,500	0.14	A	3,400	0.19	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	6,300	0.35	A	3,400	0.19	A
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	2	6,700	0.37	A	8,300	0.46	A
Q Street	Marysville Boulevard to Rio Linda Boulevard	County of Sacramento - Urban (E)	2	4,200	0.23	A	5,100	0.28	A
	Rio Linda Boulevard to Dry Creek Road	County of Sacramento - Urban (E)	2	2,500	0.14	A	3,000	0.17	A
	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	7,200	0.40	A	8,300	0.46	A
	16th Street to 24th Street	County of Sacramento - Urban (E)	2	4,000	0.22	A	5,800	0.32	A
	24th Street to Watt Avenue	County of Sacramento - Urban (E)	2	3,900	0.22	A	3,900	0.22	A
East Levee Road	Sutter County Line to Elverta Road	County of Sacramento - Urban (E)	2	3,500	0.19	A	3,300	0.18	A
	Elverta Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	5,000	0.28	A	5,600	0.31	A
Marysville Boulevard	Dry Creek Road to Rio Linda Boulevard	City of Sacramento (D)	2	19,400	**1.08**	**F**	20,200	**1.12**	**F**
	Rio Linda Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	4,800	0.27	A	4,700	0.26	A
	Elkhorn Boulevard to U Street	County of Sacramento - Urban (E)	2	1,900	0.11	A	2,700	0.15	A

Table 20
Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions

Roadway	Segment	Jurisdiction (Minimum LOS)	No. of Lanes	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS
Rio Linda Blvd	Marysville Boulevard to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	13,900	0.77	C	14,900	0.83	D
	Elkhorn Boulevard to Q Street	County of Sacramento - Urban (E)	2	13,700	0.76	C	14,600	0.81	D
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	7,700	0.43	A	8,000	0.44	A
9th St	Elverta Road to U Street	County of Sacramento - Urban (E)	2	2,600	0.14	A	4,300	0.24	A
Dry Creek Road	I-80 to Ascot Avenue	City of Sacramento (D)	2	12,000	0.67	B	13,000	0.72	C
	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	16,300	0.91	E	19,200	**1.07**	**F**
	Elkhorn Boulevard to Curved Bridge Road	County of Sacramento - Urban (E)	2	12,600	0.70	B	16,400	0.91	E
	Curved Bridge Road to Q Street	County of Sacramento - Urban (E)	2	9,600	0.53	A	14,200	0.79	C
	Q Street to U Street	County of Sacramento - Urban (E)	2	6,900	0.38	A	12,200	0.68	B
16th Street	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	2	13,900	0.77	C	14,100	0.78	C
	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	7,100	0.39	A	7,200	0.40	A
	Elverta Road to County Line	County of Sacramento - Urban (E)	2	12,200	0.68	B	15,700	0.87	D
Raley Blvd	I-80 to Ascot Avenue	City of Sacramento (D)	6	24,300	0.45	A	26,100	0.48	A

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.

SOURCE: Fehr & Peers, 2010.

Table 21
Freeway Mainline LOS – Cumulative Plus Preferred Alternative Conditions

Freeway	Segment	Peak Hour	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative		
			Volume	Density (pc/ln/mi)	LOS	Volume	Density (pc/ln/mi)	LOS
SR 99 SB	Sankey Road to Riego Road	AM	4,670	**-**	**F**	4,630	**-**	**F**
		PM	2,440	21	C	2,410	21	C
	Riego Road to Elverta Road	AM	4,990	**-**	**F**	5,010	**-**	**F**
		PM	3,190	27	D	3,170	28	D
	Elverta Road to Elkhorn Boulevard	AM	4,740	**-**	**F**	4,550	**-**	**F**
		PM	3,320	29	D	3,360	30	D
	Elkhorn Boulevard to I-5	AM	5,650	**-**	**F**	5,460	**-**	**F**
		PM	3,940	29	D	3,970	29	D
SR 99 NB	I -5 to Elkhorn Boulevard	AM	3,200	22	C	2,930	20	C
		PM	5,940	**-**	**F**	6,100	**-**	**F**
	Elkhorn Boulevard to Elverta Road	AM	2,800	27	D	2,530	24	C
		PM	4,880	**-**	**F**	4,980	**-**	**F**
	Elverta Road to Riego Road	AM	2,370	23	C	2,320	22	C
		PM	5,130	**-**	**F**	5,160	**-**	**F**
	Riego Road to Sankey Road	AM	1,730	16	B	1,720	16	B
		PM	4,390	**-**	**F**	4,320	**-**	**F**

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.
"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.

SOURCE: Fehr & Peers, 2010.

Table 22:
Freeway Ramp Junction LOS – Cumulative Plus Preferred Alternative Conditions

Freeway	Ramp Junction	Peak Hour	Cumulative No Project Conditions		Cumulative Plus Preferred Alternative	
			Density (pc/ln/mi)	LOS	Density (pc/ln/mi)	LOS
SR 99 SB	Elverta Road Loop On-Ramp Merge	AM	**-**	**F**	**-**	**F**
		PM	30	D	30	D
	Elverta Road Slip On-Ramp Merge	AM	**-**	**F**	**-**	**F**
		PM	31	D	32	D
	Elverta Road Off-Ramp Diverge	AM	**-**	**F**	**-**	**F**
		PM	31	D	32	D
SR 99 NB	Elverta Road Loop On-Ramp Merge	AM	24	C	23	C
		PM	**-**	**F**	**-**	**F**
	Elverta Road Slip On-Ramp Merge	AM	25	C	25	C
		PM	**-**	**F**	**-**	**F**
	Elverta Road Off-Ramp Diverge	AM	31	D	28	C
		PM	**-**	**F**	**-**	**F**

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.
"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.
SOURCE: Fehr & Peers, 2010.

Table 23
Peak Hour Intersection LOS – Cumulative Plus Project Conditions

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	Cumulative No Project Conditions		Cumulative Plus Preferred Alternative		Cumulative Plus Approved Specific Plan Alternative		Cumulative Plus Minimal Impact Alternative			
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS		
10	Elverta Road / 9th Street	County of Sacramento (E)	Side Street Stop	AM	**107**	**F**	**>150**	**F**	**>150**	**F**	**>150**	**F**		
				PM	**103**	**F**	**>150**	**F**	**>150**	**F**	**>150**	**F**		
11	Elverta Road / Palladay Road	County of Sacramento (E)	Traffic Signal	AM	**68**	**F**	12	B	12	B	13	B		
				PM	**>150**	**F**	11	B	12	B	12	B		
12	U Street / Dry Creek Road	County of Sacramento (E)	All Way Stop	AM	10	A	16	C	18	C	16	C		
				PM	11	B	22	C	29	D	21	C		
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	46	D	49	D	45	D		
				PM	**>150**	**F**	58	E	58	E	54	D		
16	U Street / 16th Street	County of Sacramento (E)	All Way Stop	AM	22	C	38	E	27	D	29	D		
				PM	15	B	21	C	24	C	21	C		

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.
>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.
SOURCE: Fehr & Peers, 2010.

Table 24
Roadway Segment LOS – Cumulative Plus Project Conditions

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	Cumulative No Project Conditions			Cumulative Plus Preferred Alternative			Cumulative Plus Approved Specific Plan Alternative			Cumulative Plus Minimal Impact Alternative			Cumulative Plus No Permit Alternative		
				ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Elverta Road	SR 99 to E. Levee Road	County of Sacramento - Rural (D)	4	19,000	0.53	A	21,800	0.61	B	21,700	0.60	B	21,500	0.60	A	21,700	0.60	B
Elverta Road	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	4	16,800	0.47	A	20,200	0.56	A	20,300	0.56	A	19,900	0.55	A	19,600	0.54	A
Elverta Road	Palladay Road to 16th Street	County of Sacramento - Urban (E)	4	18,800	0.52	A	28,000	0.78	C	27,600	0.77	C	27,800	0.77	C	22,000	0.61	B
Elverta Road	16th Street to 28th Street	County of Sacramento - Urban (E)	4	26,200	0.73	C	37,500	**1.04**	**F**	37,400	**1.04**	**F**	37,500	**1.04**	**F**	28,300	0.79	C
Elverta Road	28th Street to Watt Avenue	County of Sacramento - Urban (E)	6	32,600	0.60	B	42,000	0.78	C	41,500	0.77	C	41,800	0.77	C	34,300	0.64	B
U Street	Dry Creek Road to 16th Street	County of Sacramento - Urban (E)	2	6,300	0.35	A	3,400	0.19	A	3,500	0.19	A	3,500	0.19	A	6,600	0.37	A
9th Street	Elverta Road to U Street	County of Sacramento - Urban (E)	2	2,600	0.14	A	4,300	0.24	A	4,300	0.24	A	4,000	0.22	A	3,000	0.17	A
Dry Creek Road	Q Street to U Street	County of Sacramento - Urban (E)	2	6,900	0.38	A	12,200	0.68	B	12,400	0.69	B	12,100	0.67	B	7,200	0.40	A
16th Street	Q Street to Elverta Road	County of Sacramento - Urban (E)	2	7,100	0.39	A	7,200	0.40	A	7,300	0.41	A	7,200	0.40	A	8,000	0.44	A
16th Street	Elverta Road to County Line	County of Sacramento - Urban (E)	2	12,200	0.68	B	15,700	0.87	D	15,600	0.87	D	15,600	0.87	D	18,400	**1.02**	**F**

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.

SOURCE: Fehr & Peers, 2010.

Table 25
Traffic Signal Warrant Analysis – Cumulative Plus Project Conditions

	Intersection	Control	Peak Hour	Peak Hour Signal Warrant Met? Cumulative No Project Conditions	Cumulative Plus Project Conditions[1]
5	Elverta Road / E. Levee Road	All Way Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
6	Elkhorn Blvd / E. Levee Road	Side Street Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
7	Elverta Road / Sorento Road	Side Street Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
8	Elverta Road / Elwyn Road	All Way Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
9	Elverta Road / Rio Linda Blvd	All Way Stop	AM	**YES**	**YES**
			PM	**YES**	**YES**
10	Elverta Road / 9th Street	Side Street Stop	AM	No	**YES**[2]
			PM	**YES**	**YES**
12	U Street / Dry Creek Road	All Way Stop	AM	No	No
			PM	No	No
13	Q Street / Dry Creek Road	All Way Stop	AM	No	**YES**
			PM	No	**YES**
16	U Street / 16th Street	All Way Stop	AM	No	No[3]
			PM	No	No[3]
17	Q Street / 16th Street	Side Street Stop	AM	No	**YES**
			PM	No	No

Notes: [1] Applies to all project alternatives unless otherwise noted.
[2] Traffic signal not warranted under Cumulative Plus No Federal Action Alternative or Cumulative Plus Approved Specific Plan.
[3] Traffic signal warranted under Cumulative Plus No Federal Action Alternative only.

SOURCE: Fehr & Peers, 2010.

Table 26
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Preferred Alternative (Alternative 1)			Preferred Alternative with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
Existing Conditions											
Baseline Road	Walerga Road to Cook-Riolo Road	County of Placer (C)	4	13,000	0.72	C	15,200	**0.84**	**D**	0.42	A
Elverta Road	SR 99 to E. Levee Road	County of Sacramento – Rural (D)	4	5,600	0.31	A	17,600	**0.98**	**E**	0.49	A
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	4	7,000	0.39	A	20,600	**1.14**	**F**	0.57	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	10,400	0.58	A	33,300	**1.85**	**F**	0.93	E
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	4	14,100	0.78	C	33,200	**1.84**	**F**	0.92	E
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	23,800	0.66	B	38,000	**1.06**	**F**	0.70	C
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	6	29,600	0.82	D	38,900	**1.08**	**F**	0.72	C
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	34,600	0.96	E	45,500	**1.26**	**F**	0.84	D
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	54,700	**1.01**	**F**	59,600	**1.10**	**F**	**1.10**	**F**
Dry Creek Road	Elkhorn Blvd to Curved Bridge Road	County of Sacramento - Urban (E)	4	6,700	0.37	A	18,700	**1.04**	**F**	0.52	A
Raley Blvd	I-80 to Ascot Avenue	City of Sacramento (D)	4	13,000	0.72	C	19,000	**1.06**	**F**	0.53	A

Table 26
Roadway Segment LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation

Roadway	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Preferred Alternative (Alternative 1)			Preferred Alternative with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
Cumulative Conditions											
Elverta Road	16th Street to 28th Street	County of Sacramento - Urban (E)	6	26,200	0.73	C	37,500	**1.04**	**F**	0.69	B
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	56,700	**1.58**	**F**	63,500	**1.76**	**F**	**1.18**	**F**
Watt Avenue	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	56,500	**1.05**	**F**	61,200	**1.13**	**F**	**1.13**	**F**
Dry Creek Road	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	4	16,300	0.91	E	19,200	**1.07**	**F**	0.53	A

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

Table 27
Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5) Delay (sec/veh)	No Project (Alternative 5) LOS	Preferred Alternative (Alternative 1) Delay (sec/veh)	Preferred Alternative (Alternative 1) LOS	Preferred Alternative With Mitigation Delay (sec/veh)	Preferred Alternative With Mitigation LOS
Existing Conditions										
2	SR 99 / Elverta Road	Caltrans (E)	Traffic Signal	AM	70	E	**> 150**	**F**	N/A[1]	N/A[1]
				PM	26	C	**82**	**F**	N/A[1]	N/A[1]
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	23	C	26	D	13	B
				PM	**141**	**F**	**> 150**	**F**	50	D
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	15	C	**> 150**	**F**	14	B
				PM	27	D	**> 150**	**F**	13	B
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	13	B	43	E	8	A
				PM	29	D	**> 150**	**F**	17	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	14	B	**> 150**	**F**	15	B
				PM	37	E	**> 150**	**F**	19	B
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	13	B	**> 150**	**F**	6	A
				PM	19	C	**> 150**	**F**	11	B
12	U Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	7	A	29	D	16	B
				PM	8	A	**112**	**F**	19	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	9	A	**118**	**F**	26	C
				PM	9	A	**> 150**	**F**	40	D
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	16	C	48	D	43	D
				PM	18	C	**131**	**F**	67	E
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	69	E	**> 150**	**F**	16	B
				PM	**137**	**F**	**> 150**	**F**	24	C
20	Baseline Road / Watt Avenue	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	**76**	**E**	**95**	**F**	19	B
				PM	33	C	45	D	45	D
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	35	C	**127**	**F**	61	E
				PM	31	C	**> 150**	**F**	73	E
Cumulative Conditions										
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	15	B	15	B	15	B
				PM	**96**	**F**	**103**	**F**	29	C
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**102**	**F**	**>150**	**F**	22	C
				PM	**144**	**F**	**>150**	**F**	22	C

Table 27
Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5)		Preferred Alternative (Alternative 1)		Preferred Alternative With Mitigation	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
6	Elkhorn Blvd / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	13	B
				PM	**>150**	**F**	**>150**	**F**	9	A
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	20	B
				PM	**>150**	**F**	**>150**	**F**	16	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	**139**	**F**	**>150**	**F**	36	D
				PM	**>150**	**F**	**>150**	**F**	61	E
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	**79**	**F**	**>150**	**F**	9	A
				PM	**148**	**F**	**>150**	**F**	13	B
10	Elverta Road / 9th Street	County of Sacramento (E)	Traffic Signal	AM	**107**	**F**	**>150**	**F**	9	A
				PM	**103**	**F**	**>150**	**F**	13	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	17	C	**80**	**F**	27	C
				PM	30	D	**137**	**F**	24	C
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	45	D	**128**	**F**	27	C
				PM	**92**	**F**	**>150**	**F**	57	E
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	**112**	**F**	**>150**	**F**	**107**	**F**
				PM	**93**	**F**	**123**	**F**	79	E

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.

Table 28
Roadway Segment LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation

Road-way	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Approved Specific Plan (Alternative 2)			Approved Specific Plan with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
Existing Conditions											
Baseline Road	Walerga Road to Cook-Riolo Road	County of Placer (C)	4	13,000	0.72	C	15,200	**0.84**	**D**	0.42	A
Elverta Road	SR 99 to E. Levee Road	County of Sacramento – Rural (D)	4	5,600	0.31	A	17,600	**0.98**	**E**	0.49	A
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	4	7,000	0.39	A	20,100	**1.12**	**F**	0.56	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	10,400	0.58	A	33,300	**1.85**	**F**	0.93	E
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	4	14,100	0.78	C	33,200	**1.84**	**F**	0.92	E
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	23,800	0.66	B	38,000	**1.06**	**F**	0.70	C
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	6	29,600	0.82	D	38,900	**1.08**	**F**	0.72	C
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	34,600	0.96	E	45,500	**1.26**	**F**	0.84	D

Table 28
Roadway Segment LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation

Road-way	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Approved Specific Plan (Alternative 2)			Approved Specific Plan with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	54,700	**1.01**	**F**	59,600	**1.10**	**F**	**1.10**	**F**
Dry Creek Road	Elkhorn Boulevard to Curved Bridge Road	County of Sacramento - Urban (E)	4	6,700	0.37	A	18,700	**1.04**	**F**	0.52	A
Raley Boulevard	I-80 to Ascot Avenue	City of Sacramento (D)	4	13,000	0.72	C	19,000	**1.06**	**F**	0.53	A
Cumulative Conditions											
Elverta Road	16th Street to 28th Street	County of Sacramento - Urban (E)	6	26,200	0.73	C	37,400	**1.04**	**F**	0.69	B
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	56,700	**1.58**	**F**	63,100	**1.75**	**F**	**1.17**	**F**
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	56,500	**1.05**	**F**	61,000	**1.13**	**F**	**1.13**	**F**
Dry Creek Road	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	4	16,300	0.91	E	19,600	**1.09**	**F**	0.54	A

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

Table 29
Peak Hour Intersection LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5) Delay (sec/veh)	No Project (Alternative 5) LOS	Approved Specific Plan Alternative (Alternative 2) Delay (sec/veh)	Approved Specific Plan Alternative (Alternative 2) LOS	Approved Specific Plan Alternative With Mitigation Delay (sec/veh)	Approved Specific Plan Alternative With Mitigation LOS
Existing Conditions										
2	SR 99 / Elverta Road	Caltrans (E)	Traffic Signal	AM	70	E	**> 150**	**F**	N/A[1]	N/A[1]
				PM	26	C	**82**	**F**	N/A[1]	N/A[1]
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	23	C	26	D	13	B
				PM	**141**	**F**	**> 150**	**F**	50	D
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	15	C	**> 150**	**F**	14	B
				PM	27	D	**> 150**	**F**	13	B
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	13	B	43	E	8	A
				PM	29	D	**> 150**	**F**	17	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	14	B	**> 150**	**F**	15	B
				PM	37	E	**> 150**	**F**	19	B
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	13	B	**> 150**	**F**	6	A
				PM	19	C	**> 150**	**F**	11	B
12	U Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	7	A	29	D	16	B
				PM	8	A	**111**	**F**	18	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	9	A	**118**	**F**	26	C
				PM	9	A	**> 150**	**F**	40	D
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	16	C	48	D	43	D
				PM	18	C	**130**	**F**	66	E
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	69	E	**> 150**	**F**	16	B
				PM	**137**	**F**	**> 150**	**F**	24	C
20	Baseline Road / Watt Avenue	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	**76**	**E**	**95**	**F**	19	B
				PM	33	C	45	D	45	D
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	35	C	**127**	**F**	61	E
				PM	31	C	**> 150**	**F**	73	E
Cumulative Conditions										
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	15	B	15	B	15	B
				PM	**96**	**F**	**103**	**F**	29	C
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**102**	**F**	**>150**	**F**	22	C
				PM	**144**	**F**	**>150**	**F**	22	C

Table 29
Peak Hour Intersection LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5)		Approved Specific Plan Alternative (Alternative 2)		Approved Specific Plan Alternative With Mitigation	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
6	Elkhorn Blvd / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	13	B
				PM	**>150**	**F**	**>150**	**F**	9	A
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	20	B
				PM	**>150**	**F**	**>150**	**F**	16	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	**139**	**F**	**>150**	**F**	36	D
				PM	**>150**	**F**	**>150**	**F**	61	E
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	**79**	**F**	**>150**	**F**	9	A
				PM	**148**	**F**	**>150**	**F**	13	B
10	Elverta Road / 9th Street	County of Sacramento (E)	Traffic Signal	AM	**107**	**F**	**>150**	**F**	9	A
				PM	**103**	**F**	**>150**	**F**	11	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	17	C	**80**	**F**	27	C
				PM	30	D	**137**	**F**	24	C
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	45	D	**128**	**F**	27	C
				PM	**92**	**F**	**>150**	**F**	57	E
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	**112**	**F**	**>150**	**F**	**107**	**F**
				PM	**93**	**F**	**123**	**F**	79	E

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.

Table 30
Roadway Segment LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation

Road-way	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Minimal Impact (Alternative 3)			Minimal Impact with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
Existing Conditions											
Baseline Road	Walerga Road to Cook-Riolo Road	County of Placer (C)	4	13,000	0.72	C	15,100	**0.84**	**D**	0.42	A
Elverta Road	SR 99 to E. Levee Road	County of Sacramento – Rural (D)	4	5,600	0.31	A	17,000	**0.94**	**E**	0.47	A
	E. Levee Road to Palladay Road	County of Sacramento - Urban (E)	4	7,000	0.39	A	19,500	**1.08**	**F**	0.54	A
	16th Street to 28th Street	County of Sacramento - Urban (E)	4	10,400	0.58	A	32,200	**1.79**	**F**	0.89	D
	28th Street to Watt Avenue	County of Sacramento - Urban (E)	4	14,100	0.78	C	32,300	**1.79**	**F**	0.90	D
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	23,800	0.66	B	37,300	**1.04**	**F**	0.69	B
	Antelope Road to Elkhorn Boulevard	County of Sacramento - Urban (E)	6	29,600	0.82	D	38,400	**1.07**	**F**	0.71	C
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	34,600	0.96	E	45,000	**1.25**	**F**	0.83	D
	Roseville Road to I-80	County of Sacramento - Urban (E)	6	54,700	**1.01**	**F**	59,400	**1.10**	**F**	**1.10**	**F**
Dry Creek Road	Elkhorn Blvd to Curved Bridge Road	County of Sacramento - Urban (E)	4	6,700	0.37	A	18,100	**1.01**	**F**	0.50	A

Table 30
Roadway Segment LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation

Road-way	Segment	Jurisdiction (Minimum Acceptable LOS)	No. of Lanes	No Project (Alternative 5)			Minimal Impact (Alternative 3)			Minimal Impact with Mitigation	
				ADT	V/C	LOS	ADT	V/C	LOS	V/C	LOS
Raley Boulevard	I-80 to Ascot Avenue	City of Sacramento (D)	4	13,000	0.72	C	18,700	**1.04**	**F**	0.52	A
Cumulative Conditions											
Elverta Road	16th Street to 28th Street	County of Sacramento - Urban (E)	6	26,200	0.73	C	37,500	**1.04**	**F**	0.69	B
Watt Avenue	Elverta Road to Antelope Road	County of Sacramento - Urban (E)	6	56,700	**1.58**	**F**	63,100	**1.75**	**F**	**1.17**	**F**
	Elkhorn Boulevard to Don Julio Boulevard	County of Sacramento - Urban (E)	6	56,500	**1.05**	**F**	61,000	**1.13**	**F**	**1.13**	**F**
Dry Creek Road	Ascot Avenue to Elkhorn Boulevard	County of Sacramento - Urban (E)	4	16,300	0.91	E	19,300	**1.07**	**F**	0.54	A

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

Table 31
Peak Hour Intersection LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5)		Minimal Impact Alternative (Alternative 3)		Minimal Impact Alternative With Mitigation	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Existing Conditions										
2	SR 99 / Elverta Road	Caltrans (E)	Traffic Signal	AM	70	E	**> 150**	**F**	N/A[1]	N/A[1]
				PM	26	C	**82**	**F**	N/A[1]	N/A[1]
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	23	C	26	D	13	B
				PM	**141**	**F**	**> 150**	**F**	50	D
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	15	C	**> 150**	**F**	14	B
				PM	27	D	**> 150**	**F**	13	B
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	13	B	43	E	8	A
				PM	29	D	**> 150**	**F**	17	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	14	B	**> 150**	**F**	15	B
				PM	37	E	**> 150**	**F**	19	B
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	13	B	**> 150**	**F**	6	A
				PM	19	C	**> 150**	**F**	11	B
12	U Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	7	A	24	C	16	B
				PM	8	A	**83**	**F**	18	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	9	A	**118**	**F**	26	C
				PM	9	A	**> 150**	**F**	40	D
15	Elverta Road / 16th Street	County of Sacramento (E)	Traffic Signal	AM	16	C	46	D	42	D
				PM	18	C	**114**	**F**	58	E
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	69	E	**> 150**	**F**	16	B
				PM	**137**	**F**	**> 150**	**F**	24	C
20	Baseline Road / Watt Avenue	County of Placer - Placer Vineyards (D)	Traffic Signal	AM	**76**	**E**	**95**	**F**	19	B
				PM	33	C	45	D	45	D
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	35	C	**127**	**F**	61	E
				PM	31	C	**> 150**	**F**	73	E
Cumulative Conditions										
4	SR 99 NB Off-Ramp / Elkhorn Boulevard	Caltrans (E)	Traffic Signal	AM	15	B	15	B	15	C
				PM	**96**	**F**	**103**	**F**	29	C
5	Elverta Road / E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**102**	**F**	**>150**	**F**	22	C
				PM	**144**	**F**	**>150**	**F**	22	C
6	Elkhorn Boulevard/ E. Levee Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	13	B
				PM	**>150**	**F**	**>150**	**F**	9	A

Table 31
Peak Hour Intersection LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation

Intersection		Jurisdiction (Minimum Acceptable LOS)	Control	Peak Hour	No Project (Alternative 5)		Minimal Impact Alternative (Alternative 3)		Minimal Impact Alternative With Mitigation	
					Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
7	Elverta Road / Sorento Road	County of Sacramento (E)	Traffic Signal	AM	**>150**	**F**	**>150**	**F**	20	B
				PM	**>150**	**F**	**>150**	**F**	16	B
8	Elverta Road / Elwyn Road	County of Sacramento (E)	Traffic Signal	AM	**139**	**F**	**>150**	**F**	36	D
				PM	**>150**	**F**	**>150**	**F**	61	E
9	Elverta Road / Rio Linda Boulevard	County of Sacramento (E)	Traffic Signal	AM	**79**	**F**	**>150**	**F**	9	A
				PM	**148**	**F**	**>150**	**F**	13	B
10	Elverta Road / 9th Street	County of Sacramento (E)	Traffic Signal	AM	**107**	**F**	**>150**	**F**	9	A
				PM	**103**	**F**	**>150**	**F**	12	B
13	Q Street / Dry Creek Road	County of Sacramento (E)	Traffic Signal	AM	17	C	**80**	**F**	27	C
				PM	30	D	**137**	**F**	24	C
19	Elverta Road / 28th Street	County of Sacramento (E)	Traffic Signal	AM	45	D	**128**	**F**	27	C
				PM	**92**	**F**	**>150**	**F**	57	E
21	Elverta Road / Watt Avenue	County of Sacramento (E)	Traffic Signal	AM	**112**	**F**	**>150**	**F**	**107**	**F**
				PM	**93**	**F**	**123**	**F**	79	E

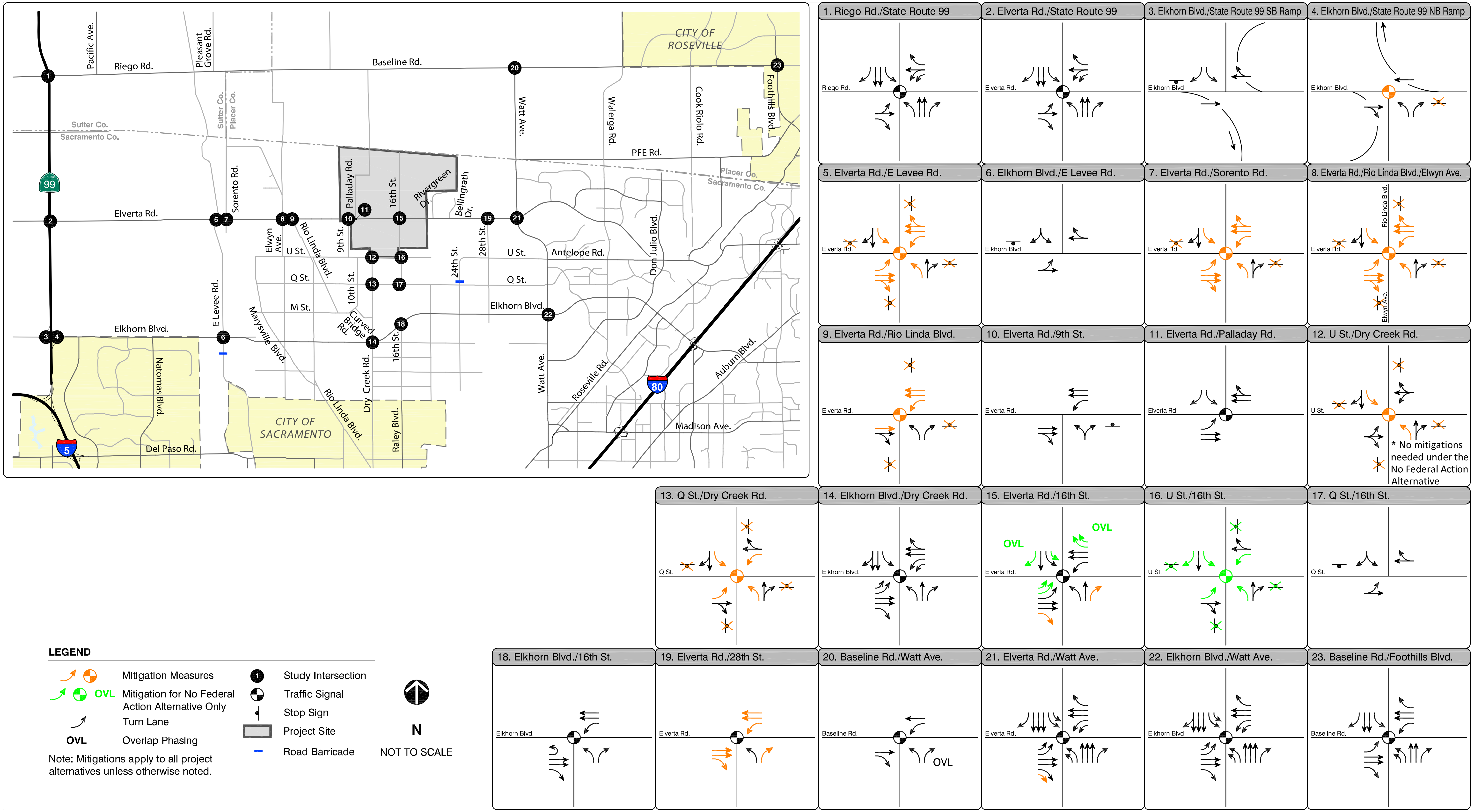
Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PROJECT WITH MITIGATION

FIGURE 4.14-1

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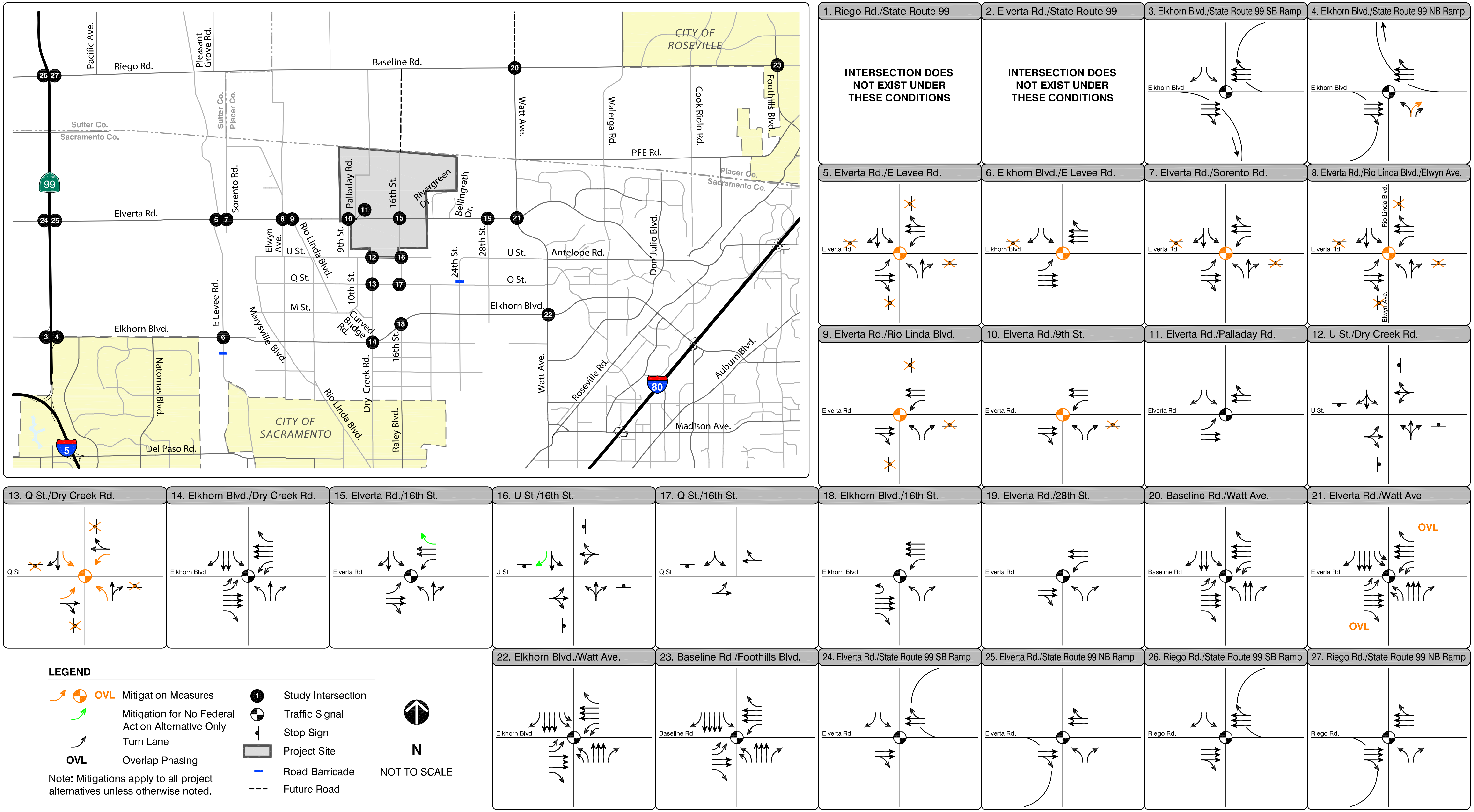

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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PROJECT WITH MITIGATION

FIGURE 4.14-2

Appendix A

Existing Conditions

Appendix A-1: Intersection Operations

Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1693	1583	1633	1641	1583	1467	2935	1357	1641	3374	1583
Flt Permitted		0.99	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1693	1583	1633	1641	1583	1467	2935	1357	1641	3374	1583
Volume (vph)	2	5	7	572	13	8	13	703	154	30	1832	3
Peak-hour factor, PHF	0.61	0.61	0.61	0.87	0.87	0.87	0.95	0.95	0.95	0.86	0.86	0.86
Adj. Flow (vph)	3	8	11	657	15	9	14	740	162	35	2130	3
RTOR Reduction (vph)	0	0	10	0	0	7	0	0	64	0	0	0
Lane Group Flow (vph)	0	11	1	329	343	2	14	740	98	35	2130	3
Heavy Vehicles (%)	2%	14%	2%	5%	5%	2%	23%	23%	19%	10%	7%	2%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		4.5	4.5	20.2	20.2	20.2	2.6	71.6	71.6	4.8	73.8	73.8
Effective Green, g (s)		6.5	6.5	22.2	22.2	22.2	2.1	74.7	74.7	4.3	76.9	76.9
Actuated g/C Ratio		0.05	0.05	0.18	0.18	0.18	0.02	0.60	0.60	0.03	0.62	0.62
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		89	83	293	295	284	25	1772	819	57	2097	984
v/s Ratio Prot		c0.01		0.20	c0.21		0.01	0.25		c0.02	c0.63	
v/s Ratio Perm			0.00			0.00			0.07			0.00
v/c Ratio		0.12	0.01	1.12	1.16	0.01	0.56	0.42	0.12	0.61	1.02	0.00
Uniform Delay, d1		55.9	55.5	50.8	50.8	41.7	60.3	13.0	10.5	58.9	23.4	8.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0	89.8	103.9	0.0	15.9	0.1	0.0	13.0	23.7	0.0
Delay (s)		56.1	55.6	140.6	154.7	41.7	76.3	13.0	10.5	71.9	47.1	8.9
Level of Service		E	E	F	F	D	E	B	B	E	D	A
Approach Delay (s)		55.8			146.4			13.6			47.4	
Approach LOS		E			F			B			D	

Intersection Summary			
HCM Average Control Delay	57.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	123.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1487	1335	1681	1687	1380	1492	2959	1482	1687	3406	1292
Flt Permitted		0.97	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1487	1335	1681	1687	1380	1492	2959	1482	1687	3406	1292
Volume (vph)	11	5	14	360	16	24	39	835	64	27	2350	34
Peak-hour factor, PHF	0.67	0.67	0.67	0.79	0.79	0.79	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	16	7	21	456	20	30	41	870	67	29	2554	37
RTOR Reduction (vph)	0	0	20	0	0	26	0	0	20	0	0	5
Lane Group Flow (vph)	0	23	1	236	240	4	41	870	47	29	2554	32
Heavy Vehicles (%)	25%	20%	21%	2%	6%	17%	21%	22%	9%	7%	6%	25%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		6.5	6.5	21.0	21.0	21.0	8.3	123.7	123.7	6.8	122.2	122.2
Effective Green, g (s)		8.5	8.5	23.0	23.0	23.0	7.8	126.8	126.8	6.3	125.3	125.3
Actuated g/C Ratio		0.05	0.05	0.13	0.13	0.13	0.04	0.70	0.70	0.03	0.69	0.69
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.2	2.0	2.0	2.2	2.0	2.0
Lane Grp Cap (vph)		70	63	214	215	176	64	2078	1041	59	2363	896
v/s Ratio Prot		c0.02		0.14	c0.14		c0.03	0.29		0.02	c0.75	
v/s Ratio Perm			0.00			0.00			0.03			0.02
v/c Ratio		0.33	0.02	1.10	1.12	0.02	0.64	0.42	0.05	0.49	1.08	0.04
Uniform Delay, d1		83.3	82.1	78.8	78.8	69.0	85.0	11.3	8.3	85.6	27.6	8.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	0.0	91.8	96.1	0.0	16.2	0.6	0.1	3.3	44.7	0.1
Delay (s)		84.3	82.1	170.6	174.9	69.0	101.2	12.0	8.4	88.8	72.3	8.8
Level of Service		F	F	F	F	E	F	B	A	F	E	A
Approach Delay (s)		83.2			166.6			15.5			71.6	
Approach LOS		F			F			B			E	

Intersection Summary			
HCM Average Control Delay	70.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	180.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	2	7	860	115	1
Peak Hour Factor	0.50	0.50	0.85	0.85	0.78	0.78
Hourly flow rate (vph)	0	4	8	1012	147	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	8				518	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8				518	514
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				72	100
cM capacity (veh/h)	1612				518	560

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	4	1020	147	1
Volume Left	0	0	147	0
Volume Right	0	1012	0	1
cSH	1700	1700	518	560
Volume to Capacity	0.00	0.60	0.28	0.00
Queue Length 95th (ft)	0	0	29	0
Control Delay (s)	0.0	0.0	14.7	11.4
Lane LOS			B	B
Approach Delay (s)	0.0	0.0	14.7	
Approach LOS			B	

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	116	1	0	860	7	273
Peak Hour Factor	0.79	0.79	0.84	0.84	0.92	0.92
Hourly flow rate (vph)	147	1	0	1024	8	297
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			147		1171	147
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			147		1171	147
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	67
cM capacity (veh/h)			1435		213	899

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	148	1024	8	297
Volume Left	0	0	8	0
Volume Right	1	0	0	297
cSH	1700	1700	213	899
Volume to Capacity	0.09	0.60	0.04	0.33
Queue Length 95th (ft)	0	0	3	36
Control Delay (s)	0.0	0.0	22.5	11.0
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	11.3	
Approach LOS			B	

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	82	4	98	395	4	1	13	19	3	35	4
Peak Hour Factor	0.68	0.68	0.68	0.85	0.85	0.85	0.75	0.75	0.75	0.83	0.83	0.83
Hourly flow rate (vph)	6	121	6	115	465	5	1	17	25	4	42	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	132	585	44	51
Volume Left (vph)	6	115	1	4
Volume Right (vph)	6	5	25	5
Hadj (s)	0.08	0.08	-0.31	-0.01
Departure Headway (s)	4.9	4.4	5.3	5.6
Degree Utilization, x	0.18	0.72	0.07	0.08
Capacity (veh/h)	703	801	598	568
Control Delay (s)	9.0	17.8	8.7	9.1
Approach Delay (s)	9.0	17.8	8.7	9.1
Approach LOS	A	C	A	A

Intersection Summary			
Delay	15.3		
HCM Level of Service	C		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	29	392	560	6	24	113
Peak Hour Factor	0.96	0.96	0.89	0.89	0.80	0.80
Hourly flow rate (vph)	30	408	629	7	30	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	636				1101	633
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636				1101	633
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				87	71
cM capacity (veh/h)	943				227	480

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	439	636	171
Volume Left	30	0	30
Volume Right	0	7	141
cSH	943	1700	402
Volume to Capacity	0.03	0.37	0.43
Queue Length 95th (ft)	2	0	52
Control Delay (s)	1.0	0.0	20.5
Lane LOS	A		C
Approach Delay (s)	1.0	0.0	20.5
Approach LOS			C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	99	1	3	447	2	0	1	5	0	1	50
Peak Hour Factor	0.91	0.91	0.91	0.82	0.82	0.82	0.63	0.63	0.63	0.85	0.85	0.85
Hourly flow rate (vph)	4	109	1	4	545	2	0	2	8	0	1	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	548			110			731	673	109	681	672	546
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	548			110			731	673	109	681	672	546
tC, single (s)	4.1			4.3			7.1	6.5	6.5	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.5	3.5	4.2	3.3
p0 queue free %	100			100			100	100	99	100	100	89
cM capacity (veh/h)	1022			1349			298	374	885	358	347	537

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	114	551	10	60
Volume Left	4	4	0	0
Volume Right	1	2	8	59
cSH	1022	1349	721	532
Volume to Capacity	0.00	0.00	0.01	0.11
Queue Length 95th (ft)	0	0	1	9
Control Delay (s)	0.4	0.1	10.1	12.6
Lane LOS	A	A	B	B
Approach Delay (s)	0.4	0.1	10.1	12.6
Approach LOS			B	B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	9	85	7	5	370	70	16	27	9	100	25	64
Peak Hour Factor	0.85	0.85	0.85	0.76	0.76	0.76	0.81	0.81	0.81	0.86	0.86	0.86
Hourly flow rate (vph)	11	100	8	7	487	92	20	33	11	116	29	74

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	119	493	92	64	220
Volume Left (vph)	11	7	0	20	116
Volume Right (vph)	8	0	92	11	74
Hadj (s)	0.10	0.04	-0.50	0.07	-0.04
Departure Headway (s)	5.6	5.0	3.2	6.0	5.6
Degree Utilization, x	0.18	0.68	0.08	0.11	0.34
Capacity (veh/h)	591	703	1121	514	589
Control Delay (s)	9.8	17.9	6.5	9.7	11.5
Approach Delay (s)	9.8	16.1		9.7	11.5
Approach LOS	A	C		A	B

Intersection Summary			
Delay	13.9		
HCM Level of Service	B		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	132	82	59	385	49	28
Peak Hour Factor	0.89	0.89	0.89	0.89	0.71	0.71
Hourly flow rate (vph)	148	92	66	433	69	39

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	240	499	69	39
Volume Left (vph)	0	66	69	0
Volume Right (vph)	92	0	0	39
Hadj (s)	-0.14	0.07	0.57	-0.58
Departure Headway (s)	4.7	4.6	6.8	5.6
Degree Utilization, x	0.31	0.64	0.13	0.06
Capacity (veh/h)	740	765	474	573
Control Delay (s)	9.8	15.3	9.6	7.8
Approach Delay (s)	9.8	15.3	8.9	
Approach LOS	A	C	A	

Intersection Summary			
Delay	12.9		
HCM Level of Service	B		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	184	1	13	414	0	24
Peak Hour Factor	0.86	0.86	0.94	0.94	0.60	0.60
Hourly flow rate (vph)	214	1	14	440	0	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			215		683	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			215		683	215
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			99		100	95
cM capacity (veh/h)			1281		411	811

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	215	454	40
Volume Left	0	14	0
Volume Right	1	0	40
cSH	1700	1281	811
Volume to Capacity	0.13	0.01	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	0.3	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.7
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	205	421	3	2	6
Peak Hour Factor	0.85	0.85	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	4	241	453	3	3	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	456				703	454
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456				703	454
tC, single (s)	4.3				6.4	6.5
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.5
p0 queue free %	100				99	98
cM capacity (veh/h)	994				403	561

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	245	456	12
Volume Left	4	0	3
Volume Right	0	3	9
cSH	994	1700	511
Volume to Capacity	0.00	0.27	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.2	0.0	12.2
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	12.2
Approach LOS			B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	19	45	16	18	1	18	0	10	0	1	0
Peak Hour Factor	0.73	0.73	0.73	0.86	0.86	0.86	0.67	0.67	0.67	0.50	0.50	0.50
Hourly flow rate (vph)	0	26	62	19	21	1	27	0	15	0	2	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	88	41	42	2
Volume Left (vph)	0	19	27	0
Volume Right (vph)	62	1	15	0
Hadj (s)	-0.39	0.19	0.05	0.03
Departure Headway (s)	3.7	4.3	4.2	4.2
Degree Utilization, x	0.09	0.05	0.05	0.00
Capacity (veh/h)	967	829	821	819
Control Delay (s)	7.0	7.5	7.4	7.2
Approach Delay (s)	7.0	7.5	7.4	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	51	53	40	58	7	47	28	26	10	63	5
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.70	0.70	0.70	0.78	0.78	0.78
Hourly flow rate (vph)	2	60	62	45	66	8	67	40	37	13	81	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	125	119	144	100
Volume Left (vph)	2	45	67	13
Volume Right (vph)	62	8	37	6
Hadj (s)	-0.21	0.08	0.00	0.02
Departure Headway (s)	4.4	4.7	4.6	4.7
Degree Utilization, x	0.15	0.16	0.18	0.13
Capacity (veh/h)	755	713	737	716
Control Delay (s)	8.2	8.6	8.6	8.4
Approach Delay (s)	8.2	8.6	8.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.5		
HCM Level of Service	A		
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3343	1538	3400	3368		1736	1863	1538	1752	3427	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3343	1538	3400	3368		1736	1863	1538	1752	3427	
Volume (vph)	116	383	209	109	521	82	92	88	86	116	150	40
Peak-hour factor, PHF	0.72	0.72	0.72	0.90	0.90	0.90	0.63	0.63	0.63	0.84	0.84	0.84
Adj. Flow (vph)	161	532	290	121	579	91	146	140	137	138	179	48
RTOR Reduction (vph)	0	0	195	0	6	0	0	0	115	0	14	0
Lane Group Flow (vph)	161	532	95	121	664	0	146	140	22	138	213	0
Heavy Vehicles (%)	2%	8%	5%	3%	5%	5%	4%	2%	5%	3%	2%	2%
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6						8			
Actuated Green, G (s)	5.1	18.4	18.4	4.5	18.1		7.1	8.4	8.4	6.9	8.0	
Effective Green, g (s)	5.9	19.5	19.5	6.0	19.6		8.6	9.5	9.5	8.4	9.3	
Actuated g/C Ratio	0.10	0.33	0.33	0.10	0.33		0.14	0.16	0.16	0.14	0.16	
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5		5.5	5.1	5.1	5.5	5.3	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	341	1097	505	343	1111		251	298	246	248	537	
v/s Ratio Prot	c0.05	0.16		0.04	c0.20		c0.08	c0.08		0.08	0.06	
v/s Ratio Perm			0.06						0.01			
v/c Ratio	0.47	0.48	0.19	0.35	0.60		0.58	0.47	0.09	0.56	0.40	
Uniform Delay, d1	25.3	15.9	14.3	24.9	16.6		23.7	22.7	21.3	23.8	22.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.1	0.1	0.2	0.6		2.2	0.4	0.1	1.5	0.2	
Delay (s)	25.7	16.1	14.4	25.1	17.2		25.9	23.1	21.3	25.3	22.7	
Level of Service	C	B	B	C	B		C	C	C	C	C	
Approach Delay (s)		17.1			18.4			23.5			23.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	197	6	45	389	2	4	11	35	2	11	5
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.93	0.93	0.93	0.75	0.75	0.75
Hourly flow rate (vph)	9	216	7	51	442	2	4	12	38	3	15	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	444			223			797	784	220	826	786	443
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	444			223			797	784	220	826	786	443
tC, single (s)	4.2			4.2			7.1	6.6	6.2	7.3	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.5	4.1	3.3	3.7	4.0	3.3
p0 queue free %	99			96			98	96	95	99	95	99
cM capacity (veh/h)	1060			1305			280	302	817	237	309	615

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	232	495	54	24
Volume Left	9	51	4	3
Volume Right	7	2	38	7
cSH	1060	1305	535	345
Volume to Capacity	0.01	0.04	0.10	0.07
Queue Length 95th (ft)	1	3	8	6
Control Delay (s)	0.4	1.2	12.5	16.2
Lane LOS	A	A	B	C
Approach Delay (s)	0.4	1.2	12.5	16.2
Approach LOS			B	C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	29	2	3	6	3	5	1	9	7	5	30	34
Peak Hour Factor	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.82	0.82	0.82
Hourly flow rate (vph)	33	2	3	9	4	7	1	10	8	6	37	41

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	39	21	18	84
Volume Left (vph)	33	9	1	6
Volume Right (vph)	3	7	8	41
Hadj (s)	0.17	-0.09	-0.12	-0.19
Departure Headway (s)	4.3	4.1	4.0	3.9
Degree Utilization, x	0.05	0.02	0.02	0.09
Capacity (veh/h)	813	860	874	914
Control Delay (s)	7.5	7.2	7.1	7.2
Approach Delay (s)	7.5	7.2	7.1	7.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	104	68	8	15	28
Peak Hour Factor	0.72	0.72	0.85	0.85	0.92	0.92
Hourly flow rate (vph)	7	144	80	9	16	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	89				243	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	89				243	85
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.6	3.3
p0 queue free %	100				98	97
cM capacity (veh/h)	1400				731	969

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	151	89	47
Volume Left	7	0	16
Volume Right	0	9	30
cSH	1400	1700	870
Volume to Capacity	0.00	0.05	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.4	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3471	1553	1736	3539	1583	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3471	1553	1736	3539	1583	1495
Volume (vph)	1	512	51	347	686	50	104
Peak-hour factor, PHF	0.86	0.86	0.86	0.91	0.91	0.76	0.76
Adj. Flow (vph)	1	595	59	381	754	66	137
RTOR Reduction (vph)	0	0	36	0	0	0	121
Lane Group Flow (vph)	1	595	23	381	754	66	16
Heavy Vehicles (%)	2%	4%	4%	4%	2%	14%	8%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.4	25.3	25.3	22.7	40.7	6.4	6.4
Effective Green, g (s)	1.1	26.4	26.4	22.7	41.8	7.8	7.8
Actuated g/C Ratio	0.02	0.38	0.38	0.33	0.61	0.11	0.11
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	28	1330	595	572	2147	179	169
v/s Ratio Prot	0.00	c0.17		c0.22	0.21	c0.04	
v/s Ratio Perm			0.01				0.01
v/c Ratio	0.04	0.45	0.04	0.67	0.35	0.37	0.09
Uniform Delay, d1	33.4	15.8	13.3	19.8	6.8	28.3	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5	0.1	2.3	0.2	0.5	0.1
Delay (s)	33.6	16.3	13.4	22.1	7.0	28.7	27.5
Level of Service	C	B	B	C	A	C	C
Approach Delay (s)		16.1			12.1	27.9	
Approach LOS		B			B	C	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.97			1.00	0.91	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1781			1840	1630	
Flt Permitted	1.00			0.99	0.98	
Satd. Flow (perm)	1781			1840	1630	
Volume (vph)	376	103	170	508	28	51
Peak-hour factor, PHF	0.82	0.82	0.85	0.85	0.76	0.76
Adj. Flow (vph)	459	126	200	598	37	67
RTOR Reduction (vph)	6	0	0	0	47	0
Lane Group Flow (vph)	579	0	0	798	57	0
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%
Turn Type			Split			
Protected Phases	2		1	1	3	
Permitted Phases						
Actuated Green, G (s)	47.1			50.5	8.8	
Effective Green, g (s)	48.1			51.3	8.3	
Actuated g/C Ratio	0.38			0.41	0.07	
Clearance Time (s)	5.0			4.8	3.5	
Vehicle Extension (s)	6.8			6.3	2.0	
Lane Grp Cap (vph)	683			753	108	
v/s Ratio Prot	c0.32			c0.43	c0.04	
v/s Ratio Perm						
v/c Ratio	0.85			1.06	0.53	
Uniform Delay, d1	35.3			37.1	56.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	11.3			49.8	2.5	
Delay (s)	46.6			86.8	59.2	
Level of Service	D			F	E	
Approach Delay (s)	46.6			86.8	59.2	
Approach LOS	D			F	E	

Intersection Summary			
HCM Average Control Delay	69.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	125.4	Sum of lost time (s)	17.7
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	189	39	408	730	35	188
Peak-hour factor, PHF	0.93	0.93	0.97	0.97	0.81	0.81
Adj. Flow (vph)	203	42	421	753	43	232
RTOR Reduction (vph)	0	16	0	0	0	181
Lane Group Flow (vph)	203	26	421	753	43	51
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	43.5	43.5	12.0	59.1	4.5	16.5
Effective Green, g (s)	45.5	45.5	11.6	61.1	4.8	16.4
Actuated g/C Ratio	0.62	0.62	0.16	0.83	0.06	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	1147	975	278	1540	115	437
v/s Ratio Prot	0.11		c0.24	c0.40	c0.02	0.02
v/s Ratio Perm		0.02				0.01
v/c Ratio	0.18	0.03	1.51	0.49	0.37	0.12
Uniform Delay, d1	6.1	5.5	31.2	1.9	33.1	23.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	249.2	1.1	0.7	0.0
Delay (s)	6.5	5.6	280.3	3.0	33.9	23.0
Level of Service	A	A	F	A	C	C
Approach Delay (s)	6.3			102.4	24.7	
Approach LOS	A			F	C	

Intersection Summary			
HCM Average Control Delay	75.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	250	134	121	429	391	348	165	463	84	110	991	295
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	272	146	132	452	412	366	177	498	90	116	1043	311
RTOR Reduction (vph)	0	0	111	0	0	256	0	0	53	0	0	140
Lane Group Flow (vph)	272	146	21	452	412	110	177	498	37	116	1043	171
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.7	17.0	17.0	25.5	29.7	29.7	9.4	47.3	47.3	6.3	43.8	43.8
Effective Green, g (s)	14.2	18.6	18.6	27.0	31.4	31.4	10.9	48.8	48.8	7.8	45.7	45.7
Actuated g/C Ratio	0.12	0.16	0.16	0.23	0.27	0.27	0.09	0.41	0.41	0.07	0.39	0.39
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	412	557	249	784	940	421	317	2099	654	227	1966	612
v/s Ratio Prot	c0.08	0.04		c0.13	c0.12		c0.05	c0.10		0.03	c0.21	
v/s Ratio Perm			0.01			0.07			0.02			0.11
v/c Ratio	0.66	0.26	0.08	0.58	0.44	0.26	0.56	0.24	0.06	0.51	0.53	0.28
Uniform Delay, d1	49.7	43.8	42.5	40.5	36.1	34.2	51.3	22.6	20.9	53.4	28.0	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.5	0.3	0.6	0.9	0.9	1.2	0.1	0.1	0.8	0.6	0.6
Delay (s)	52.8	44.3	42.8	41.2	37.0	35.1	52.6	22.7	21.0	54.2	28.5	25.5
Level of Service	D	D	D	D	D	D	D	C	C	D	C	C
Approach Delay (s)		48.1			38.0			29.4			29.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	118.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4937	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4937	
Volume (vph)	164	308	178	266	589	47	179	395	46	67	1149	277
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor (vph)	300%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	535	335	193	286	633	51	195	429	50	71	1209	292
RTOR Reduction (vph)	0	0	135	0	0	33	0	0	28	0	17	0
Lane Group Flow (vph)	535	335	58	286	633	18	195	429	22	71	1484	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	25.6	45.5	45.5	16.3	36.4	36.4	12.2	68.4	68.4	5.6	61.8	
Effective Green, g (s)	27.1	47.2	47.2	17.8	37.9	37.9	13.7	70.0	70.0	7.1	63.4	
Actuated g/C Ratio	0.17	0.30	0.30	0.11	0.24	0.24	0.09	0.44	0.44	0.04	0.40	
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)	588	1057	473	387	848	379	297	2251	701	154	1980	
v/s Ratio Prot	c0.16	0.09		0.08	c0.18		c0.06	0.08		0.02	c0.30	
v/s Ratio Perm			0.04			0.01			0.01			
v/c Ratio	0.91	0.32	0.12	0.74	0.75	0.05	0.66	0.19	0.03	0.46	0.75	
Uniform Delay, d1	64.3	43.0	40.4	67.9	55.7	46.2	69.9	26.8	24.9	73.6	40.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.7	0.4	0.2	6.3	4.3	0.1	4.0	0.1	0.0	0.8	1.9	
Delay (s)	82.0	43.3	40.6	74.2	59.9	46.3	73.9	26.9	24.9	74.4	42.4	
Level of Service	F	D	D	E	E	D	E	C	C	E	D	
Approach Delay (s)		62.3			63.4			40.3			43.9	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	52.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	158.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Volume (vph)	123	176	592	85	109	48	219	686	43	57	1202	107
Peak-hour factor, PHF	0.91	0.91	0.91	0.74	0.74	0.74	0.88	0.88	0.88	0.99	0.99	0.99
Adj. Flow (vph)	135	193	651	115	147	65	249	780	49	58	1214	108
RTOR Reduction (vph)	0	0	181	0	0	47	0	0	28	0	0	53
Lane Group Flow (vph)	135	193	470	115	147	18	249	780	21	58	1214	55
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.1	33.0	33.0	10.7	31.6	31.6	12.5	49.0	49.0	7.3	43.8	43.8
Effective Green, g (s)	13.1	35.0	35.0	10.7	32.6	32.6	12.5	51.0	51.0	7.3	45.8	45.8
Actuated g/C Ratio	0.11	0.29	0.29	0.09	0.27	0.27	0.10	0.42	0.42	0.06	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	193	1032	462	158	961	430	358	1504	673	108	1351	604
v/s Ratio Prot	c0.08	0.05		0.06	0.04		c0.07	0.22		0.03	c0.34	
v/s Ratio Perm			c0.30			0.01			0.01			0.03
v/c Ratio	0.70	0.19	1.02	0.73	0.15	0.04	0.70	0.52	0.03	0.54	0.90	0.09
Uniform Delay, d1	51.6	31.8	42.5	53.2	33.2	32.2	51.9	25.4	20.1	54.7	34.9	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	0.2	46.1	13.2	0.2	0.1	4.7	1.3	0.1	2.6	9.7	0.3
Delay (s)	60.2	32.0	88.6	66.4	33.4	32.3	56.6	26.7	20.2	57.3	44.6	24.1
Level of Service	E	C	F	E	C	C	E	C	C	E	D	C
Approach Delay (s)		73.5			44.8			33.3			43.6	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM Average Control Delay	48.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1700	1292	1603	1594	1583	1770	3438	1538	1687	3195	1583
Flt Permitted		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1700	1292	1603	1594	1583	1770	3438	1538	1687	3195	1583
Volume (vph)	10	13	16	178	10	38	7	1922	564	44	1009	1
Peak-hour factor, PHF	0.76	0.76	0.76	0.83	0.83	0.83	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	13	17	21	214	12	46	7	2023	594	47	1085	1
RTOR Reduction (vph)	0	0	20	0	0	41	0	0	102	0	0	0
Lane Group Flow (vph)	0	30	1	117	109	5	7	2023	492	47	1085	1
Heavy Vehicles (%)	2%	15%	25%	7%	20%	2%	2%	5%	5%	7%	13%	2%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		5.0	5.0	11.7	11.7	11.7	1.0	76.9	76.9	6.6	82.5	82.5
Effective Green, g (s)		7.0	7.0	13.7	13.7	13.7	0.5	80.0	80.0	6.1	85.6	85.6
Actuated g/C Ratio		0.06	0.06	0.11	0.11	0.11	0.00	0.65	0.65	0.05	0.70	0.70
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		97	74	179	178	177	7	2240	1002	84	2227	1103
v/s Ratio Prot		c0.02		c0.07	0.07		0.00	c0.59		c0.03	0.34	
v/s Ratio Perm			0.00			0.00			0.32			0.00
v/c Ratio		0.31	0.02	0.65	0.61	0.03	1.00	0.90	0.49	0.56	0.49	0.00
Uniform Delay, d1		55.6	54.6	52.3	52.0	48.6	61.1	18.1	11.0	57.0	8.5	5.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7	0.0	6.4	4.3	0.0	340.2	5.5	0.1	4.5	0.1	0.0
Delay (s)		56.2	54.7	58.7	56.4	48.6	401.3	23.6	11.1	61.6	8.6	5.6
Level of Service		E	D	E	E	D	F	C	B	E	A	A
Approach Delay (s)		55.6			56.0			21.8			10.8	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	122.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1714	1468	1665	1651	1524	1543	3406	1568	1612	3195	1324
Flt Permitted		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1714	1468	1665	1651	1524	1543	3406	1568	1612	3195	1324
Volume (vph)	15	25	59	66	7	35	12	2443	444	34	1160	9
Peak-hour factor, PHF	0.88	0.88	0.88	0.85	0.85	0.85	0.97	0.97	0.97	0.90	0.90	0.90
Adj. Flow (vph)	17	28	67	78	8	41	12	2519	458	38	1289	10
RTOR Reduction (vph)	0	0	63	0	0	39	0	0	48	0	0	2
Lane Group Flow (vph)	0	45	4	44	42	2	12	2519	410	38	1289	8
Heavy Vehicles (%)	20%	2%	10%	3%	14%	6%	17%	6%	3%	12%	13%	22%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		8.5	8.5	7.2	7.2	7.2	3.0	134.5	134.5	7.8	139.3	139.3
Effective Green, g (s)		10.5	10.5	9.2	9.2	9.2	2.5	137.6	137.6	7.3	142.4	142.4
Actuated g/C Ratio		0.06	0.06	0.05	0.05	0.05	0.01	0.76	0.76	0.04	0.79	0.79
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.2	2.0	2.0	2.2	2.0	2.0
Lane Grp Cap (vph)		100	85	85	84	78	21	2595	1195	65	2519	1044
v/s Ratio Prot		c0.03		c0.03	0.03		0.01	c0.74		c0.02	0.40	
v/s Ratio Perm			0.00			0.00			0.26			0.01
v/c Ratio		0.45	0.05	0.52	0.50	0.03	0.57	0.97	0.34	0.58	0.51	0.01
Uniform Delay, d1		82.3	80.3	83.5	83.5	81.4	88.5	19.7	6.9	85.2	6.8	4.1
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.2	0.1	2.2	1.7	0.1	23.7	12.0	0.8	9.3	0.7	0.0
Delay (s)		83.4	80.4	85.7	85.2	81.5	112.2	31.7	7.7	94.4	7.5	4.1
Level of Service		F	F	F	F	F	F	C	A	F	A	A
Approach Delay (s)		81.6			84.2			28.3			10.0	
Approach LOS		F			F			C			A	

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	7	13	356	90	2
Peak Hour Factor	0.54	0.54	0.83	0.83	0.88	0.88
Hourly flow rate (vph)	0	13	16	429	102	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	445				243	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				243	230
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1116				745	809

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	13	445	102	2
Volume Left	0	0	102	0
Volume Right	0	429	0	2
cSH	1700	1700	745	809
Volume to Capacity	0.01	0.26	0.14	0.00
Queue Length 95th (ft)	0	0	12	0
Control Delay (s)	0.0	0.0	10.6	9.5
Lane LOS			B	A
Approach Delay (s)	0.0	0.0	10.6	
Approach LOS			B	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	94	3	0	350	19	1062
Peak Hour Factor	0.84	0.84	0.88	0.88	0.90	0.90
Hourly flow rate (vph)	112	4	0	398	21	1180
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			115		511	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			115		511	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	0
cM capacity (veh/h)			1473		522	939

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	115	398	21	1180
Volume Left	0	0	21	0
Volume Right	4	0	0	1180
cSH	1700	1700	522	939
Volume to Capacity	0.07	0.23	0.04	1.26
Queue Length 95th (ft)	0	0	3	1023
Control Delay (s)	0.0	0.0	12.2	140.8
Lane LOS			B	F
Approach Delay (s)	0.0	0.0	138.5	
Approach LOS			F	

Intersection Summary			
Average Delay	97.0		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	596	0	29	104	0	4	60	87	4	25	2
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.97	0.97	0.97	0.70	0.70	0.70
Hourly flow rate (vph)	24	655	0	32	113	0	4	62	90	6	36	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	679	145	156	44
Volume Left (vph)	24	32	4	6
Volume Right (vph)	0	0	90	3
Hadj (s)	0.04	0.12	-0.31	0.02
Departure Headway (s)	4.8	5.5	5.7	6.3
Degree Utilization, x	0.90	0.22	0.25	0.08
Capacity (veh/h)	742	623	598	529
Control Delay (s)	34.8	10.1	10.6	9.9
Approach Delay (s)	34.8	10.1	10.6	9.9
Approach LOS	D	B	B	A

Intersection Summary			
Delay	26.5		
HCM Level of Service	D		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	110	873	491	34	11	49
Peak Hour Factor	0.92	0.92	0.91	0.91	0.76	0.76
Hourly flow rate (vph)	120	949	540	37	14	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	577				1746	558
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	577				1746	558
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				83	88
cM capacity (veh/h)	997				83	529

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1068	577	79
Volume Left	120	0	14
Volume Right	0	37	64
cSH	997	1700	267
Volume to Capacity	0.12	0.34	0.30
Queue Length 95th (ft)	10	0	30
Control Delay (s)	3.2	0.0	24.0
Lane LOS	A		C
Approach Delay (s)	3.2	0.0	24.0
Approach LOS			C

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	33	651	3	2	121	3	1	1	5	3	2	11
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.45	0.45	0.45	0.71	0.71	0.71
Hourly flow rate (vph)	38	740	3	2	138	3	2	2	11	4	3	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	141			743			977	962	741	972	962	139
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141			743			977	962	741	972	962	139
tC, single (s)	4.2			4.1			7.1	6.8	6.2	7.1	6.8	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.2	3.3	3.5	4.2	3.4
p0 queue free %	97			100			99	99	97	98	99	98
cM capacity (veh/h)	1418			864			219	227	416	219	227	891

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	781	143	16	23
Volume Left	38	2	2	4
Volume Right	3	3	11	15
cSH	1418	864	334	459
Volume to Capacity	0.03	0.00	0.05	0.05
Queue Length 95th (ft)	2	0	4	4
Control Delay (s)	0.7	0.2	16.3	13.2
Lane LOS	A	A	C	B
Approach Delay (s)	0.7	0.2	16.3	13.2
Approach LOS			C	B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	157	480	15	9	109	122	6	18	8	88	26	10
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.80	0.80	0.80	0.63	0.63	0.63
Hourly flow rate (vph)	174	533	17	10	118	133	8	22	10	140	41	16

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	724	128	133	40	197
Volume Left (vph)	174	10	0	8	140
Volume Right (vph)	17	0	133	10	16
Hadj (s)	0.07	0.10	-0.57	-0.08	0.16
Departure Headway (s)	5.0	5.8	3.2	6.6	6.4
Degree Utilization, x	1.00	0.21	0.12	0.07	0.35
Capacity (veh/h)	719	602	1121	529	555
Control Delay (s)	55.6	10.3	6.6	10.1	12.7
Approach Delay (s)	55.6	8.5		10.1	12.7
Approach LOS	F	A		B	B

Intersection Summary			
Delay	37.2		
HCM Level of Service	E		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	503	87	55	152	105	55
Peak Hour Factor	0.97	0.97	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	519	90	68	188	115	60

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	608	256	115	60
Volume Left (vph)	0	68	115	0
Volume Right (vph)	90	0	0	60
Hadj (s)	-0.05	0.11	0.53	-0.58
Departure Headway (s)	4.8	5.4	7.1	6.0
Degree Utilization, x	0.81	0.38	0.23	0.10
Capacity (veh/h)	736	641	475	556
Control Delay (s)	24.9	11.7	11.0	8.5
Approach Delay (s)	24.9	11.7	10.2	
Approach LOS	C	B	B	

Intersection Summary			
Delay	19.2		
HCM Level of Service	C		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	539	5	23	249	2	19
Peak Hour Factor	0.95	0.95	0.89	0.89	0.58	0.58
Hourly flow rate (vph)	567	5	26	280	3	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			573		901	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			573		901	570
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	94
cM capacity (veh/h)			1000		300	521

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	573	306	36
Volume Left	0	26	3
Volume Right	5	0	33
cSH	1700	1000	487
Volume to Capacity	0.34	0.03	0.07
Queue Length 95th (ft)	0	2	6
Control Delay (s)	0.0	1.0	13.0
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	13.0
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	7	551	269	6	1	3
Peak Hour Factor	0.97	0.97	0.92	0.92	0.50	0.50
Hourly flow rate (vph)	7	568	292	7	2	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	299				878	296
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299				878	296
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1262				317	744

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	575	299	8
Volume Left	7	0	2
Volume Right	0	7	6
cSH	1262	1700	556
Volume to Capacity	0.01	0.18	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.2	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	31	31	20	26	1	53	2	25	1	0	2
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.83	0.83	0.83	0.38	0.38	0.38
Hourly flow rate (vph)	0	37	37	22	29	1	64	2	30	3	0	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	74	52	96	8
Volume Left (vph)	0	22	64	3
Volume Right (vph)	37	1	30	5
Hadj (s)	-0.27	0.11	-0.02	-0.30
Departure Headway (s)	3.9	4.3	4.2	4.0
Degree Utilization, x	0.08	0.06	0.11	0.01
Capacity (veh/h)	889	811	834	868
Control Delay (s)	7.3	7.6	7.7	7.0
Approach Delay (s)	7.3	7.6	7.7	7.0
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	68	44	45	76	17	63	69	60	4	52	2
Peak Hour Factor	0.95	0.95	0.95	0.86	0.86	0.86	0.80	0.80	0.80	0.86	0.86	0.86
Hourly flow rate (vph)	4	72	46	52	88	20	79	86	75	5	60	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	122	160	240	67
Volume Left (vph)	4	52	79	5
Volume Right (vph)	46	20	75	2
Hadj (s)	-0.19	0.03	-0.08	0.06
Departure Headway (s)	4.7	4.8	4.6	5.0
Degree Utilization, x	0.16	0.22	0.31	0.09
Capacity (veh/h)	707	691	739	663
Control Delay (s)	8.6	9.2	9.7	8.5
Approach Delay (s)	8.6	9.2	9.7	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	9.2		
HCM Level of Service	A		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303	3539	1583	3303	3377		1770	1845	1583	1770	3445	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3303	3539	1583	3303	3377		1770	1845	1583	1770	3445	
Volume (vph)	55	881	158	110	506	150	107	153	78	103	136	14
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.87	0.87	0.87	0.91	0.91	0.91
Adj. Flow (vph)	60	958	172	117	538	160	123	176	90	113	149	15
RTOR Reduction (vph)	0	0	58	0	11	0	0	0	76	0	4	0
Lane Group Flow (vph)	60	958	114	117	687	0	123	176	14	113	160	0
Heavy Vehicles (%)	6%	2%	2%	6%	3%	4%	2%	3%	2%	2%	3%	7%
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6						8			
Actuated Green, G (s)	2.7	25.3	25.3	4.7	27.6		6.8	9.6	9.6	6.5	9.1	
Effective Green, g (s)	3.5	26.4	26.4	6.2	29.1		8.3	10.7	10.7	8.0	10.4	
Actuated g/C Ratio	0.05	0.39	0.39	0.09	0.43		0.12	0.16	0.16	0.12	0.15	
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5		5.5	5.1	5.1	5.5	5.3	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	172	1388	621	304	1460		218	293	252	210	532	
v/s Ratio Prot	0.02	c0.27		c0.04	c0.20		c0.07	c0.10		0.06	0.05	
v/s Ratio Perm			0.07						0.01			
v/c Ratio	0.35	0.69	0.18	0.38	0.47		0.56	0.60	0.06	0.54	0.30	
Uniform Delay, d1	30.8	17.0	13.4	28.8	13.6		27.8	26.3	24.0	27.9	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	1.2	0.1	0.3	0.1		2.0	2.4	0.0	1.3	0.1	
Delay (s)	31.2	18.3	13.4	29.1	13.7		29.8	28.7	24.1	29.2	25.3	
Level of Service	C	B	B	C	B		C	C	C	C	C	
Approach Delay (s)		18.2			15.9			28.0			26.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	6	528	5	56	248	5	3	8	63	2	12	11
Peak Hour Factor	0.94	0.94	0.94	0.97	0.97	0.97	0.84	0.84	0.84	0.72	0.72	0.72
Hourly flow rate (vph)	6	562	5	58	256	5	4	10	75	3	17	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	261			567			974	953	564	1031	953	258
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261			567			974	953	564	1031	953	258
tC, single (s)	4.1			4.1			7.1	6.5	6.3	7.1	6.7	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.2	3.3
p0 queue free %	100			94			98	96	86	98	93	98
cM capacity (veh/h)	1304			1005			204	243	517	167	229	780

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	573	319	88	35
Volume Left	6	58	4	3
Volume Right	5	5	75	15
cSH	1304	1005	437	319
Volume to Capacity	0.00	0.06	0.20	0.11
Queue Length 95th (ft)	0	5	19	9
Control Delay (s)	0.1	2.1	15.3	17.7
Lane LOS	A	A	C	C
Approach Delay (s)	0.1	2.1	15.3	17.7
Approach LOS			C	C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	49	5	5	7	2	4	2	31	8	8	34	46
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.79	0.79	0.79	0.92	0.92	0.92
Hourly flow rate (vph)	56	6	6	9	3	5	3	39	10	9	37	50

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	68	17	52	96
Volume Left (vph)	56	9	3	9
Volume Right (vph)	6	5	10	50
Hadj (s)	0.20	0.08	-0.07	-0.24
Departure Headway (s)	4.4	4.4	4.1	3.9
Degree Utilization, x	0.08	0.02	0.06	0.10
Capacity (veh/h)	783	791	843	897
Control Delay (s)	7.8	7.5	7.4	7.4
Approach Delay (s)	7.8	7.5	7.4	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	23	123	112	18	17	26
Peak Hour Factor	0.83	0.83	0.88	0.88	0.83	0.83
Hourly flow rate (vph)	28	148	127	20	20	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	148				341	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148				341	138
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	98				97	97
cM capacity (veh/h)	1434				634	906

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	148	52
Volume Left	28	0	20
Volume Right	0	20	31
cSH	1434	1700	775
Volume to Capacity	0.02	0.09	0.07
Queue Length 95th (ft)	1	0	5
Control Delay (s)	1.3	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	1.3	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1538	1703	3505	1736	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1538	1703	3505	1736	1583
Volume (vph)	1	1006	38	154	670	101	300
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.94	0.94
Adj. Flow (vph)	1	1093	41	173	753	107	319
RTOR Reduction (vph)	0	0	8	0	0	0	233
Lane Group Flow (vph)	1	1093	33	173	753	107	86
Heavy Vehicles (%)	2%	2%	5%	6%	3%	4%	2%
Turn Type	Prot		Perm	Prot			custom
Protected Phases	1	6		4 5	2	3	2
Permitted Phases			6				
Actuated Green, G (s)	0.6	72.4	72.4	24.2	49.8	14.4	49.8
Effective Green, g (s)	1.3	73.5	73.5	23.7	50.9	15.8	50.9
Actuated g/C Ratio	0.01	0.39	0.39	0.13	0.27	0.08	0.27
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.1
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	4.9
Lane Grp Cap (vph)	12	1375	597	213	943	145	426
v/s Ratio Prot	c0.00	c0.31		c0.10	c0.21	c0.06	0.05
v/s Ratio Perm			0.02				
v/c Ratio	0.08	0.79	0.06	0.81	0.80	0.74	0.20
Uniform Delay, d1	93.4	51.2	36.2	80.6	64.4	84.7	53.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	3.7	0.1	19.5	5.5	15.5	0.5
Delay (s)	94.4	54.9	36.2	100.1	69.8	100.1	53.9
Level of Service	F	D	D	F	E	F	D
Approach Delay (s)		54.3			75.5	65.5	
Approach LOS		D			E	E	

Intersection Summary			
HCM Average Control Delay	64.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	189.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1843			1850	1684	
Flt Permitted	1.00			0.99	0.98	
Satd. Flow (perm)	1843			1850	1684	
Volume (vph)	678	58	84	546	132	171
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.87	0.87
Adj. Flow (vph)	737	63	90	587	152	197
RTOR Reduction (vph)	2	0	0	0	31	0
Lane Group Flow (vph)	798	0	0	677	318	0
Turn Type			Split			
Protected Phases	2		1	1	3	
Permitted Phases						
Actuated Green, G (s)	50.1			50.1	20.0	
Effective Green, g (s)	51.1			50.9	19.5	
Actuated g/C Ratio	0.37			0.37	0.14	
Clearance Time (s)	5.0			4.8	3.5	
Vehicle Extension (s)	6.8			6.3	2.0	
Lane Grp Cap (vph)	676			676	236	
v/s Ratio Prot	c0.43			c0.37	c0.19	
v/s Ratio Perm						
v/c Ratio	1.18			1.00	1.35	
Uniform Delay, d1	44.1			44.2	60.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	96.0			35.0	181.9	
Delay (s)	140.2			79.2	241.8	
Level of Service	F			E	F	
Approach Delay (s)	140.2			79.2	241.8	
Approach LOS	F			E	F	

Intersection Summary			
HCM Average Control Delay	137.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	139.4	Sum of lost time (s)	17.9
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	922	46	203	241	40	349
Peak-hour factor, PHF	0.96	0.96	0.79	0.79	0.86	0.86
Adj. Flow (vph)	960	48	257	305	47	406
RTOR Reduction (vph)	0	9	0	0	0	65
Lane Group Flow (vph)	960	39	257	305	47	341
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	96.5	96.5	25.9	126.0	7.6	33.5
Effective Green, g (s)	98.5	98.5	25.5	128.0	7.9	33.4
Actuated g/C Ratio	0.68	0.68	0.18	0.89	0.05	0.23
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	1275	1084	314	1657	97	411
v/s Ratio Prot	c0.52		0.15	0.16	0.03	c0.15
v/s Ratio Perm		0.02				0.07
v/c Ratio	0.75	0.04	0.82	0.18	0.48	0.83
Uniform Delay, d1	14.8	7.3	57.0	1.1	66.0	52.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1	0.1	14.5	0.2	1.4	12.4
Delay (s)	18.9	7.4	71.4	1.3	67.4	64.9
Level of Service	B	A	E	A	E	E
Approach Delay (s)	18.4			33.4	65.2	
Approach LOS	B			C	E	

Intersection Summary			
HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	143.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	297	489	191	260	283	81	386	500	272	136	404	150
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	319	526	205	283	308	88	406	526	286	148	439	163
RTOR Reduction (vph)	0	0	144	0	0	66	0	0	184	0	0	125
Lane Group Flow (vph)	319	526	61	283	308	22	406	526	102	148	439	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.2	23.2	23.2	11.2	22.1	22.1	18.2	32.6	32.6	6.4	20.4	20.4
Effective Green, g (s)	13.7	24.8	24.8	12.7	23.8	23.8	19.7	34.1	34.1	7.9	22.3	22.3
Actuated g/C Ratio	0.14	0.26	0.26	0.13	0.25	0.25	0.21	0.36	0.36	0.08	0.23	0.23
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	492	919	411	457	882	395	708	1816	565	284	1187	370
v/s Ratio Prot	c0.09	c0.15		0.08	0.09		c0.12	0.10		0.04	c0.09	
v/s Ratio Perm			0.04			0.01			0.06			0.02
v/c Ratio	0.65	0.57	0.15	0.62	0.35	0.06	0.57	0.29	0.18	0.52	0.37	0.10
Uniform Delay, d1	38.6	30.7	27.2	39.1	29.5	27.3	34.1	22.0	21.1	42.0	30.7	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	1.4	0.3	1.8	0.7	0.2	0.7	0.2	0.4	0.8	0.5	0.3
Delay (s)	40.8	32.1	27.6	40.9	30.1	27.5	34.8	22.2	21.5	42.8	31.2	29.0
Level of Service	D	C	C	D	C	C	C	C	C	D	C	C
Approach Delay (s)		33.9			34.3			26.2			33.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	31.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4924	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4924	
Volume (vph)	402	533	206	239	416	131	210	1161	168	116	758	203
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	428	567	219	260	452	142	221	1222	177	122	798	214
RTOR Reduction (vph)	0	0	147	0	0	112	0	0	67	0	22	0
Lane Group Flow (vph)	428	567	72	260	452	30	221	1222	110	122	990	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	21.8	33.4	33.4	12.6	24.4	24.4	11.2	46.8	46.8	6.5	42.1	
Effective Green, g (s)	23.3	35.1	35.1	14.1	25.9	25.9	12.7	48.4	48.4	8.0	43.7	
Actuated g/C Ratio	0.19	0.29	0.29	0.12	0.21	0.21	0.10	0.40	0.40	0.07	0.36	
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)	658	1022	457	398	754	337	359	2024	630	226	1770	
v/s Ratio Prot	c0.12	c0.16		0.08	0.13		c0.06	c0.24		0.04	0.20	
v/s Ratio Perm			0.05			0.02			0.07			
v/c Ratio	0.65	0.55	0.16	0.65	0.60	0.09	0.62	0.60	0.17	0.54	0.56	
Uniform Delay, d1	45.4	36.6	32.2	51.4	43.2	38.4	52.1	29.0	23.7	55.0	31.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	1.1	0.3	2.9	1.9	0.2	2.2	0.7	0.3	1.2	0.6	
Delay (s)	47.2	37.7	32.6	54.3	45.1	38.6	54.3	29.7	23.9	56.3	31.9	
Level of Service	D	D	C	D	D	D	D	C	C	E	C	
Approach Delay (s)		40.1			46.8			32.5			34.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	121.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Volume (vph)	183	200	309	106	254	124	515	1111	83	130	1078	131
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	217	336	115	276	135	572	1234	92	144	1198	146
RTOR Reduction (vph)	0	0	284	0	0	120	0	0	41	0	0	65
Lane Group Flow (vph)	199	217	52	115	276	15	572	1234	51	144	1198	81
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.4	16.7	16.7	10.7	11.0	11.0	23.3	58.8	58.8	13.8	49.3	49.3
Effective Green, g (s)	16.4	18.7	18.7	10.7	13.0	13.0	23.3	60.8	60.8	13.8	51.3	51.3
Actuated g/C Ratio	0.14	0.16	0.16	0.09	0.11	0.11	0.19	0.51	0.51	0.12	0.43	0.43
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	242	551	247	158	383	171	667	1793	802	204	1513	677
v/s Ratio Prot	c0.11	0.06		0.06	c0.08		c0.17	0.35		0.08	c0.34	
v/s Ratio Perm			0.03			0.01			0.03			0.05
v/c Ratio	0.82	0.39	0.21	0.73	0.72	0.09	0.86	0.69	0.06	0.71	0.79	0.12
Uniform Delay, d1	50.4	45.6	44.2	53.2	51.7	48.2	46.7	22.4	15.1	51.1	29.7	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.8	0.8	0.7	13.2	8.0	0.5	10.2	2.2	0.2	8.7	4.3	0.4
Delay (s)	69.2	46.4	45.0	66.4	59.7	48.6	57.0	24.6	15.2	59.9	34.1	21.1
Level of Service	E	D	D	E	E	D	E	C	B	E	C	C
Approach Delay (s)		51.8			58.3			33.9			35.3	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix A-2: Freeway Operations

Existing Conditions

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Existing
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Flow Rate Calculation*											*Speed Calculation*		*Results*	
	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	1,865	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,049	65.0	60.5	**17.3**	**B**
2	SR 99 SB	Riego Road to Elverta Road	AM	2,411	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,356	65.0	60.5	**22.4**	**C**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	2,724	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,532	65.0	60.5	**25.3**	**C**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	3,473	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,954	65.0	58.9	**33.2**	**D**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	1,108	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	671	65.0	60.5	**11.1**	**B**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	938	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	568	65.0	60.5	**9.4**	**A**
7	SR 99 NB	Elverta Road to Riego Road	AM	870	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	527	65.0	60.5	**8.7**	**A**
8	SR 99 NB	Riego Road to Sankey Road	AM	713	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	432	65.0	60.5	**7.1**	**A**
1	SR-99 SB	Sankey Road to Riego Road	PM	1,054	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	587	65.0	60.5	**9.7**	**A**
2	SR 99 SB	Riego Road to Elverta Road	PM	1,203	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	670	65.0	60.5	**11.1**	**B**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	1,285	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	716	65.0	60.5	**11.8**	**B**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	1,555	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	866	65.0	60.5	**14.3**	**B**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	3,859	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	2,234	65.0	53.4	**41.8**	**E**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	2,899	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,678	65.0	60.5	**27.8**	**D**
7	SR 99 NB	Elverta Road to Riego Road	PM	2,493	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,443	65.0	60.5	**23.9**	**C**
8	SR 99 NB	Riego Road to Sankey Road	PM	1,970	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,140	65.0	60.5	**18.8**	**C**

Appendix A-3: Peak Hour Signal Warrant Analysis

Existing Conditions

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Sheet No	1	of	2	

Major Street	Elkhorn Boulevard
Minor Street	SR 99 SB Off-Ramp
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

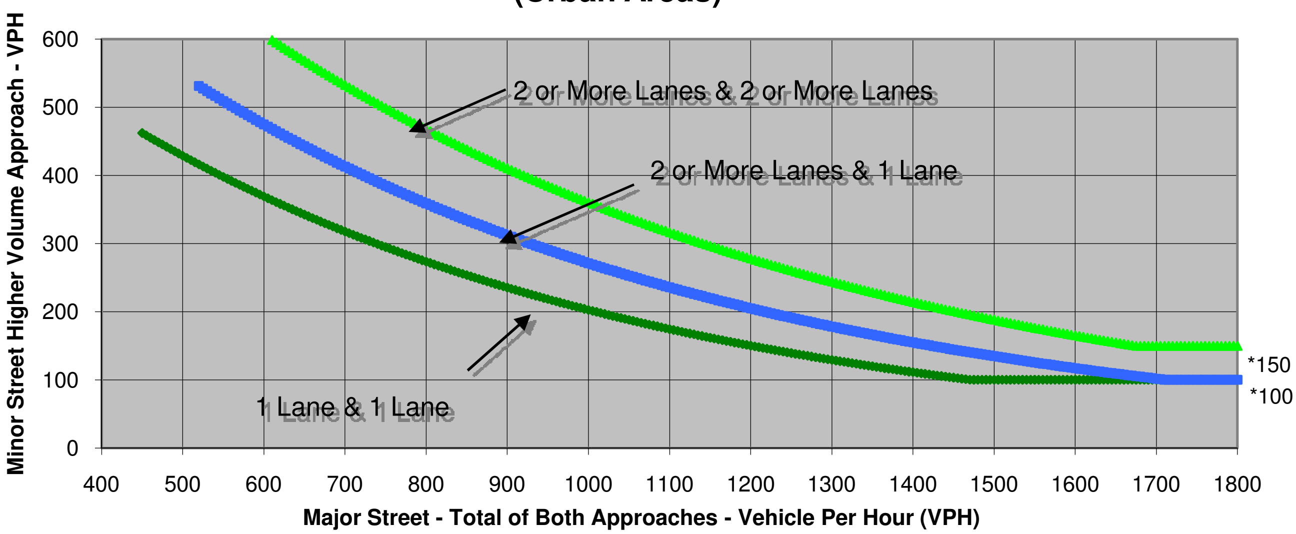
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	115	0	0
Through	0	0	2	7
Right	0	1	0	0
Total	0	116	2	7

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 SB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	9	116	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Conditions			
Peak Hour	PM			

Major Street	Elkhorn Boulevard
Minor Street	SR 99 SB Off-Ramp

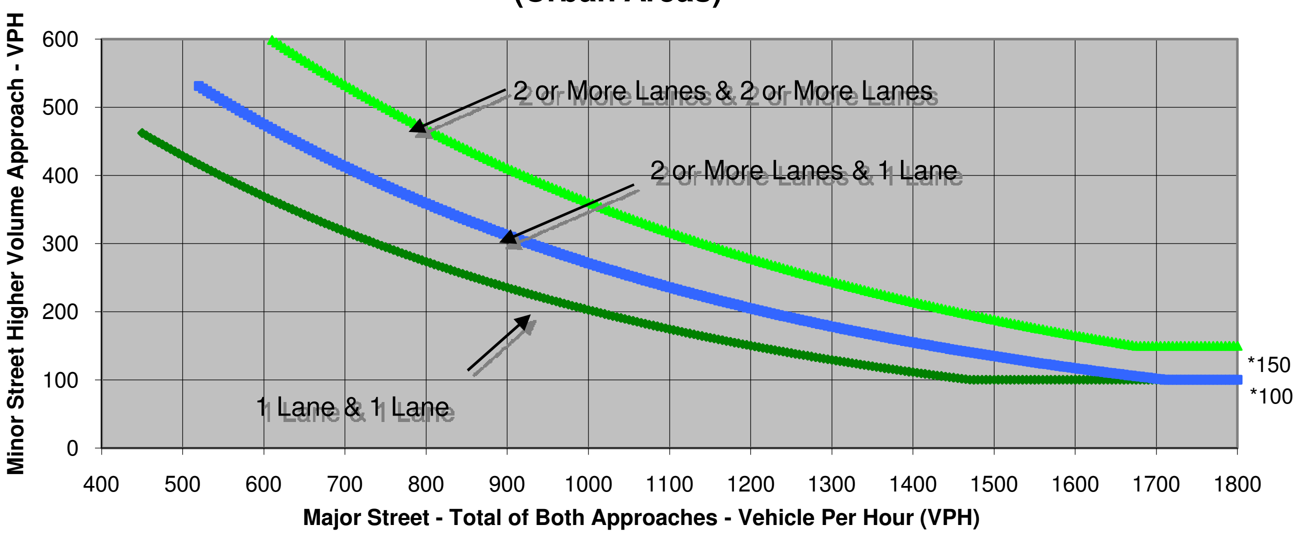
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	90	0	0
Through	0	0	7	13
Right	0	2	0	0
Total	0	92	7	13

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 SB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	20	92	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 1 of 2

Major Street	Elkhorn Boulevard	Project	Elverta Specific Plan EIS
Minor Street	SR 99 NB Off-Ramp	Scenario	Existing Conditions
		Peak Hour	AM

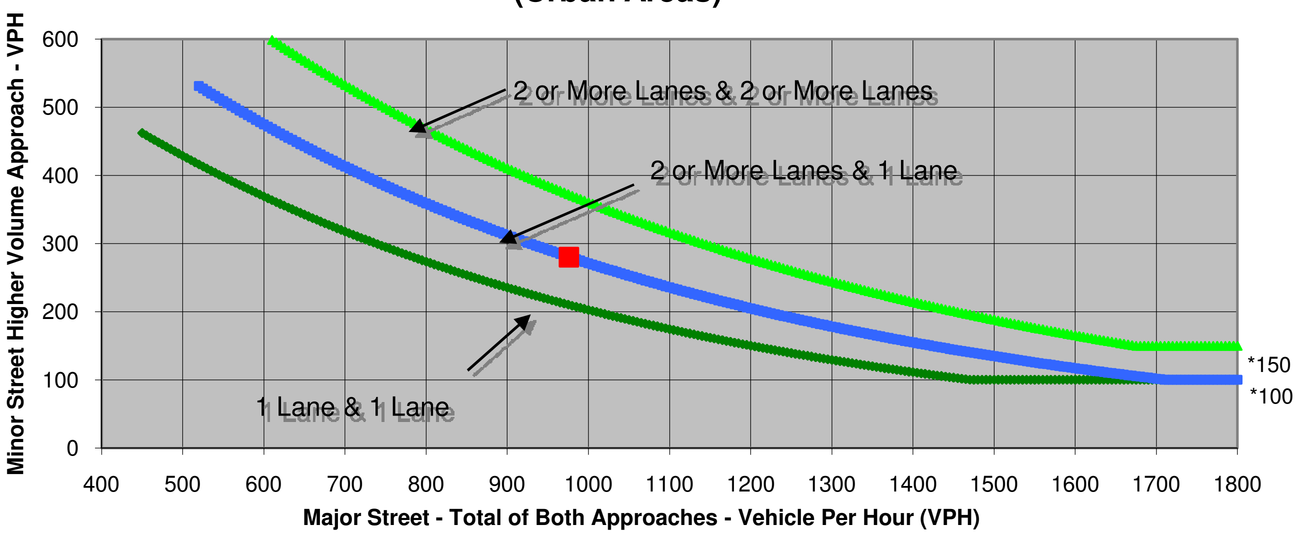
Turn Movement Volumes

	NB	SB	EB	WB
Left	7	0	0	0
Through	0	0	116	860
Right	273	0	0	0
Total	280	0	116	860

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 NB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	976	280	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Elkhorn Boulevard
Minor Street	SR 99 NB Off-Ramp
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

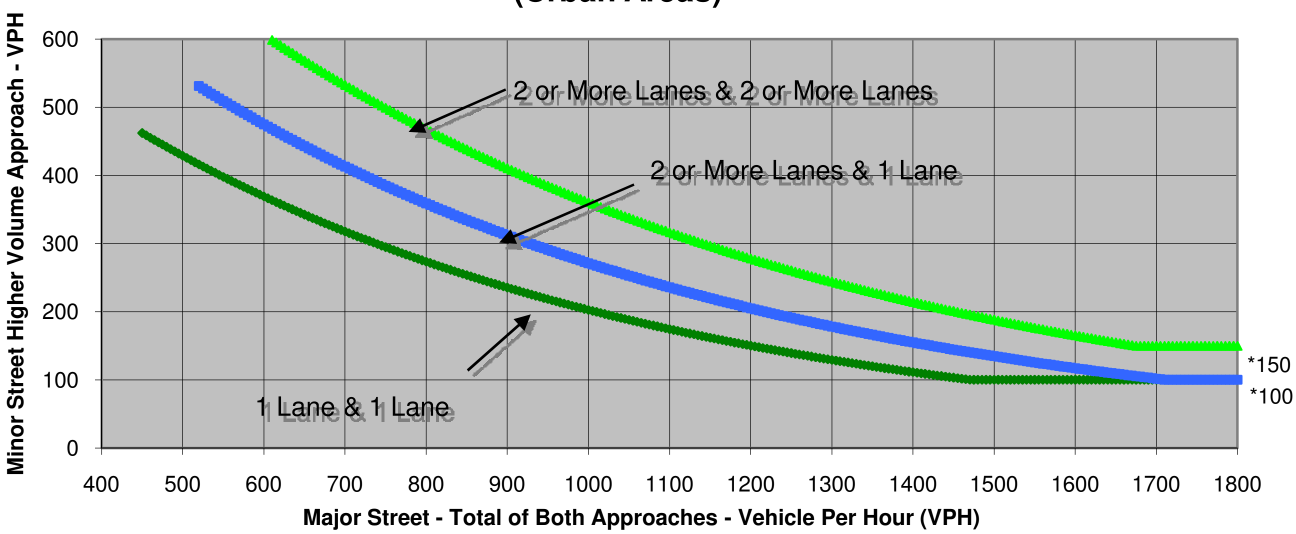
Turn Movement Volumes

	NB	SB	EB	WB
Left	19	0	0	0
Through	0	0	94	350
Right	1,062	0	0	0
Total	1,081	0	94	350

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	**Minor Street** SR 99 NB Off-Ramp	**Warrant Met**
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	444	1,081	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

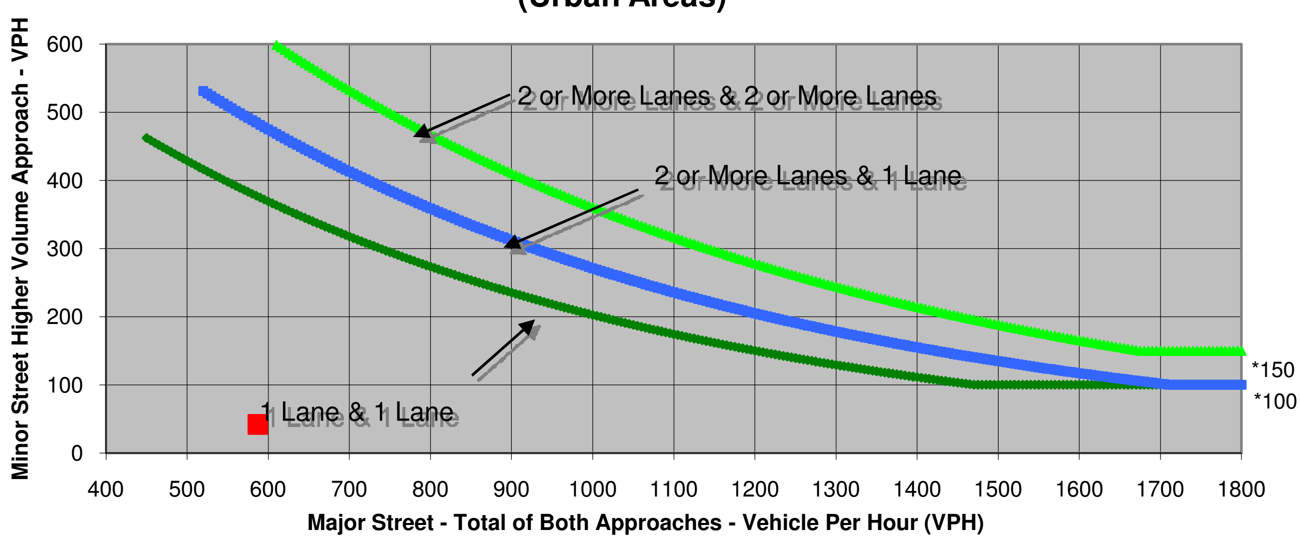
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	3	4	98
Through	13	35	82	395
Right	19	4	4	4
Total	33	42	90	497

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	587	42	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No	2	of	2	

Major Street	Elverta Road
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

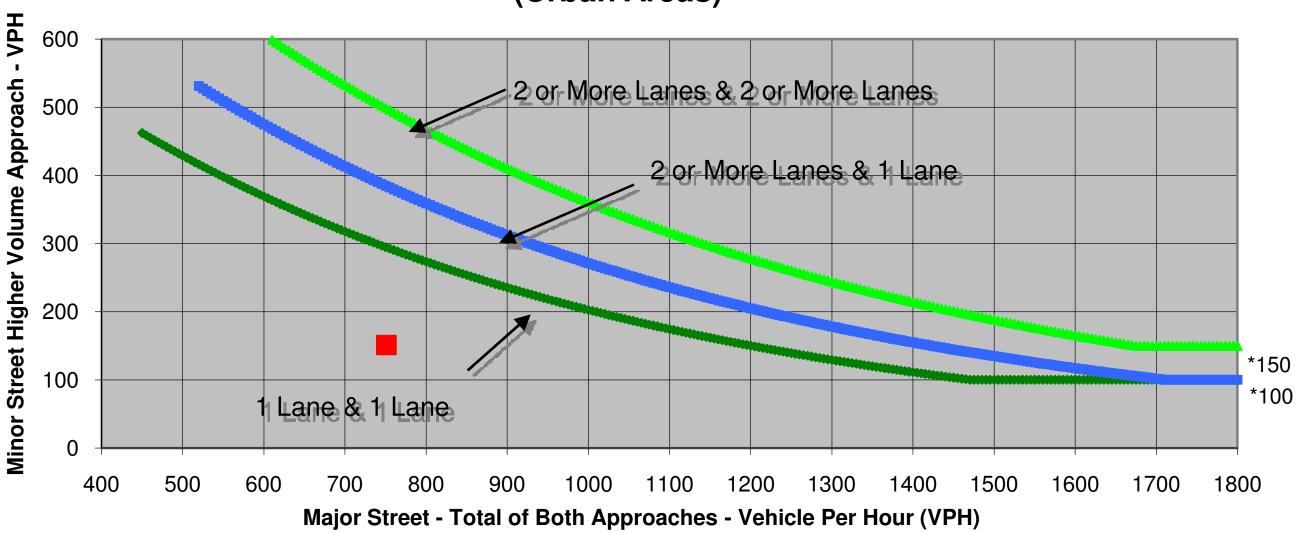
Turn Movement Volumes

	NB	SB	EB	WB
Left	4	4	22	29
Through	60	25	596	104
Right	87	2	0	0
Total	151	31	618	133

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	751	151	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2
Project	Elverta Specific Plan EIS		
Scenario	Existing Conditions		
Peak Hour	AM		

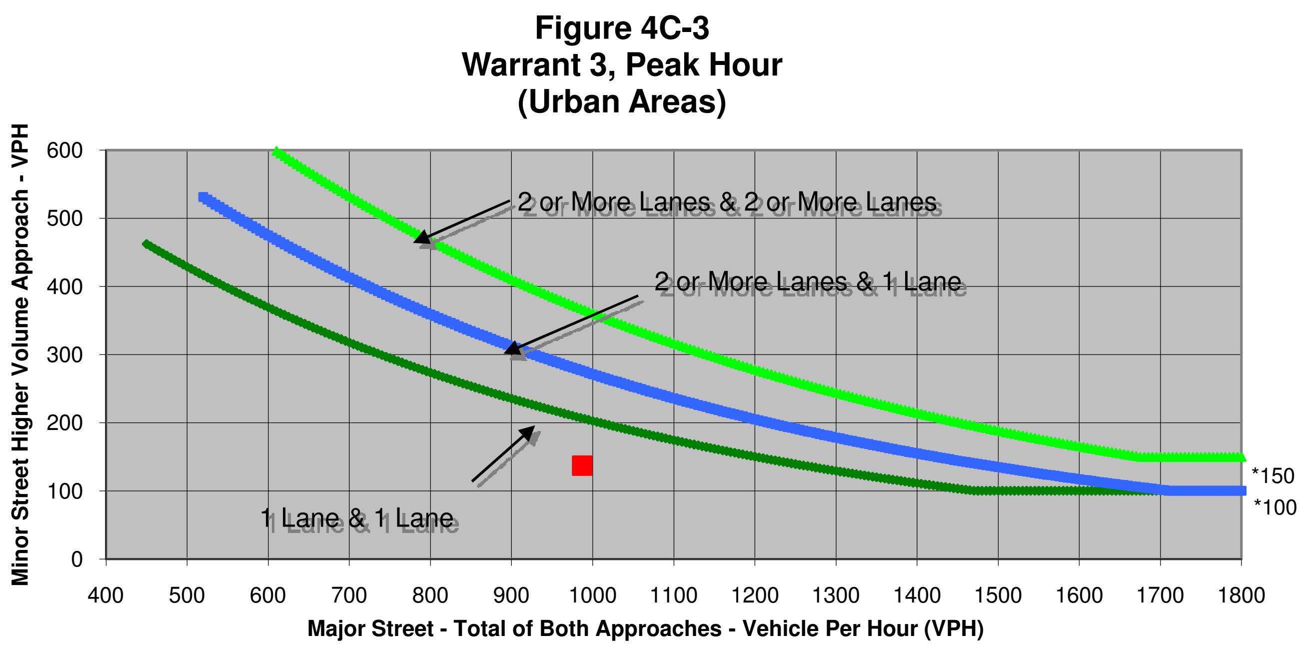
Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	24	29	0
Through	0	0	392	560
Right	0	113	0	6
Total	0	137	421	566

Major Street Direction

	North/South
x	East/West



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	987	137	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Major Street	Elkhorn Boulevard	Project	Elverta Specific Plan EIS	
Minor Street	E. Levee Road	Scenario	Existing Conditions	
		Peak Hour	PM	

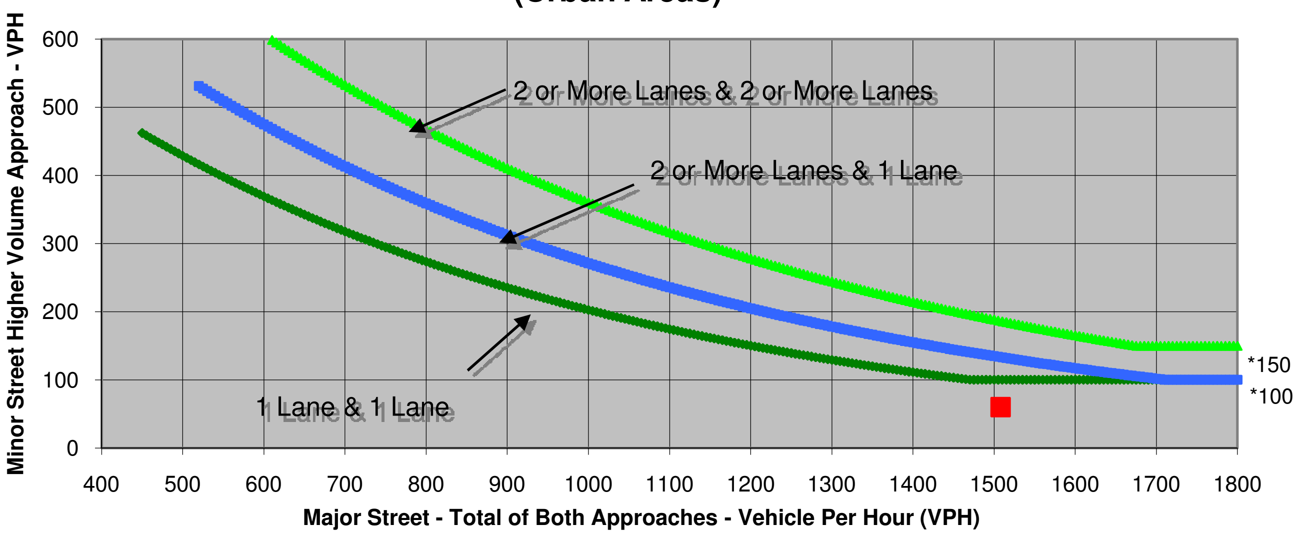
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	11	110	0
Through	0	0	873	491
Right	0	49	0	34
Total	0	60	983	525

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,508	60	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	Elverta Road		Sheet No	1	of 2
Minor Street	Sorento Road		Project	Elverta Specific Plan EIS	
			Scenario	Existing Conditions	
			Peak Hour	AM	

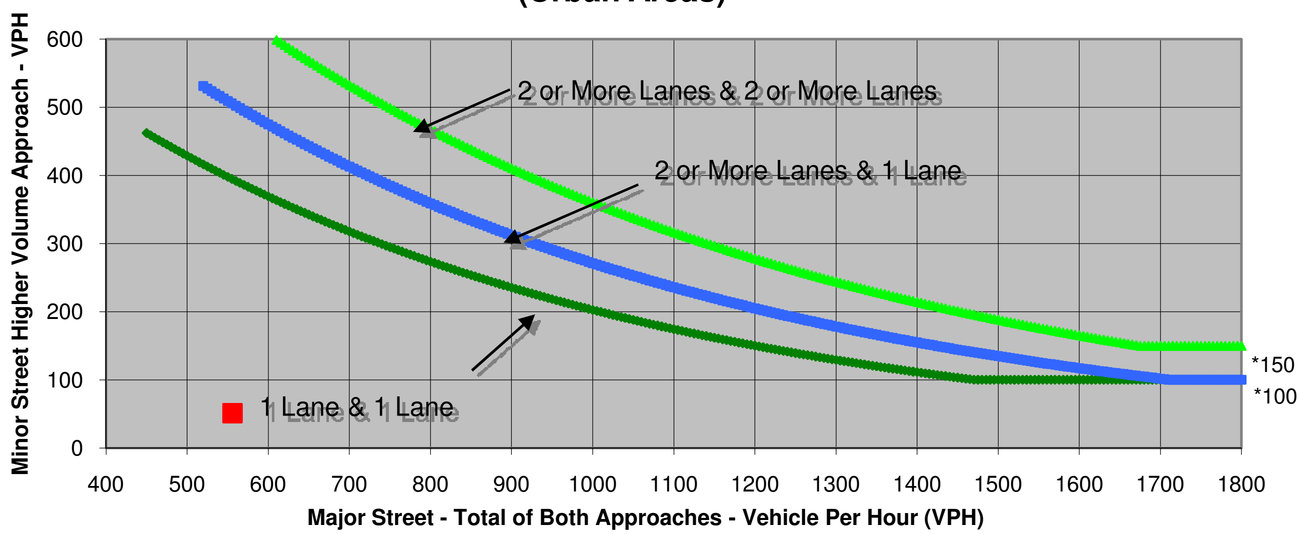
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	4	3
Through	1	1	99	447
Right	5	50	1	2
Total	6	51	104	452

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Sorento Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	556	51	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No	2	of	2		
Major Street	Elverta Road	Project	Elverta Specific Plan EIS		
Minor Street	Sorento Road	Scenario	Existing Conditions		
		Peak Hour	PM		

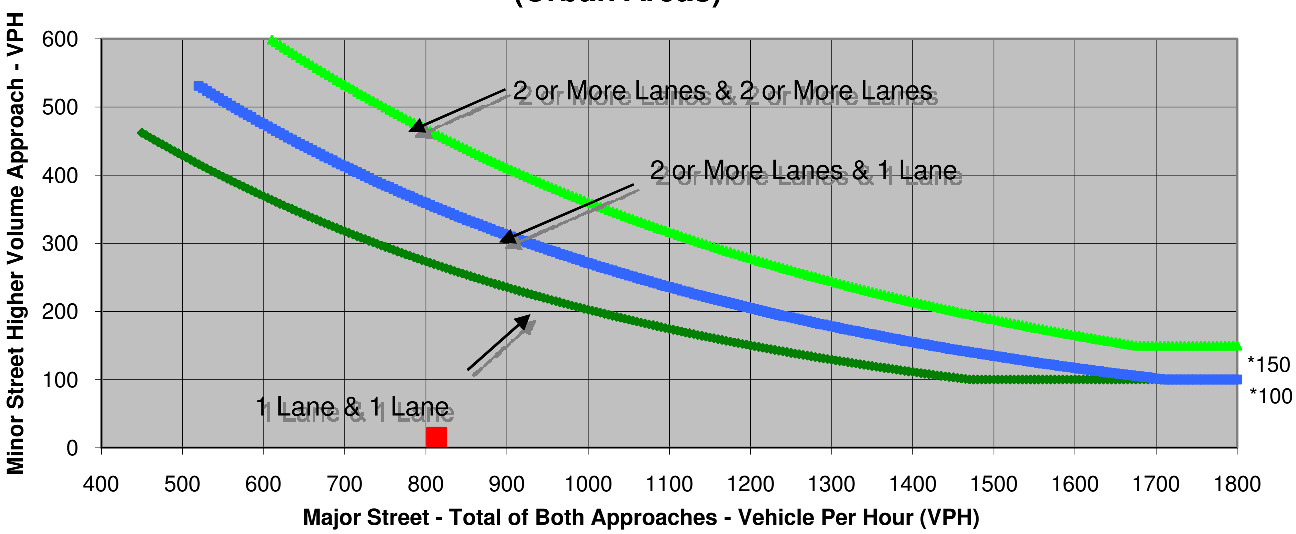
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	3	33	3
Through	1	2	651	121
Right	5	11	3	2
Total	7	16	687	126

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Sorento Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	813	16	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Elwyn Road
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

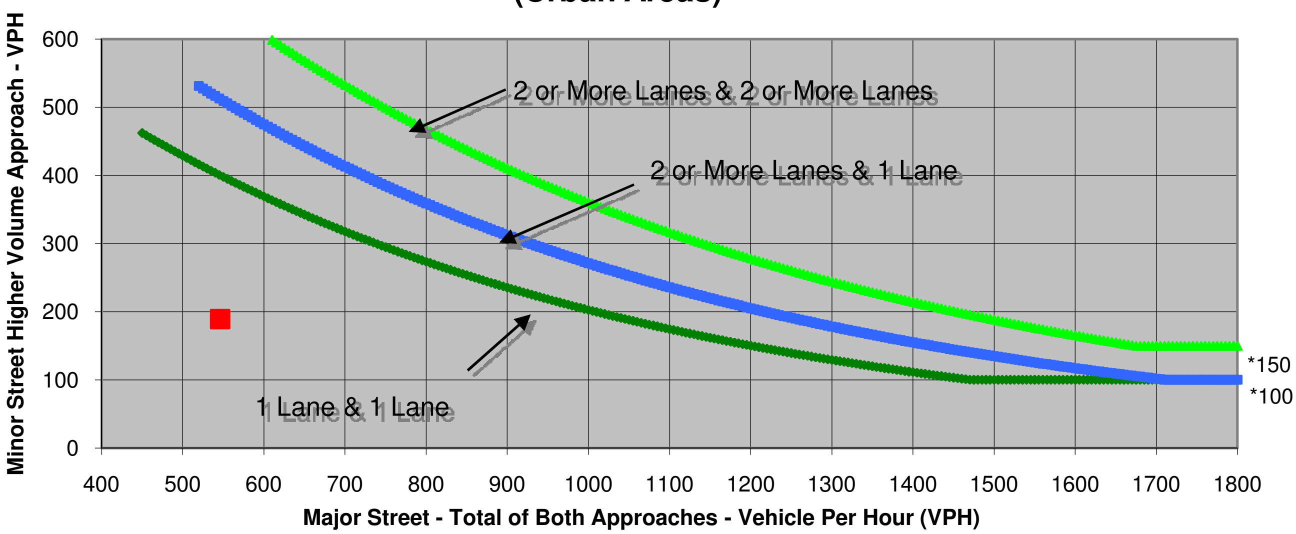
Turn Movement Volumes

	NB	SB	EB	WB
Left	16	100	9	5
Through	27	25	85	370
Right	9	64	7	70
Total	52	189	101	445

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Elwyn Road	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	546	189	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elverta Road
Minor Street	Elwyn Road

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

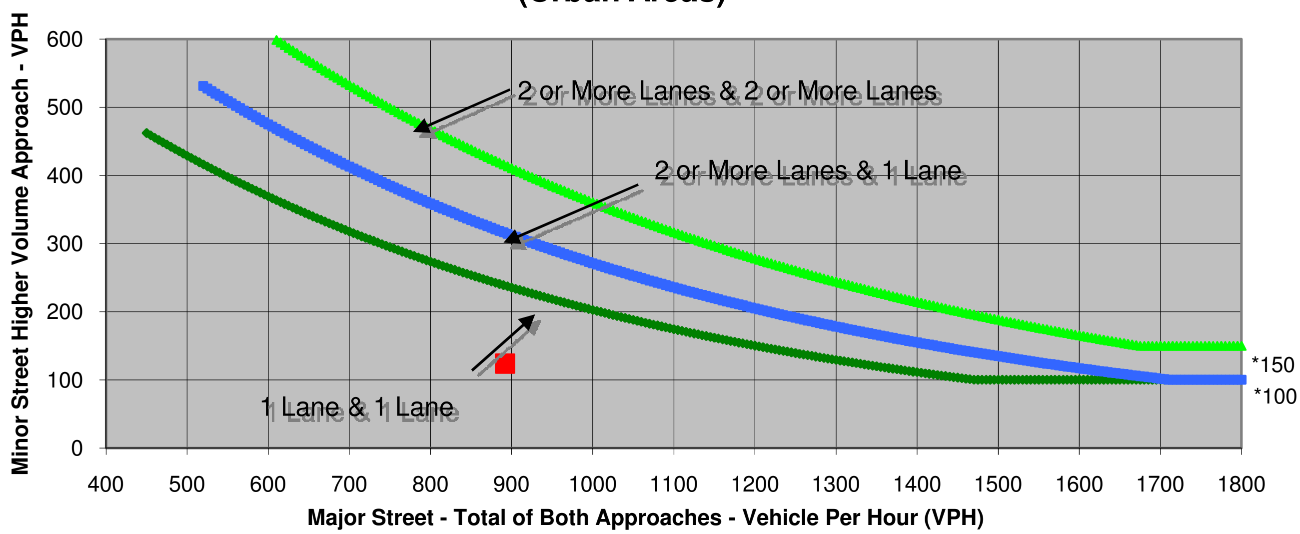
Turn Movement Volumes

	NB	SB	EB	WB
Left	6	88	157	9
Through	18	26	480	109
Right	8	10	15	122
Total	32	124	652	240

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Elwyn Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	892	124	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elverta Road
Minor Street	Rio Linda Blvd
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

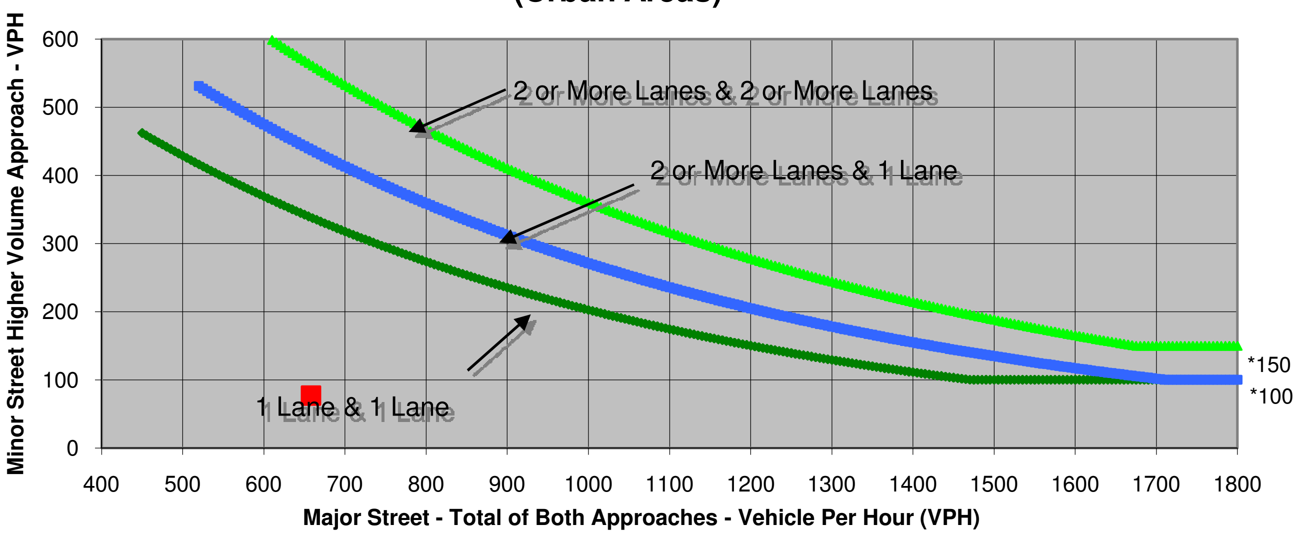
Turn Movement Volumes

	NB	SB	EB	WB
Left	49	0	0	59
Through	0	0	132	385
Right	28	0	82	0
Total	77	0	214	444

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Rio Linda Blvd	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	658	77	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Elverta Road
Minor Street	Rio Linda Blvd
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

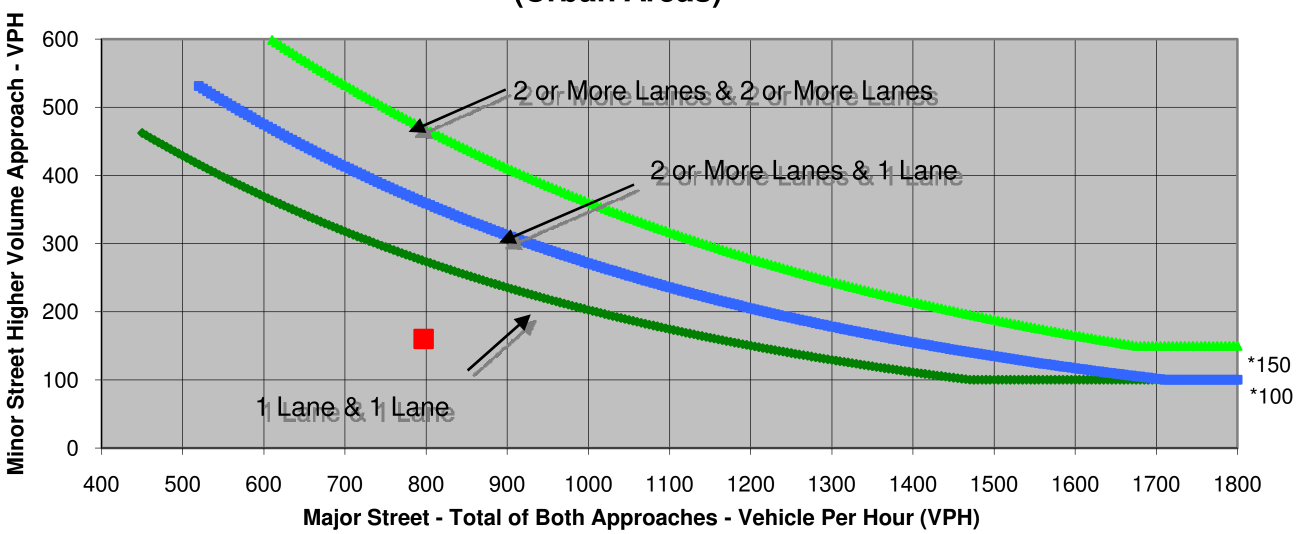
Turn Movement Volumes

	NB	SB	EB	WB
Left	105	0	0	55
Through	0	0	503	152
Right	55	0	87	0
Total	160	0	590	207

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Rio Linda Blvd	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	797	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2		
Major Street	Elverta Road	Project	Elverta Specific Plan EIS		
Minor Street	9th Street	Scenario	Existing Conditions		
		Peak Hour	AM		

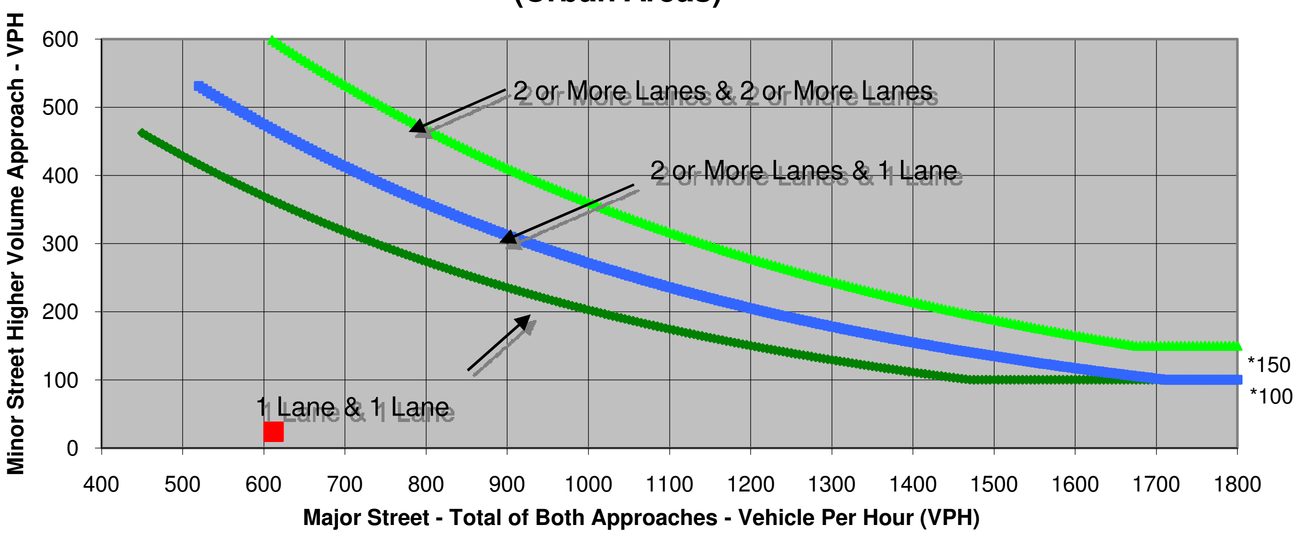
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	13
Through	0	0	184	414
Right	24	0	1	0
Total	24	0	185	427

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** 9th Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	612	24	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

Major Street	Elverta Road
Minor Street	9th Street

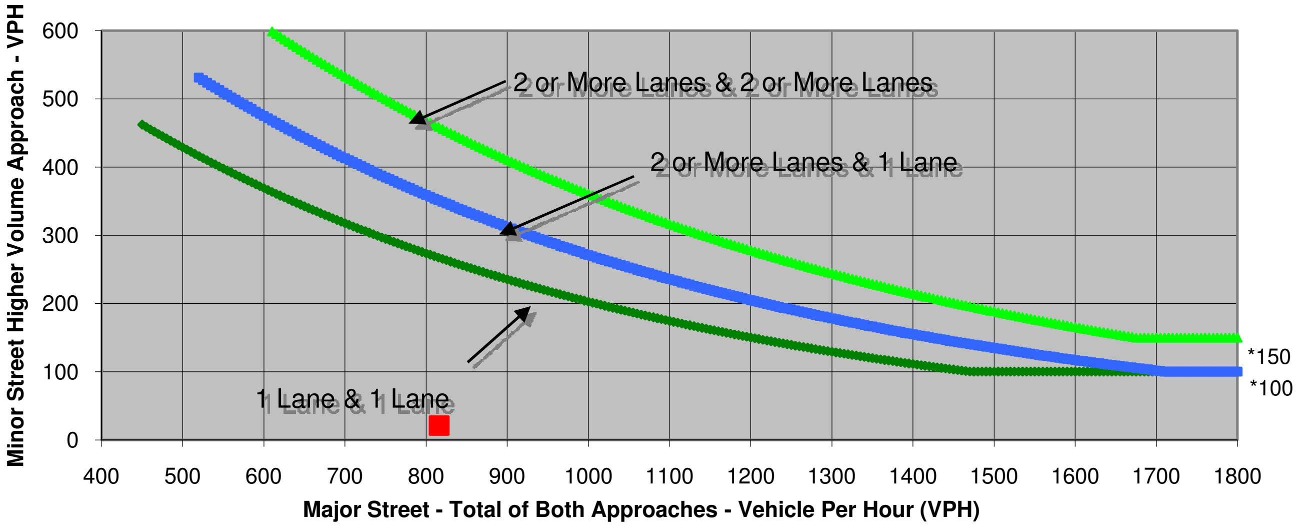
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	0	0	23
Through	0	0	539	249
Right	19	0	5	0
Total	21	0	544	272

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	816	21	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	Elverta Road	Project	Elverta Specific Plan EIS
Minor Street	Palladay Road	Scenario	Existing Conditions
		Peak Hour	AM

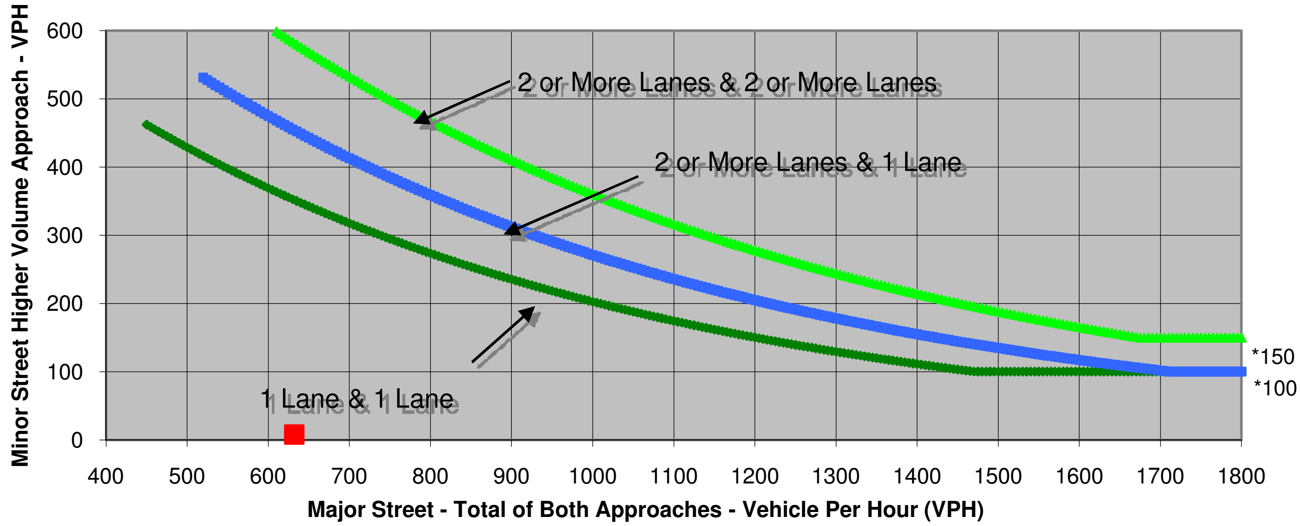
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	2	3	0
Through	0	0	205	421
Right	0	6	0	3
Total	0	8	208	424

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Palladay Road	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	632	8	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Conditions			
Peak Hour	AM			

Major Street	Dry Creek Road
Minor Street	U Street

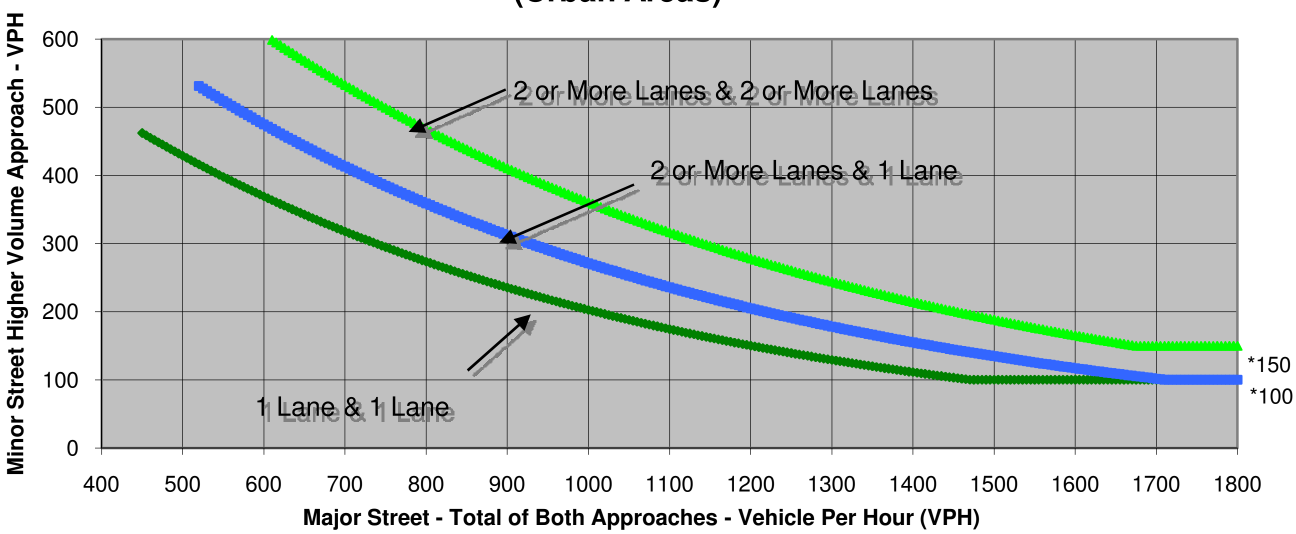
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	0	0	16
Through	0	1	19	18
Right	10	0	45	1
Total	28	1	64	35

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	29	64	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

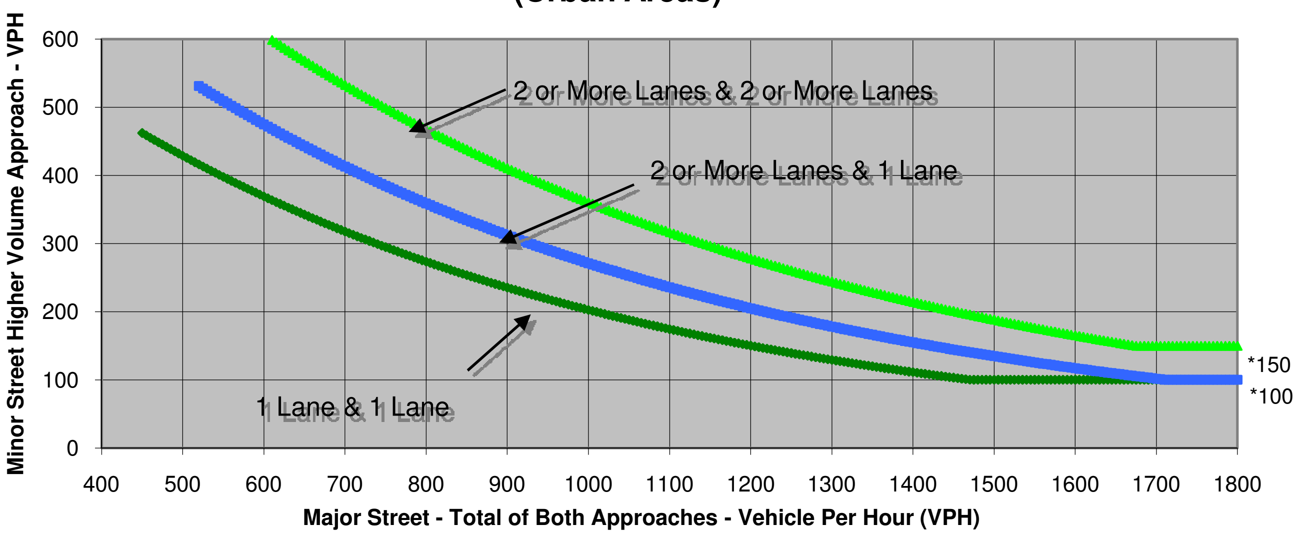
Turn Movement Volumes

	NB	SB	EB	WB
Left	53	1	0	20
Through	2	0	31	26
Right	25	2	31	1
Total	80	3	62	47

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	83	62	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Dry Creek Road
Minor Street	Q Street
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

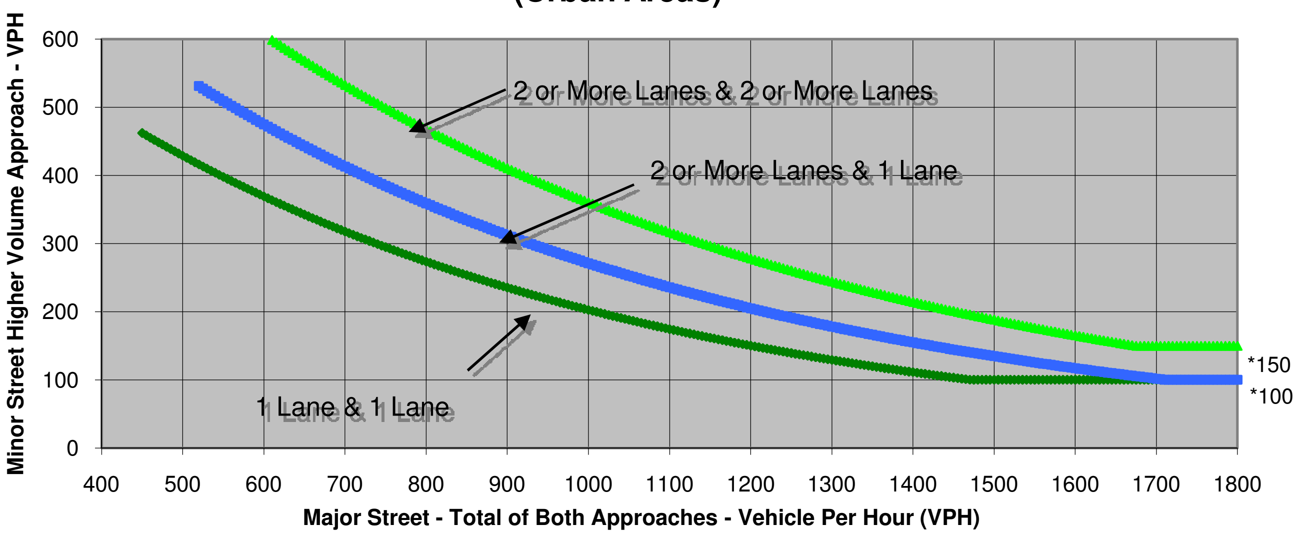
Turn Movement Volumes

	NB	SB	EB	WB
Left	47	10	2	40
Through	28	63	51	58
Right	26	5	53	7
Total	101	78	106	105

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	**Minor Street** Q Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	179	106	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Dry Creek Road
Minor Street	Q Street
Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

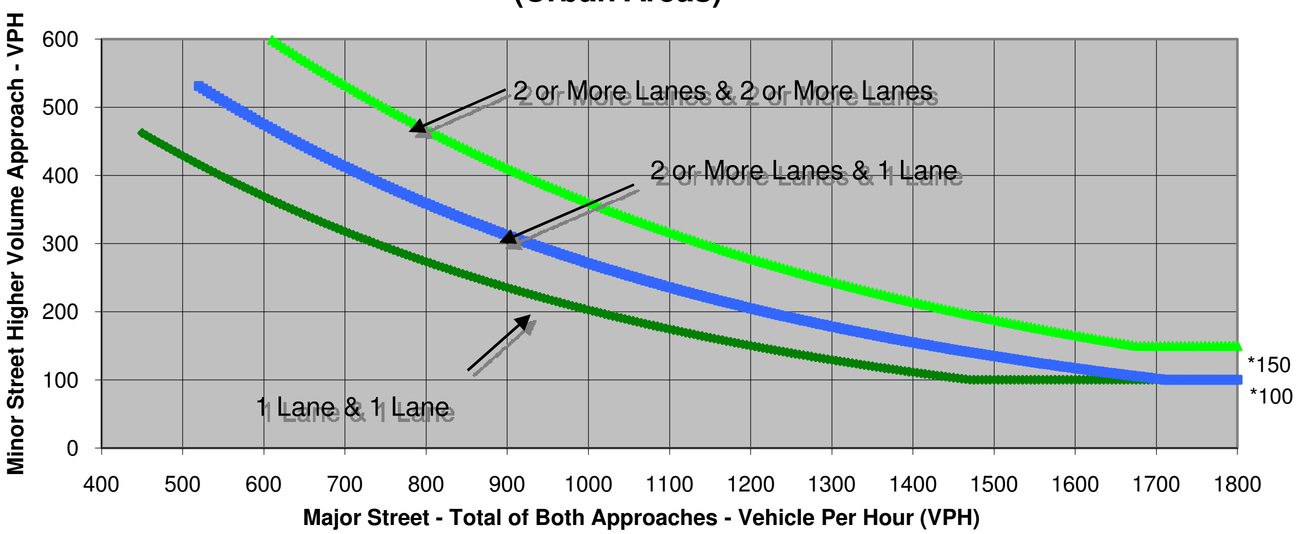
Turn Movement Volumes

	NB	SB	EB	WB
Left	63	4	4	45
Through	69	52	68	76
Right	60	2	44	17
Total	192	58	116	138

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	Minor Street	Warrant Met
	Dry Creek Road	Q Street	
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	250	138	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 1 of 2

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

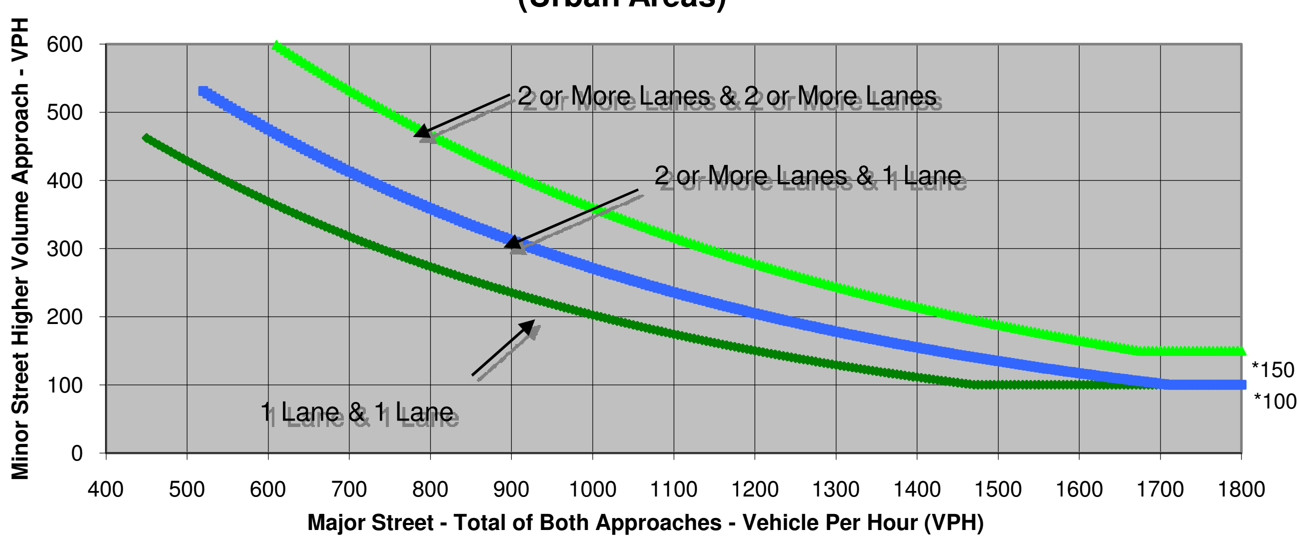
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	5	29	6
Through	9	30	2	3
Right	7	34	3	5
Total	17	69	34	14

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	86	34	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 2

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

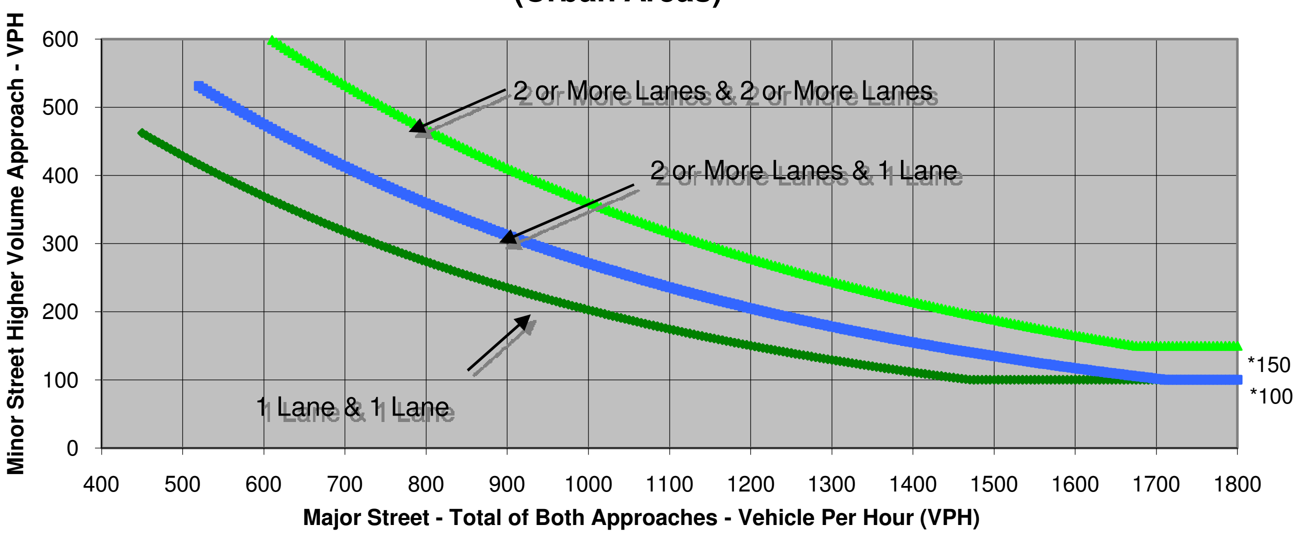
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	8	49	7
Through	31	34	5	2
Right	8	46	5	4
Total	41	88	59	13

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	129	59	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	AM

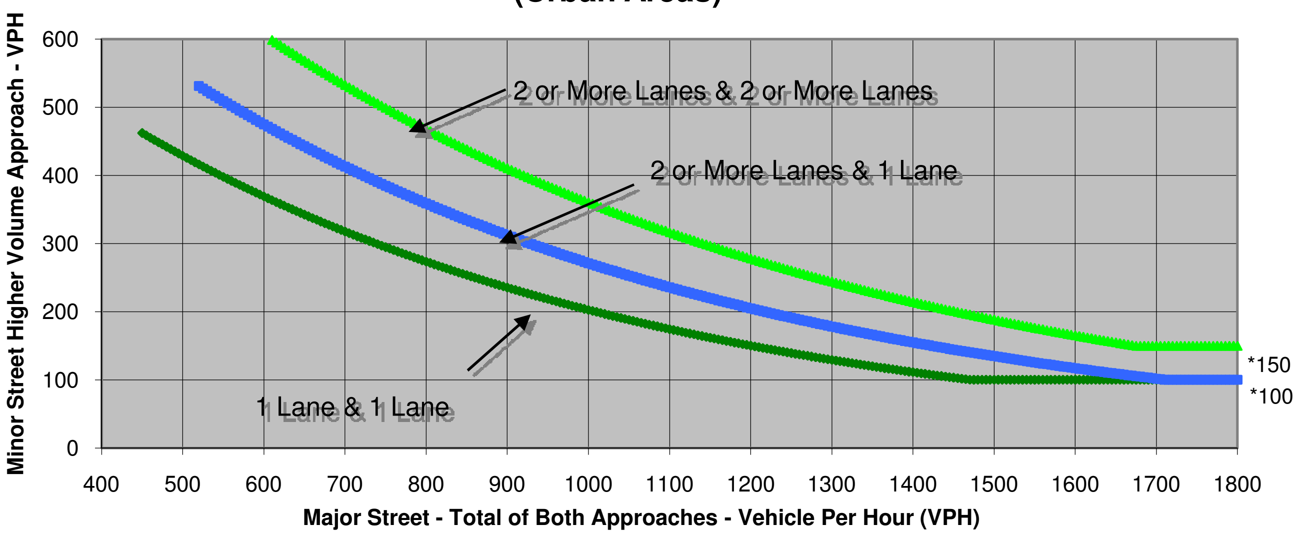
Major Street	16th Street
Minor Street	Q Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	15	5	0
Through	0	0	104	68
Right	0	28	0	8
Total	0	43	109	76

Major Street Direction

	North/South
x	East/West



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	185	43	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	Q Street

Project	Elverta Specific Plan EIS
Scenario	Existing Conditions
Peak Hour	PM

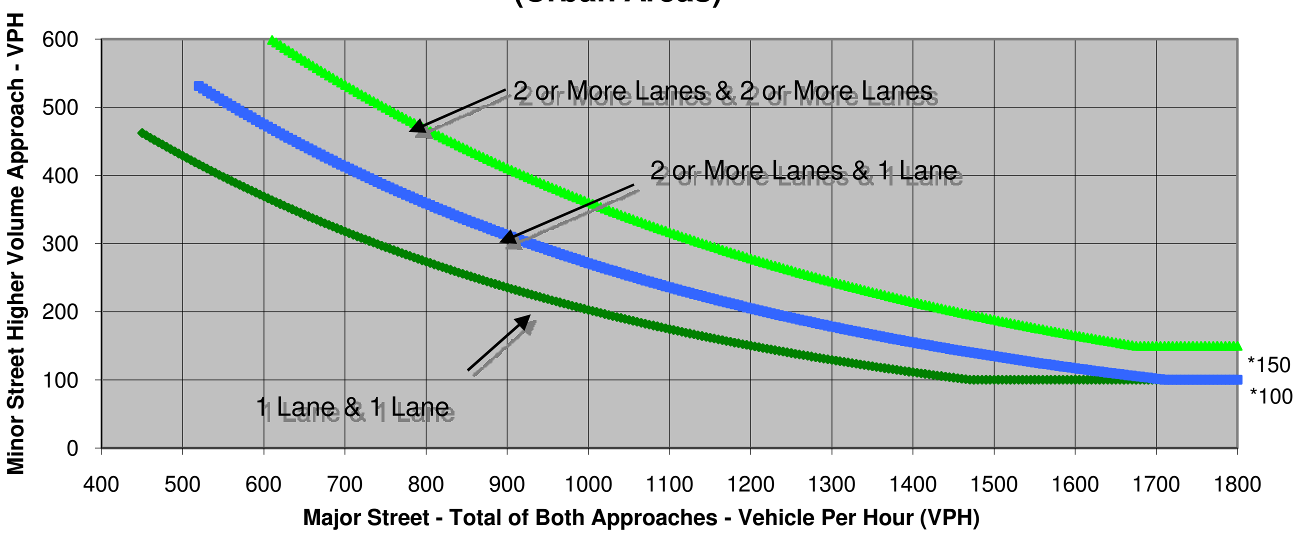
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	17	23	0
Through	0	0	123	112
Right	0	26	0	18
Total	0	43	146	130

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** Q Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	276	43	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2		
Major Street	Elverta Road		Project	Elverta Specific Plan EIS	
Minor Street	Palladay Road		Scenario	Existing Conditions	
			Peak Hour	PM	

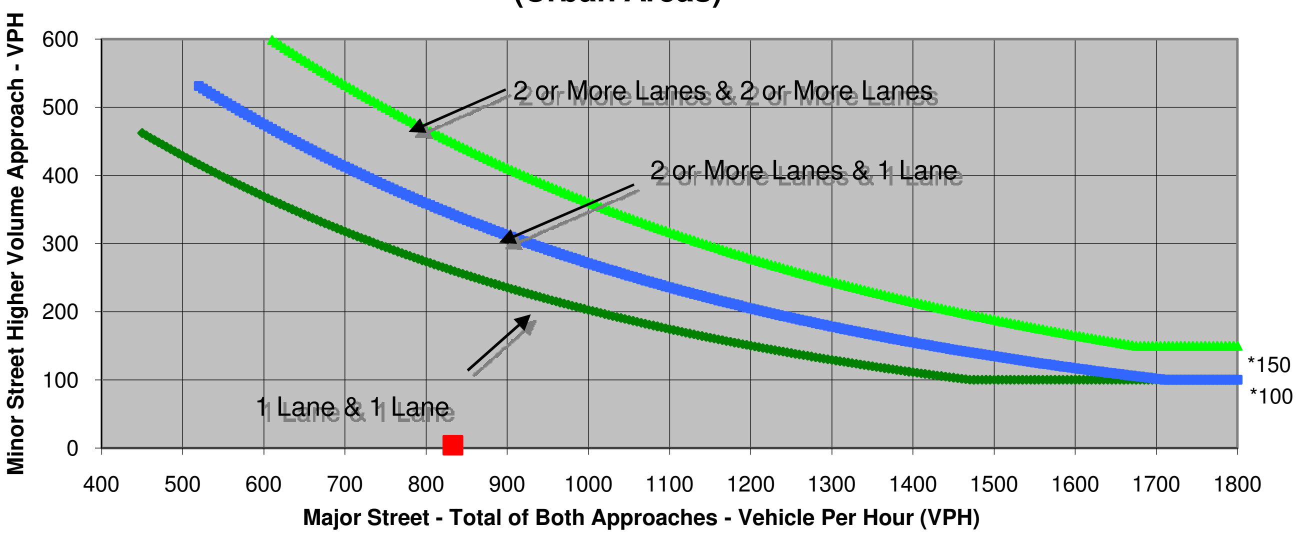
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	1	7	0
Through	0	0	551	269
Right	0	3	0	6
Total	0	4	558	275

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Palladay Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	833	4	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Appendix B

Existing Plus Project Conditions

Table A SACMET Base Year Model Validation Results		
Statistic	**Target Value**	**Daily Base Year Model**
Model / Count Ratio	0.90 - 1.10	0.93
% of Links Within Caltrans Maximum Deviations	>75%	75%
% Root Mean Square Error	<40%	30%
Correlation Coefficient	>0.88	0.95
Source: Fehr & Peers, 2010.		

Appendix B-1: Intersection Operations

Existing Plus Preferred Alternative Conditions

Existing Plus Approved Specific Plan Conditions

Existing Plus Minimal Impact Conditions

Existing Plus No Federal Action Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1693	1583	1633	1641	1583	1467	2935	1357	1641	3374	1583
Flt Permitted		0.99	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1693	1583	1633	1641	1583	1467	2935	1357	1641	3374	1583
Volume (vph)	2	5	7	572	13	8	13	735	154	30	1841	3
Peak-hour factor, PHF	0.61	0.61	0.61	0.87	0.87	0.87	0.95	0.95	0.95	0.86	0.86	0.86
Adj. Flow (vph)	3	8	11	657	15	9	14	774	162	35	2141	3
RTOR Reduction (vph)	0	0	10	0	0	7	0	0	64	0	0	0
Lane Group Flow (vph)	0	11	1	329	343	2	14	774	98	35	2141	3
Heavy Vehicles (%)	2%	14%	2%	5%	5%	2%	23%	23%	19%	10%	7%	2%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		4.5	4.5	20.2	20.2	20.2	2.6	71.6	71.6	4.8	73.8	73.8
Effective Green, g (s)		6.5	6.5	22.2	22.2	22.2	2.1	74.7	74.7	4.3	76.9	76.9
Actuated g/C Ratio		0.05	0.05	0.18	0.18	0.18	0.02	0.60	0.60	0.03	0.62	0.62
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		89	83	293	295	284	25	1772	819	57	2097	984
v/s Ratio Prot		c0.01		0.20	c0.21		0.01	0.26		c0.02	c0.63	
v/s Ratio Perm			0.00			0.00			0.07			0.00
v/c Ratio		0.12	0.01	1.12	1.16	0.01	0.56	0.44	0.12	0.61	1.02	0.00
Uniform Delay, d1		55.9	55.5	50.8	50.8	41.7	60.3	13.2	10.5	58.9	23.4	8.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0	89.8	103.9	0.0	15.9	0.1	0.0	13.0	25.1	0.0
Delay (s)		56.1	55.6	140.6	154.7	41.7	76.3	13.2	10.5	71.9	48.5	8.9
Level of Service		E	E	F	F	D	E	B	B	E	D	A
Approach Delay (s)		55.8			146.4			13.7			48.9	
Approach LOS		E			F			B			D	

Intersection Summary			
HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	123.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1487	1335	1681	1686	1380	1492	2959	1482	1687	3406	1292
Flt Permitted		0.97	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1487	1335	1681	1686	1380	1492	2959	1482	1687	3406	1292
Volume (vph)	11	5	14	1035	16	56	39	835	257	36	2350	34
Peak-hour factor, PHF	0.67	0.67	0.67	0.93	0.93	0.93	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	16	7	21	1113	17	60	41	870	268	39	2554	37
RTOR Reduction (vph)	0	0	20	0	0	23	0	0	81	0	0	5
Lane Group Flow (vph)	0	23	1	561	569	37	41	870	187	39	2554	32
Heavy Vehicles (%)	25%	20%	21%	2%	6%	17%	21%	22%	9%	7%	6%	25%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		6.5	6.5	21.0	21.0	21.0	8.3	122.8	122.8	7.7	122.2	122.2
Effective Green, g (s)		8.5	8.5	23.0	23.0	23.0	7.8	125.9	125.9	7.2	125.3	125.3
Actuated g/C Ratio		0.05	0.05	0.13	0.13	0.13	0.04	0.70	0.70	0.04	0.69	0.69
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.2	2.0	2.0	2.2	2.0	2.0
Lane Grp Cap (vph)		70	63	214	215	176	64	2063	1033	67	2363	896
v/s Ratio Prot		c0.02		0.33	c0.34		c0.03	0.29		0.02	c0.75	
v/s Ratio Perm			0.00			0.03			0.13			0.02
v/c Ratio		0.33	0.02	2.62	2.65	0.21	0.64	0.42	0.18	0.58	1.08	0.04
Uniform Delay, d1		83.3	82.1	78.8	78.8	70.7	85.0	11.7	9.5	85.2	27.6	8.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.0	0.0	743.0	754.2	0.2	16.2	0.6	0.4	8.9	44.7	0.1
Delay (s)		84.3	82.1	821.8	833.0	70.9	101.2	12.4	9.9	94.1	72.3	8.8
Level of Service		F	F	F	F	E	F	B	A	F	E	A
Approach Delay (s)		83.2			789.3			14.9			71.7	
Approach LOS		F			F			B			E	

Intersection Summary			
HCM Average Control Delay	227.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	180.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	2	7	952	115	1
Peak Hour Factor	0.50	0.50	0.85	0.85	0.78	0.78
Hourly flow rate (vph)	0	4	8	1120	147	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			960			
pX, platoon unblocked						
vC, conflicting volume	8				572	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8				572	568
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				69	100
cM capacity (veh/h)	1612				482	522

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	4	1128	147	1
Volume Left	0	0	147	0
Volume Right	0	1120	0	1
cSH	1700	1700	482	522
Volume to Capacity	0.00	0.66	0.31	0.00
Queue Length 95th (ft)	0	0	32	0
Control Delay (s)	0.0	0.0	15.7	11.9
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	15.7	
Approach LOS			C	

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	116	1	0	952	7	299
Peak Hour Factor	0.79	0.79	0.84	0.84	0.92	0.92
Hourly flow rate (vph)	147	1	0	1133	8	325
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			147		1281	147
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			147		1281	147
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	64
cM capacity (veh/h)			1435		183	899

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	148	1133	8	325
Volume Left	0	0	8	0
Volume Right	1	0	0	325
cSH	1700	1700	183	899
Volume to Capacity	0.09	0.67	0.04	0.36
Queue Length 95th (ft)	0	0	3	41
Control Delay (s)	0.0	0.0	25.6	11.2
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	11.6	
Approach LOS			B	

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	284	4	106	1102	4	1	13	21	3	35	4
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.75	0.75	0.75	0.83	0.83	0.83
Hourly flow rate (vph)	5	326	5	114	1185	4	1	17	28	4	42	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	336	1303	47	51
Volume Left (vph)	5	114	1	4
Volume Right (vph)	5	4	28	5
Hadj (s)	0.08	0.06	-0.32	-0.01
Departure Headway (s)	5.2	4.7	6.2	6.5
Degree Utilization, x	0.48	1.71	0.08	0.09
Capacity (veh/h)	688	767	546	519
Control Delay (s)	12.9	338.9	9.7	10.1
Approach Delay (s)	12.9	338.9	9.7	10.1
Approach LOS	B	F	A	B

Intersection Summary			
Delay	257.4		
HCM Level of Service	F		
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	31	416	644	6	24	121
Peak Hour Factor	0.96	0.96	0.89	0.89	0.80	0.80
Hourly flow rate (vph)	32	433	724	7	30	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	730				1225	727
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730				1225	727
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				84	64
cM capacity (veh/h)	869				190	424

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	466	730	181
Volume Left	32	0	30
Volume Right	0	7	151
cSH	869	1700	352
Volume to Capacity	0.04	0.43	0.51
Queue Length 95th (ft)	3	0	70
Control Delay (s)	1.1	0.0	25.6
Lane LOS	A		D
Approach Delay (s)	1.1	0.0	25.6
Approach LOS			D

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	303	1	3	1162	34	0	1	5	9	1	50
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.63	0.63	0.63	0.85	0.85	0.85
Hourly flow rate (vph)	4	333	1	3	1249	37	0	2	8	11	1	59
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1286			334			1676	1635	334	1625	1617	1268
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1286			334			1676	1635	334	1625	1617	1268
tC, single (s)	4.1			4.3			7.1	6.5	6.5	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.5	3.5	4.2	3.3
p0 queue free %	99			100			100	98	99	87	99	71
cM capacity (veh/h)	539			1107			53	100	659	79	91	206

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	338	1289	10	71
Volume Left	4	3	0	11
Volume Right	1	37	8	59
cSH	539	1107	341	163
Volume to Capacity	0.01	0.00	0.03	0.43
Queue Length 95th (ft)	1	0	2	49
Control Delay (s)	0.3	0.1	15.9	42.8
Lane LOS	A	A	C	E
Approach Delay (s)	0.3	0.1	15.9	42.8
Approach LOS			C	E

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	9	299	7	5	1117	102	16	27	9	109	25	64
Peak Hour Factor	0.87	0.87	0.87	0.93	0.93	0.93	0.81	0.81	0.81	0.86	0.86	0.86
Hourly flow rate (vph)	10	344	8	5	1201	110	20	33	11	127	29	74

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	362	1206	110	64	230
Volume Left (vph)	10	5	0	20	127
Volume Right (vph)	8	0	110	11	74
Hadj (s)	0.09	0.03	-0.50	0.07	-0.02
Departure Headway (s)	6.1	5.7	3.2	7.5	6.8
Degree Utilization, x	0.61	1.90	0.10	0.13	0.43
Capacity (veh/h)	574	639	1121	426	507
Control Delay (s)	18.3	427.5	6.5	11.6	14.8
Approach Delay (s)	18.3	392.4		11.6	14.8
Approach LOS	C	F		B	B

Intersection Summary			
Delay	267.3		
HCM Level of Service	F		
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	355	82	59	1164	49	28
Peak Hour Factor	0.89	0.89	0.93	0.93	0.71	0.71
Hourly flow rate (vph)	399	92	63	1252	69	39

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	491	1315	69	39
Volume Left (vph)	0	63	69	0
Volume Right (vph)	92	0	0	39
Hadj (s)	-0.02	0.05	0.57	-0.58
Departure Headway (s)	5.2	5.0	7.8	6.6
Degree Utilization, x	0.70	1.83	0.15	0.07
Capacity (veh/h)	685	727	441	513
Control Delay (s)	19.4	390.5	11.0	9.0
Approach Delay (s)	19.4	390.5	10.2	
Approach LOS	C	F	B	

Intersection Summary			
Delay	273.8		
HCM Level of Service	F		
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	407	1	162	1193	0	66
Peak Hour Factor	0.87	0.87	0.94	0.94	0.60	0.60
Hourly flow rate (vph)	468	1	172	1269	0	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.70	
vC, conflicting volume			469		1448	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			469		1215	234
tC, single (s)			4.4		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			83		100	85
cM capacity (veh/h)			1003		101	749

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	312	157	172	635	635	110
Volume Left	0	0	172	0	0	0
Volume Right	0	1	0	0	0	110
cSH	1700	1700	1003	1700	1700	749
Volume to Capacity	0.18	0.09	0.17	0.37	0.37	0.15
Queue Length 95th (ft)	0	0	15	0	0	13
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	10.6
Lane LOS			A			B
Approach Delay (s)	0.0		1.1			10.6
Approach LOS						B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1444	3471	3413		1770	1292
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1444	3471	3413		1770	1292
Volume (vph)	62	440	1137	122	410	214
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.92	0.92
Adj. Flow (vph)	67	478	1223	131	446	233
RTOR Reduction (vph)	0	0	8	0	0	129
Lane Group Flow (vph)	67	478	1346	0	446	104
Heavy Vehicles (%)	25%	4%	2%	25%	2%	25%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	5.5	46.5	37.0		24.5	24.5
Effective Green, g (s)	5.5	46.5	37.0		24.5	24.5
Actuated g/C Ratio	0.07	0.59	0.47		0.31	0.31
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	101	2043	1598		549	401
v/s Ratio Prot	c0.05	0.14	c0.39		c0.25	
v/s Ratio Perm						0.08
v/c Ratio	0.66	0.23	0.84		0.81	0.26
Uniform Delay, d1	35.8	7.8	18.4		25.1	20.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.2	0.1	4.2		8.9	0.3
Delay (s)	51.0	7.8	22.7		34.1	20.8
Level of Service	D	A	C		C	C
Approach Delay (s)		13.1	22.7		29.5	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	19	45	80	18	1	18	173	29	0	607	7
Peak Hour Factor	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	3	26	62	93	21	1	21	199	33	0	660	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	90	115	253	667
Volume Left (vph)	3	93	21	0
Volume Right (vph)	62	1	33	8
Hadj (s)	-0.37	0.22	-0.02	0.03
Departure Headway (s)	6.2	6.7	5.5	5.0
Degree Utilization, x	0.16	0.21	0.39	0.93
Capacity (veh/h)	543	506	632	713
Control Delay (s)	10.3	11.5	12.0	40.3
Approach Delay (s)	10.3	11.5	12.0	40.3
Approach LOS	B	B	B	E

Intersection Summary			
Delay	28.6		
HCM Level of Service	D		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	56	53	132	77	15	47	208	54	36	696	17
Peak Hour Factor	0.85	0.85	0.85	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	7	66	62	150	88	17	54	239	62	39	757	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	135	255	355	814
Volume Left (vph)	7	150	54	39
Volume Right (vph)	62	17	62	18
Hadj (s)	-0.18	0.12	-0.01	0.03
Departure Headway (s)	7.4	7.2	6.5	6.2
Degree Utilization, x	0.28	0.51	0.64	1.40
Capacity (veh/h)	434	472	529	581
Control Delay (s)	13.3	17.6	20.6	209.2
Approach Delay (s)	13.3	17.6	20.6	209.2
Approach LOS	B	C	C	F

Intersection Summary			
Delay	118.0		
HCM Level of Service	F		
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3343	1538	3400	3360		1736	1863	1538	1752	3462	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3343	1538	3400	3360		1736	1863	1538	1752	3462	
Volume (vph)	142	383	209	109	521	93	92	259	86	152	751	128
Peak-hour factor, PHF	0.72	0.72	0.72	0.90	0.90	0.90	0.87	0.87	0.87	0.93	0.93	0.93
Adj. Flow (vph)	197	532	290	121	579	103	106	298	99	163	808	138
RTOR Reduction (vph)	0	0	207	0	7	0	0	0	65	0	7	0
Lane Group Flow (vph)	197	532	83	121	675	0	106	298	34	163	939	0
Heavy Vehicles (%)	2%	8%	5%	3%	5%	5%	4%	2%	5%	3%	2%	2%
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6						8			
Actuated Green, G (s)	7.0	23.7	23.7	5.4	22.4		7.5	25.8	25.8	10.1	28.2	
Effective Green, g (s)	7.8	24.8	24.8	6.9	23.9		9.0	26.9	26.9	11.6	29.5	
Actuated g/C Ratio	0.09	0.29	0.29	0.08	0.28		0.10	0.31	0.31	0.13	0.34	
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5		5.5	5.1	5.1	5.5	5.3	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	311	962	442	272	932		181	581	480	236	1185	
v/s Ratio Prot	c0.06	0.16		0.04	c0.20		0.06	0.16		c0.09	c0.27	
v/s Ratio Perm			0.05						0.02			
v/c Ratio	0.63	0.55	0.19	0.44	0.72		0.59	0.51	0.07	0.69	0.79	
Uniform Delay, d1	37.8	26.0	23.1	37.8	28.2		36.8	24.3	20.9	35.6	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.4	0.1	0.4	2.4		3.1	0.3	0.0	6.8	3.5	
Delay (s)	40.9	26.4	23.2	38.2	30.6		39.9	24.6	20.9	42.4	29.1	
Level of Service	D	C	C	D	C		D	C	C	D	C	
Approach Delay (s)		28.3			31.7			27.1			31.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.87		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	3413		1656	3454		1770	1595		1444	1709	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1597	3413		1656	3454		1770	1595		1444	1709	
Volume (vph)	55	814	118	224	731	84	176	49	281	322	156	190
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	59	875	127	241	786	90	189	53	302	350	170	207
RTOR Reduction (vph)	0	11	0	0	8	0	0	215	0	0	45	0
Lane Group Flow (vph)	59	991	0	241	868	0	189	140	0	350	332	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.7	29.9		14.0	37.2		13.0	12.3		24.1	23.4	
Effective Green, g (s)	6.7	29.9		14.0	37.2		13.0	12.3		24.1	23.4	
Actuated g/C Ratio	0.07	0.31		0.15	0.39		0.13	0.13		0.25	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	1060		241	1334		239	204		361	415	
v/s Ratio Prot	0.04	c0.29		c0.15	0.25		0.11	0.09		c0.24	c0.19	
v/s Ratio Perm												
v/c Ratio	0.53	0.93		1.00	0.65		0.79	0.68		0.97	0.80	
Uniform Delay, d1	43.3	32.3		41.1	24.2		40.3	40.1		35.7	34.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	14.5		58.0	1.1		16.2	9.1		38.8	10.3	
Delay (s)	48.1	46.7		99.1	25.4		56.5	49.3		74.5	44.5	
Level of Service	D	D		F	C		E	D		E	D	
Approach Delay (s)		46.8			41.3			51.8			59.0	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	48	2	3	6	3	5	1	86	7	5	290	98
Peak Hour Factor	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	55	2	3	9	4	7	1	93	8	6	333	113

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	60	21	102	452
Volume Left (vph)	55	9	1	6
Volume Right (vph)	3	7	8	113
Hadj (s)	0.20	-0.09	0.13	-0.08
Departure Headway (s)	5.4	5.1	4.7	4.2
Degree Utilization, x	0.09	0.03	0.13	0.52
Capacity (veh/h)	605	619	730	844
Control Delay (s)	8.9	8.3	8.4	11.6
Approach Delay (s)	8.9	8.3	8.4	11.6
Approach LOS	A	A	A	B

Intersection Summary			
Delay	10.7		
HCM Level of Service	B		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	38	130	76	52	163	139
Peak Hour Factor	0.72	0.72	0.85	0.85	0.92	0.92
Hourly flow rate (vph)	53	181	89	61	177	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	151				406	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				406	120
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.6	3.3
p0 queue free %	96				69	84
cM capacity (veh/h)	1328				568	926

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	233	151	328
Volume Left	53	0	177
Volume Right	0	61	151
cSH	1328	1700	691
Volume to Capacity	0.04	0.09	0.48
Queue Length 95th (ft)	3	0	64
Control Delay (s)	2.0	0.0	14.8
Lane LOS	A		B
Approach Delay (s)	2.0	0.0	14.8
Approach LOS			B

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3471	1553	1736	3539	1583	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3471	1553	1736	3539	1583	1495
Volume (vph)	1	548	51	347	697	50	104
Peak-hour factor, PHF	0.86	0.86	0.86	0.91	0.91	0.76	0.76
Adj. Flow (vph)	1	637	59	381	766	66	137
RTOR Reduction (vph)	0	0	36	0	0	0	122
Lane Group Flow (vph)	1	637	23	381	766	66	15
Heavy Vehicles (%)	2%	4%	4%	4%	2%	14%	8%
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.4	26.4	26.4	23.0	42.1	6.4	6.4
Effective Green, g (s)	1.1	27.5	27.5	23.0	43.2	7.8	7.8
Actuated g/C Ratio	0.02	0.39	0.39	0.33	0.61	0.11	0.11
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	28	1358	608	568	2175	176	166
v/s Ratio Prot	0.00	c0.18		c0.22	0.22	c0.04	
v/s Ratio Perm			0.01				0.01
v/c Ratio	0.04	0.47	0.04	0.67	0.35	0.38	0.09
Uniform Delay, d1	34.1	16.0	13.2	20.4	6.7	29.0	28.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5	0.1	2.5	0.2	0.5	0.1
Delay (s)	34.3	16.5	13.3	22.8	6.9	29.5	28.2
Level of Service	C	B	B	C	A	C	C
Approach Delay (s)		16.2			12.2	28.6	
Approach LOS		B			B	C	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.98			1.00	0.94	
Flt Protected	1.00			0.99	0.97	
Satd. Flow (prot)	1799			1847	1677	
Flt Permitted	1.00			0.99	0.97	
Satd. Flow (perm)	1799			1847	1677	
Volume (vph)	1539	236	170	837	66	51
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.76	0.76
Adj. Flow (vph)	1655	254	183	900	87	67
RTOR Reduction (vph)	4	0	0	0	19	0
Lane Group Flow (vph)	1905	0	0	1083	135	0
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%
Turn Type			Split			
Protected Phases	2		1	1	3	
Permitted Phases						
Actuated Green, G (s)	50.3			50.3	14.1	
Effective Green, g (s)	51.3			51.1	13.6	
Actuated g/C Ratio	0.38			0.38	0.10	
Clearance Time (s)	5.0			4.8	3.5	
Vehicle Extension (s)	6.8			6.3	2.0	
Lane Grp Cap (vph)	690			705	170	
v/s Ratio Prot	c1.06			c0.59	c0.08	
v/s Ratio Perm						
v/c Ratio	2.76			1.54	0.79	
Uniform Delay, d1	41.3			41.4	58.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	796.7			248.4	20.8	
Delay (s)	837.9			289.7	79.5	
Level of Service	F			F	E	
Approach Delay (s)	837.9			289.7	79.5	
Approach LOS	F			F	E	

Intersection Summary			
HCM Average Control Delay	612.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.99		
Actuated Cycle Length (s)	133.8	Sum of lost time (s)	17.8
Intersection Capacity Utilization	165.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	189	39	454	730	35	348
Peak-hour factor, PHF	0.93	0.93	0.97	0.97	0.87	0.87
Adj. Flow (vph)	203	42	468	753	40	400
RTOR Reduction (vph)	0	16	0	0	0	311
Lane Group Flow (vph)	203	26	468	753	40	89
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	43.5	43.5	12.0	59.1	4.5	16.5
Effective Green, g (s)	45.5	45.5	11.6	61.1	4.8	16.4
Actuated g/C Ratio	0.62	0.62	0.16	0.83	0.06	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	1147	975	278	1540	115	437
v/s Ratio Prot	0.11		c0.26	c0.40	c0.02	0.03
v/s Ratio Perm		0.02				0.02
v/c Ratio	0.18	0.03	1.68	0.49	0.35	0.20
Uniform Delay, d1	6.1	5.5	31.2	1.9	33.1	23.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	322.8	1.1	0.7	0.1
Delay (s)	6.5	5.6	353.9	3.0	33.7	23.5
Level of Service	A	A	F	A	C	C
Approach Delay (s)	6.3			137.5	24.4	
Approach LOS	A			F	C	

Intersection Summary			
HCM Average Control Delay	94.5	HCM Level of Service	F
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	442	198	964	429	409	348	403	463	84	110	991	350
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	475	213	1037	452	431	366	433	498	90	116	1043	368
RTOR Reduction (vph)	0	0	152	0	0	220	0	0	56	0	0	188
Lane Group Flow (vph)	475	213	885	452	431	146	433	498	34	116	1043	180
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	25.0	70.1	70.1	25.0	70.0	70.0	25.0	75.2	75.2	10.2	60.0	60.0
Effective Green, g (s)	26.5	71.7	71.7	26.5	71.7	71.7	26.5	76.7	76.7	11.7	61.9	61.9
Actuated g/C Ratio	0.13	0.35	0.35	0.13	0.35	0.35	0.13	0.38	0.38	0.06	0.31	0.31
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	449	1252	560	449	1252	560	449	1925	599	198	1554	484
v/s Ratio Prot	c0.14	0.06		0.13	0.12		c0.13	0.10		0.03	c0.21	
v/s Ratio Perm			c0.56			0.09			0.02			0.11
v/c Ratio	1.06	0.17	1.58	1.01	0.34	0.26	0.96	0.26	0.06	0.59	0.67	0.37
Uniform Delay, d1	88.0	45.0	65.4	88.0	48.2	46.6	87.6	43.4	40.0	93.1	61.5	55.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	58.6	0.1	269.8	44.1	0.5	0.7	33.0	0.2	0.1	2.8	1.6	1.1
Delay (s)	146.7	45.1	335.2	132.2	48.6	47.3	120.5	43.5	40.1	95.9	63.1	56.3
Level of Service	F	D	F	F	D	D	F	D	D	F	E	E
Approach Delay (s)		247.5			78.5			75.9			63.9	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM Average Control Delay	126.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	202.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4975	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4975	
Volume (vph)	164	374	322	266	609	64	222	535	46	129	1648	277
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	178	407	350	286	655	69	241	582	50	136	1735	292
RTOR Reduction (vph)	0	0	186	0	0	42	0	0	25	0	9	0
Lane Group Flow (vph)	178	407	164	286	655	27	241	582	25	136	2018	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	11.4	32.2	32.2	16.3	37.3	37.3	14.2	75.4	75.4	9.5	70.7	
Effective Green, g (s)	12.9	33.9	33.9	17.8	38.8	38.8	15.7	77.0	77.0	11.0	72.3	
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.25	0.25	0.10	0.49	0.49	0.07	0.46	
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)	284	771	345	392	882	394	346	2515	783	243	2310	
v/s Ratio Prot	0.05	0.11		c0.08	c0.19		c0.07	0.11		0.04	c0.41	
v/s Ratio Perm			0.10			0.02			0.02			
v/c Ratio	0.63	0.53	0.47	0.73	0.74	0.07	0.70	0.23	0.03	0.56	0.87	
Uniform Delay, d1	69.1	53.8	53.1	66.6	53.8	44.6	67.7	22.5	20.2	70.0	37.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	1.2	2.1	5.7	4.0	0.1	4.9	0.1	0.0	1.6	4.3	
Delay (s)	72.2	55.0	55.2	72.3	57.9	44.8	72.6	22.6	20.2	71.6	41.9	
Level of Service	E	E	E	E	E	D	E	C	C	E	D	
Approach Delay (s)		58.4			61.1			36.2			43.8	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	155.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Volume (vph)	155	208	592	85	118	48	219	686	43	57	1202	116
Peak-hour factor, PHF	0.91	0.91	0.91	0.74	0.74	0.74	0.88	0.88	0.88	0.99	0.99	0.99
Adj. Flow (vph)	170	229	651	115	159	65	249	780	49	58	1214	117
RTOR Reduction (vph)	0	0	181	0	0	49	0	0	28	0	0	58
Lane Group Flow (vph)	170	229	470	115	159	16	249	780	21	58	1214	59
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.4	33.0	33.0	10.7	29.3	29.3	12.5	49.0	49.0	7.3	43.8	43.8
Effective Green, g (s)	15.4	35.0	35.0	10.7	30.3	30.3	12.5	51.0	51.0	7.3	45.8	45.8
Actuated g/C Ratio	0.13	0.29	0.29	0.09	0.25	0.25	0.10	0.42	0.42	0.06	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	227	1032	462	158	894	400	358	1504	673	108	1351	604
v/s Ratio Prot	c0.10	0.06		0.06	0.04		c0.07	0.22		0.03	c0.34	
v/s Ratio Perm			c0.30			0.01			0.01			0.04
v/c Ratio	0.75	0.22	1.02	0.73	0.18	0.04	0.70	0.52	0.03	0.54	0.90	0.10
Uniform Delay, d1	50.4	32.2	42.5	53.2	35.1	33.9	51.9	25.4	20.1	54.7	34.9	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	0.2	46.1	13.2	0.2	0.1	4.7	1.3	0.1	2.6	9.7	0.3
Delay (s)	61.6	32.4	88.6	66.4	35.3	34.0	56.6	26.7	20.2	57.3	44.6	24.2
Level of Service	E	C	F	E	D	C	E	C	C	E	D	C
Approach Delay (s)		72.0			45.6			33.3			43.4	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM Average Control Delay	48.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1700	1292	1603	1594	1583	1770	3438	1538	1687	3195	1583
Flt Permitted		0.98	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1700	1292	1603	1594	1583	1770	3438	1538	1687	3195	1583
Volume (vph)	10	13	16	178	10	38	7	1943	564	44	1045	1
Peak-hour factor, PHF	0.76	0.76	0.76	0.83	0.83	0.83	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	13	17	21	214	12	46	7	2045	594	47	1124	1
RTOR Reduction (vph)	0	0	20	0	0	41	0	0	101	0	0	0
Lane Group Flow (vph)	0	30	1	117	109	5	7	2045	493	47	1124	1
Heavy Vehicles (%)	2%	15%	25%	7%	20%	2%	2%	5%	5%	7%	13%	2%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		5.0	5.0	11.7	11.7	11.7	1.0	76.9	76.9	6.6	82.5	82.5
Effective Green, g (s)		7.0	7.0	13.7	13.7	13.7	0.5	80.0	80.0	6.1	85.6	85.6
Actuated g/C Ratio		0.06	0.06	0.11	0.11	0.11	0.00	0.65	0.65	0.05	0.70	0.70
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		97	74	179	178	177	7	2240	1002	84	2227	1103
v/s Ratio Prot		c0.02		c0.07	0.07		0.00	c0.59		c0.03	0.35	
v/s Ratio Perm			0.00			0.00			0.32			0.00
v/c Ratio		0.31	0.02	0.65	0.61	0.03	1.00	0.91	0.49	0.56	0.50	0.00
Uniform Delay, d1		55.6	54.6	52.3	52.0	48.6	61.1	18.4	11.0	57.0	8.7	5.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7	0.0	6.4	4.3	0.0	340.2	6.1	0.1	4.5	0.1	0.0
Delay (s)		56.2	54.7	58.7	56.4	48.6	401.3	24.5	11.1	61.6	8.8	5.6
Level of Service		E	D	E	E	D	F	C	B	E	A	A
Approach Delay (s)		55.6			56.0			22.5			10.9	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	122.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1714	1468	1665	1666	1524	1543	3406	1568	1612	3195	1324
Flt Permitted		0.98	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1714	1468	1665	1666	1524	1543	3406	1568	1612	3195	1324
Volume (vph)	15	25	59	503	7	56	12	2443	1209	70	1160	9
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.97	0.97	0.97	0.90	0.90	0.90
Adj. Flow (vph)	17	28	67	547	8	61	12	2519	1246	78	1289	10
RTOR Reduction (vph)	0	0	63	0	0	50	0	0	185	0	0	3
Lane Group Flow (vph)	0	45	4	284	271	11	12	2519	1061	78	1289	7
Heavy Vehicles (%)	20%	2%	10%	3%	14%	6%	17%	6%	3%	12%	13%	22%
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	7		8	8		5	2		1	6	
Permitted Phases			7			8			2			6
Actuated Green, G (s)		8.5	8.5	21.0	21.0	21.0	3.0	116.8	116.8	11.7	125.5	125.5
Effective Green, g (s)		10.5	10.5	23.0	23.0	23.0	2.5	119.9	119.9	11.2	128.6	128.6
Actuated g/C Ratio		0.06	0.06	0.13	0.13	0.13	0.01	0.66	0.66	0.06	0.71	0.71
Clearance Time (s)		6.0	6.0	6.0	6.0	6.0	3.5	7.1	7.1	3.5	7.1	7.1
Vehicle Extension (s)		1.0	1.0	1.0	1.0	1.0	2.2	2.0	2.0	2.2	2.0	2.0
Lane Grp Cap (vph)		100	85	212	212	194	21	2261	1041	100	2275	943
v/s Ratio Prot		c0.03		c0.17	0.16		0.01	c0.74		c0.05	0.40	
v/s Ratio Perm			0.00			0.01			0.68			0.01
v/c Ratio		0.45	0.05	1.34	1.28	0.06	0.57	1.11	1.02	0.78	0.57	0.01
Uniform Delay, d1		82.3	80.3	78.8	78.8	69.3	88.5	30.3	30.3	83.5	12.5	7.5
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.2	0.1	181.1	156.5	0.0	23.7	58.2	32.8	29.9	1.0	0.0
Delay (s)		83.4	80.4	259.9	235.3	69.3	112.2	88.6	63.1	113.4	13.6	7.5
Level of Service		F	F	F	F	E	F	F	E	F	B	A
Approach Delay (s)		81.6			230.2			80.2			19.2	
Approach LOS		F			F			F			B	

Intersection Summary			
HCM Average Control Delay	81.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	180.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	7	13	416	90	2
Peak Hour Factor	0.54	0.54	0.83	0.83	0.88	0.88
Hourly flow rate (vph)	0	13	16	501	102	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			960			
pX, platoon unblocked						
vC, conflicting volume	517				279	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	517				279	266
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1049				711	772

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	13	517	102	2
Volume Left	0	0	102	0
Volume Right	0	501	0	2
cSH	1700	1700	711	772
Volume to Capacity	0.01	0.30	0.14	0.00
Queue Length 95th (ft)	0	0	13	0
Control Delay (s)	0.0	0.0	10.9	9.7
Lane LOS			B	A
Approach Delay (s)	0.0	0.0	10.9	
Approach LOS			B	

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	94	3	0	410	19	1166
Peak Hour Factor	0.84	0.84	0.88	0.88	0.90	0.90
Hourly flow rate (vph)	112	4	0	466	21	1296
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			115		580	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			115		580	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	0
cM capacity (veh/h)			1473		477	939

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	115	466	21	1296
Volume Left	0	0	21	0
Volume Right	4	0	0	1296
cSH	1700	1700	477	939
Volume to Capacity	0.07	0.27	0.04	1.38
Queue Length 95th (ft)	0	0	3	1341
Control Delay (s)	0.0	0.0	12.9	192.6
Lane LOS			B	F
Approach Delay (s)	0.0	0.0	189.8	
Approach LOS			F	

Intersection Summary			
Average Delay	131.6		
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	1397	0	34	562	0	4	60	96	4	25	2
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.97	0.97	0.97	0.70	0.70	0.70
Hourly flow rate (vph)	24	1502	0	37	611	0	4	62	99	6	36	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1526	648	165	44
Volume Left (vph)	24	37	4	6
Volume Right (vph)	0	0	99	3
Hadj (s)	0.04	0.09	-0.32	0.02
Departure Headway (s)	5.7	5.7	6.9	7.8
Degree Utilization, x	2.41	1.03	0.32	0.10
Capacity (veh/h)	637	631	512	438
Control Delay (s)	652.7	68.5	13.1	11.7
Approach Delay (s)	652.7	68.5	13.1	11.7
Approach LOS	F	F	B	B

Intersection Summary			
Delay	437.7		
HCM Level of Service	F		
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	119	968	546	34	11	54
Peak Hour Factor	0.92	0.92	0.91	0.91	0.76	0.76
Hourly flow rate (vph)	129	1052	600	37	14	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	637				1930	619
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	637				1930	619
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				77	85
cM capacity (veh/h)	946				63	489

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1182	637	86
Volume Left	129	0	14
Volume Right	0	37	71
cSH	946	1700	228
Volume to Capacity	0.14	0.37	0.38
Queue Length 95th (ft)	12	0	41
Control Delay (s)	4.0	0.0	30.0
Lane LOS	A		D
Approach Delay (s)	4.0	0.0	30.0
Approach LOS			D

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	33	1461	3	2	584	24	1	1	5	39	2	11
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.45	0.45	0.45	0.71	0.71	0.71
Hourly flow rate (vph)	35	1571	3	2	635	26	2	2	11	55	3	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	661			1574			2313	2309	1573	2308	2297	648
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	661			1574			2313	2309	1573	2308	2297	648
tC, single (s)	4.2			4.1			7.1	6.8	6.2	7.1	6.8	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.2	3.3	3.5	4.2	3.4
p0 queue free %	96			99			90	93	92	0	91	97
cM capacity (veh/h)	909			418			23	31	136	23	32	458

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1610	663	16	73
Volume Left	35	2	2	55
Volume Right	3	26	11	15
cSH	909	418	62	29
Volume to Capacity	0.04	0.01	0.25	2.56
Queue Length 95th (ft)	3	0	22	218
Control Delay (s)	4.9	0.2	80.7	999.8
Lane LOS	A	A	F	F
Approach Delay (s)	4.9	0.2	80.7	999.8
Approach LOS			F	F

Intersection Summary			
Average Delay	34.9		
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	157	1326	15	9	593	143	6	18	8	124	26	10
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.80	0.80	0.80	0.63	0.63	0.63
Hourly flow rate (vph)	169	1426	16	10	645	155	8	22	10	197	41	16

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	1611	654	155	40	254
Volume Left (vph)	169	10	0	8	197
Volume Right (vph)	16	0	155	10	16
Hadj (s)	0.05	0.09	-0.57	-0.08	0.18
Departure Headway (s)	6.2	6.2	3.2	8.3	7.4
Degree Utilization, x	2.76	1.13	0.14	0.09	0.52
Capacity (veh/h)	596	585	1121	412	476
Control Delay (s)	810.7	101.1	6.7	12.1	18.2
Approach Delay (s)	810.7	83.0		12.1	18.2
Approach LOS	F	F		B	C

Intersection Summary			
Delay	507.7		
HCM Level of Service	F		
Intersection Capacity Utilization	136.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	1385	87	55	656	105	55
Peak Hour Factor	0.97	0.97	0.92	0.92	0.91	0.91
Hourly flow rate (vph)	1428	90	60	713	115	60

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	1518	773	115	60
Volume Left (vph)	0	60	115	0
Volume Right (vph)	90	0	0	60
Hadj (s)	0.00	0.07	0.53	-0.58
Departure Headway (s)	5.5	5.6	8.1	7.0
Degree Utilization, x	2.31	1.19	0.26	0.12
Capacity (veh/h)	664	657	438	507
Control Delay (s)	607.8	121.2	12.7	9.7
Approach Delay (s)	607.8	121.2	11.7	
Approach LOS	F	F	B	

Intersection Summary			
Delay	412.8		
HCM Level of Service	F		
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1421	5	120	753	2	189
Peak Hour Factor	0.95	0.95	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1496	5	130	818	2	228
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked						
vC, conflicting volume			1501		2169	751
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1501		2169	751
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			71		91	36
cM capacity (veh/h)			442		28	354

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	997	504	130	409	409	230
Volume Left	0	0	130	0	0	2
Volume Right	0	5	0	0	0	228
cSH	1700	1700	442	1700	1700	315
Volume to Capacity	0.59	0.30	0.29	0.24	0.24	0.73
Queue Length 95th (ft)	0	0	30	0	0	134
Control Delay (s)	0.0	0.0	16.5	0.0	0.0	41.9
Lane LOS			C			E
Approach Delay (s)	0.0		2.3			41.9
Approach LOS						E

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3320		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3320		1770	1583
Volume (vph)	240	1376	770	463	259	134
Peak-hour factor, PHF	0.97	0.97	0.93	0.93	0.87	0.87
Adj. Flow (vph)	247	1419	828	498	298	154
RTOR Reduction (vph)	0	0	90	0	0	120
Lane Group Flow (vph)	247	1419	1236	0	298	34
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	15.3	54.5	35.2		17.7	17.7
Effective Green, g (s)	15.3	54.5	35.2		17.7	17.7
Actuated g/C Ratio	0.19	0.68	0.44		0.22	0.22
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	338	2405	1457		391	349
v/s Ratio Prot	c0.14	0.40	c0.37		c0.17	
v/s Ratio Perm						0.02
v/c Ratio	0.73	0.59	0.85		0.76	0.10
Uniform Delay, d1	30.5	6.9	20.1		29.3	24.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.9	0.4	4.8		8.5	0.1
Delay (s)	38.4	7.3	24.9		37.8	25.0
Level of Service	D	A	C		D	C
Approach Delay (s)		11.9	24.9		33.4	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	31	31	64	26	1	53	688	99	1	392	6
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	10	37	37	71	29	1	58	748	108	1	451	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	83	101	913	459
Volume Left (vph)	10	71	58	1
Volume Right (vph)	37	1	108	7
Hadj (s)	-0.21	0.17	-0.02	0.03
Departure Headway (s)	6.9	7.1	5.3	5.5
Degree Utilization, x	0.16	0.20	1.34	0.71
Capacity (veh/h)	482	466	686	633
Control Delay (s)	11.1	11.9	177.9	20.8
Approach Delay (s)	11.1	11.9	177.9	20.8
Approach LOS	B	B	F	C

Intersection Summary			
Delay	111.9		
HCM Level of Service	F		
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	90	44	105	89	46	63	786	164	21	463	10
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	19	95	46	121	102	53	68	854	178	24	532	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	276	1101	568
Volume Left (vph)	19	121	68	24
Volume Right (vph)	46	53	178	11
Hadj (s)	-0.12	0.02	-0.04	0.06
Departure Headway (s)	8.4	8.0	7.0	7.1
Degree Utilization, x	0.37	0.61	2.14	1.12
Capacity (veh/h)	401	441	524	511
Control Delay (s)	16.4	22.7	534.1	101.7
Approach Delay (s)	16.4	22.7	534.1	101.7
Approach LOS	C	C	F	F

Intersection Summary			
Delay	311.1		
HCM Level of Service	F		
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303	3539	1583	3303	3352		1770	1845	1583	1770	3427	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3303	3539	1583	3303	3352		1770	1845	1583	1770	3427	
Volume (vph)	153	881	158	110	506	190	107	835	78	126	527	71
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	166	958	172	117	538	202	115	898	84	137	573	77
RTOR Reduction (vph)	0	0	68	0	20	0	0	0	15	0	4	0
Lane Group Flow (vph)	166	958	104	117	720	0	115	898	69	137	646	0
Heavy Vehicles (%)	6%	2%	2%	6%	3%	4%	2%	3%	2%	2%	3%	7%
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6						8			
Actuated Green, G (s)	11.6	47.8	47.8	9.2	45.7		14.0	71.3	71.3	15.9	73.0	
Effective Green, g (s)	12.4	48.9	48.9	10.7	47.2		15.5	72.4	72.4	17.4	74.3	
Actuated g/C Ratio	0.07	0.30	0.30	0.06	0.29		0.09	0.44	0.44	0.11	0.45	
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5		5.5	5.1	5.1	5.5	5.3	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lane Grp Cap (vph)	248	1046	468	214	957		166	808	693	186	1539	
v/s Ratio Prot	c0.05	c0.27		0.04	0.21		0.06	c0.49		c0.08	0.19	
v/s Ratio Perm			0.07						0.04			
v/c Ratio	0.67	0.92	0.22	0.55	0.75		0.69	1.11	0.10	0.74	0.42	
Uniform Delay, d1	74.5	56.3	43.9	75.0	53.8		72.6	46.5	27.3	71.8	30.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.2	11.9	0.1	1.5	3.0		9.6	66.8	0.0	12.3	0.1	
Delay (s)	79.7	68.2	44.0	76.5	56.8		82.3	113.3	27.4	84.0	31.0	
Level of Service	E	E	D	E	E		F	F	C	F	C	
Approach Delay (s)		66.5			59.5			103.5			40.2	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	69.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	165.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.90		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3452		1770	3238		1770	1641		1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3452		1770	3238		1770	1641		1770	1603	
Volume (vph)	222	1091	214	371	1001	376	172	182	332	213	114	135
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	236	1161	228	382	1032	388	187	198	361	245	131	155
RTOR Reduction (vph)	0	11	0	0	26	0	0	44	0	0	28	0
Lane Group Flow (vph)	236	1378	0	382	1394	0	187	515	0	245	258	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	50.0		27.0	60.0		18.6	40.0		17.0	38.4	
Effective Green, g (s)	17.0	50.0		27.0	60.0		18.6	40.0		17.0	38.4	
Actuated g/C Ratio	0.11	0.33		0.18	0.40		0.12	0.27		0.11	0.26	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1151		319	1295		219	438		201	410	
v/s Ratio Prot	0.13	c0.40		c0.22	0.43		0.11	c0.31		c0.14	0.16	
v/s Ratio Perm												
v/c Ratio	1.17	1.20		1.20	1.08		0.85	1.18		1.22	0.63	
Uniform Delay, d1	66.5	50.0		61.5	45.0		64.4	55.0		66.5	49.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	118.3	97.5		115.3	48.4		26.1	100.7		134.9	7.1	
Delay (s)	184.8	147.5		176.8	93.4		90.5	155.7		201.4	56.6	
Level of Service	F	F		F	F		F	F		F	E	
Approach Delay (s)		152.9			111.1			139.4			123.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	131.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	123	5	5	7	2	4	2	325	8	8	204	90
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	141	6	6	9	3	5	2	374	9	9	222	98

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	153	17	385	328
Volume Left (vph)	141	9	2	9
Volume Right (vph)	6	5	9	98
Hadj (s)	0.24	0.08	0.02	-0.13
Departure Headway (s)	5.9	6.0	4.9	4.8
Degree Utilization, x	0.25	0.03	0.52	0.44
Capacity (veh/h)	552	487	716	719
Control Delay (s)	10.8	9.2	13.0	11.5
Approach Delay (s)	10.8	9.2	13.0	11.5
Approach LOS	B	A	B	B

Intersection Summary			
Delay	12.0		
HCM Level of Service	B		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	149	140	141	186	114	99
Peak Hour Factor	0.87	0.87	0.88	0.88	0.87	0.87
Hourly flow rate (vph)	171	161	160	211	131	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	372				769	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372				769	266
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	86				58	85
cM capacity (veh/h)	1187				311	768

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	332	372	245
Volume Left	171	0	131
Volume Right	0	211	114
cSH	1187	1700	430
Volume to Capacity	0.14	0.22	0.57
Queue Length 95th (ft)	13	0	86
Control Delay (s)	5.1	0.0	23.9
Lane LOS	A		C
Approach Delay (s)	5.1	0.0	23.9
Approach LOS			C

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	1538	1703	3505	1736	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	1538	1703	3505	1736	1583
Volume (vph)	1	1029	38	154	710	101	300
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.94	0.94
Adj. Flow (vph)	1	1118	41	173	798	107	319
RTOR Reduction (vph)	0	0	8	0	0	0	228
Lane Group Flow (vph)	1	1118	33	173	798	107	91
Heavy Vehicles (%)	2%	2%	5%	6%	3%	4%	2%
Turn Type	Prot		Perm	Prot			custom
Protected Phases	1	6		4 5	2	3	2
Permitted Phases			6				
Actuated Green, G (s)	0.7	72.1	72.1	24.5	54.2	14.7	54.2
Effective Green, g (s)	1.4	73.2	73.2	24.0	55.3	16.1	55.3
Actuated g/C Ratio	0.01	0.38	0.38	0.12	0.29	0.08	0.29
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.1
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	4.9
Lane Grp Cap (vph)	13	1335	580	211	999	144	451
v/s Ratio Prot	c0.00	c0.32		c0.10	c0.23	c0.06	0.06
v/s Ratio Perm			0.02				
v/c Ratio	0.08	0.84	0.06	0.82	0.80	0.74	0.20
Uniform Delay, d1	95.7	55.0	38.4	82.9	64.2	86.9	52.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	5.3	0.1	20.4	5.2	16.5	0.4
Delay (s)	96.6	60.2	38.5	103.3	69.4	103.4	53.1
Level of Service	F	E	D	F	E	F	D
Approach Delay (s)		59.5			75.4	65.7	
Approach LOS		E			E	E	

Intersection Summary			
HCM Average Control Delay	66.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	194.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	0.99			1.00	0.95	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	1840			1859	1714	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	1840			1859	1714	
Volume (vph)	1430	144	84	1863	283	171
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.87	0.87
Adj. Flow (vph)	1538	155	90	2003	325	197
RTOR Reduction (vph)	3	0	0	0	15	0
Lane Group Flow (vph)	1690	0	0	2093	507	0
Turn Type			Split			
Protected Phases	2		1	1	3	
Permitted Phases						
Actuated Green, G (s)	50.1			50.1	20.0	
Effective Green, g (s)	51.1			50.9	19.5	
Actuated g/C Ratio	0.37			0.37	0.14	
Clearance Time (s)	5.0			4.8	3.5	
Vehicle Extension (s)	6.8			6.3	2.0	
Lane Grp Cap (vph)	674			679	240	
v/s Ratio Prot	c0.92			c1.13	c0.30	
v/s Ratio Perm						
v/c Ratio	2.51			3.08	2.11	
Uniform Delay, d1	44.1			44.2	60.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	683.1			941.0	515.2	
Delay (s)	727.2			985.3	575.1	
Level of Service	F			F	F	
Approach Delay (s)	727.2			985.3	575.1	
Approach LOS	F			F	F	

Intersection Summary			
HCM Average Control Delay	834.2	HCM Level of Service	F
HCM Volume to Capacity ratio	2.69		
Actuated Cycle Length (s)	139.4	Sum of lost time (s)	17.9
Intersection Capacity Utilization	199.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	922	46	384	241	40	453
Peak-hour factor, PHF	0.96	0.96	0.92	0.92	0.87	0.87
Adj. Flow (vph)	960	48	417	262	46	521
RTOR Reduction (vph)	0	11	0	0	0	59
Lane Group Flow (vph)	960	37	417	262	46	462
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	86.7	86.7	35.8	126.1	7.5	43.3
Effective Green, g (s)	88.7	88.7	35.4	128.1	7.8	43.2
Actuated g/C Ratio	0.62	0.62	0.25	0.89	0.05	0.30
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	1148	976	435	1658	96	519
v/s Ratio Prot	c0.52		c0.24	0.14	0.03	c0.22
v/s Ratio Perm		0.02				0.07
v/c Ratio	0.84	0.04	0.96	0.16	0.48	0.89
Uniform Delay, d1	21.9	10.8	53.5	1.0	66.1	48.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	0.1	32.1	0.2	1.4	16.4
Delay (s)	29.1	10.9	85.6	1.2	67.4	64.5
Level of Service	C	B	F	A	E	E
Approach Delay (s)	28.3			53.0	64.7	
Approach LOS	C			D	E	

Intersection Summary			
HCM Average Control Delay	44.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	143.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	421	530	736	260	355	81	1341	500	272	136	404	367
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	453	570	791	283	386	88	1412	526	286	148	439	399
RTOR Reduction (vph)	0	0	202	0	0	53	0	0	210	0	0	299
Lane Group Flow (vph)	453	570	589	283	386	35	1412	526	76	148	439	100
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	25.1	70.3	70.3	16.5	61.6	61.6	25.1	41.0	41.0	10.3	25.8	25.8
Effective Green, g (s)	26.6	71.9	71.9	18.0	63.3	63.3	26.6	42.5	42.5	11.8	27.7	27.7
Actuated g/C Ratio	0.17	0.45	0.45	0.11	0.40	0.40	0.17	0.27	0.27	0.07	0.17	0.17
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	570	1588	710	386	1398	625	570	1349	420	253	879	274
v/s Ratio Prot	c0.13	0.16		0.08	0.11		c0.41	0.10		0.04	c0.09	
v/s Ratio Perm			c0.37			0.02			0.05			0.06
v/c Ratio	0.79	0.36	0.83	0.73	0.28	0.06	2.48	0.39	0.18	0.58	0.50	0.37
Uniform Delay, d1	64.2	29.0	38.8	68.8	32.9	30.0	66.8	48.2	45.4	71.8	60.0	58.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	0.3	8.9	6.1	0.3	0.1	670.0	0.4	0.5	2.2	1.1	2.0
Delay (s)	71.2	29.3	47.7	74.9	33.2	30.1	736.8	48.7	45.9	74.0	61.0	60.5
Level of Service	E	C	D	E	C	C	F	D	D	E	E	E
Approach Delay (s)		47.8			48.4			485.2			62.8	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM Average Control Delay	218.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	160.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4965	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	4965	
Volume (vph)	402	577	299	239	492	200	371	1727	168	155	1081	203
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	428	614	318	260	535	217	391	1818	177	163	1138	214
RTOR Reduction (vph)	0	0	181	0	0	169	0	0	41	0	12	0
Lane Group Flow (vph)	428	614	137	260	535	48	391	1818	136	163	1340	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	24.7	43.7	43.7	15.9	35.1	35.1	21.8	73.7	73.7	11.3	63.2	
Effective Green, g (s)	26.2	45.4	45.4	17.4	36.6	36.6	23.3	75.3	75.3	12.8	64.8	
Actuated g/C Ratio	0.16	0.27	0.27	0.10	0.22	0.22	0.14	0.45	0.45	0.08	0.39	
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	
Lane Grp Cap (vph)	539	963	431	358	776	347	479	2294	714	263	1928	
v/s Ratio Prot	c0.12	0.17		0.08	c0.15		c0.11	c0.36		0.05	0.27	
v/s Ratio Perm			0.09			0.03			0.09			
v/c Ratio	0.79	0.64	0.32	0.73	0.69	0.14	0.82	0.79	0.19	0.62	0.70	
Uniform Delay, d1	67.8	53.5	48.4	72.4	59.9	52.4	69.7	39.1	27.5	74.7	42.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.4	1.9	0.9	6.1	3.2	0.4	9.8	2.2	0.3	3.0	1.4	
Delay (s)	75.1	55.4	49.3	78.5	63.2	52.8	79.5	41.4	27.8	77.7	44.2	
Level of Service	E	E	D	E	E	D	E	D	C	E	D	
Approach Delay (s)		60.2			64.9			46.6			47.8	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	52.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	166.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	3539	1583	1770	3539	1583
Volume (vph)	204	221	309	106	290	124	515	1111	83	130	1078	167
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	240	336	115	315	135	572	1234	92	144	1198	186
RTOR Reduction (vph)	0	0	281	0	0	120	0	0	42	0	0	84
Lane Group Flow (vph)	222	240	55	115	315	15	572	1234	50	144	1198	102
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.4	17.7	17.7	10.7	11.0	11.0	23.3	57.8	57.8	13.8	48.3	48.3
Effective Green, g (s)	17.4	19.7	19.7	10.7	13.0	13.0	23.3	59.8	59.8	13.8	50.3	50.3
Actuated g/C Ratio	0.14	0.16	0.16	0.09	0.11	0.11	0.19	0.50	0.50	0.12	0.42	0.42
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	257	581	260	158	383	171	667	1764	789	204	1483	664
v/s Ratio Prot	c0.13	0.07		0.06	c0.09		c0.17	0.35		0.08	c0.34	
v/s Ratio Perm			0.03			0.01			0.03			0.06
v/c Ratio	0.86	0.41	0.21	0.73	0.82	0.09	0.86	0.70	0.06	0.71	0.81	0.15
Uniform Delay, d1	50.1	45.0	43.4	53.2	52.4	48.2	46.7	23.2	15.6	51.1	30.6	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.9	0.8	0.7	13.2	14.8	0.5	10.2	2.3	0.2	8.7	4.8	0.5
Delay (s)	74.0	45.8	44.1	66.4	67.1	48.6	57.0	25.5	15.7	59.9	35.4	22.1
Level of Service	E	D	D	E	E	D	E	C	B	E	D	C
Approach Delay (s)		53.0			62.6			34.5			36.1	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	41.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	408	1	163	1193	0	66
Peak Hour Factor	0.87	0.87	0.94	0.94	0.60	0.60
Hourly flow rate (vph)	469	1	173	1269	0	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.70	
vC, conflicting volume			470		1451	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			470		1220	235
tC, single (s)			4.4		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			83		100	85
cM capacity (veh/h)			1001		100	749

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	313	157	173	635	635	110
Volume Left	0	0	173	0	0	0
Volume Right	0	1	0	0	0	110
cSH	1700	1700	1001	1700	1700	749
Volume to Capacity	0.18	0.09	0.17	0.37	0.37	0.15
Queue Length 95th (ft)	0	0	16	0	0	13
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	10.6
Lane LOS			A			B
Approach Delay (s)	0.0		1.1			10.6
Approach LOS						B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1444	3471	3407		1770	1292
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1444	3471	3407		1770	1292
Volume (vph)	66	437	1127	127	426	226
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.92	0.92
Adj. Flow (vph)	72	475	1212	137	463	246
RTOR Reduction (vph)	0	0	9	0	0	128
Lane Group Flow (vph)	72	475	1340	0	463	118
Heavy Vehicles (%)	25%	4%	2%	25%	2%	25%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	5.6	46.9	37.3		25.5	25.5
Effective Green, g (s)	5.6	46.9	37.3		25.5	25.5
Actuated g/C Ratio	0.07	0.58	0.46		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	101	2025	1581		561	410
v/s Ratio Prot	c0.05	0.14	c0.39		c0.26	
v/s Ratio Perm						0.09
v/c Ratio	0.71	0.23	0.85		0.83	0.29
Uniform Delay, d1	36.6	8.1	19.0		25.4	20.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	21.1	0.1	4.4		9.6	0.4
Delay (s)	57.7	8.1	23.5		35.0	21.0
Level of Service	E	A	C		D	C
Approach Delay (s)		14.7	23.5		30.1	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	19	45	76	18	1	18	175	28	0	611	7
Peak Hour Factor	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	3	26	62	88	21	1	21	201	32	0	664	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	90	110	254	672
Volume Left (vph)	3	88	21	0
Volume Right (vph)	62	1	32	8
Hadj (s)	-0.37	0.22	-0.01	0.03
Departure Headway (s)	6.2	6.7	5.5	5.0
Degree Utilization, x	0.16	0.21	0.39	0.93
Capacity (veh/h)	544	506	634	715
Control Delay (s)	10.3	11.4	11.9	40.7
Approach Delay (s)	10.3	11.4	11.9	40.7
Approach LOS	B	B	B	E

Intersection Summary			
Delay	28.9		
HCM Level of Service	D		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.87		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	3415		1656	3452		1770	1596		1444	1705	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1597	3415		1656	3452		1770	1596		1444	1705	
Volume (vph)	56	837	118	212	724	87	169	47	268	331	148	192
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	60	900	127	228	778	94	182	51	288	360	161	209
RTOR Reduction (vph)	0	11	0	0	9	0	0	214	0	0	49	0
Lane Group Flow (vph)	60	1016	0	228	863	0	182	125	0	360	321	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.7	29.9		14.0	37.2		12.8	11.9		24.1	23.2	
Effective Green, g (s)	6.7	29.9		14.0	37.2		12.8	11.9		24.1	23.2	
Actuated g/C Ratio	0.07	0.31		0.15	0.39		0.13	0.12		0.25	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	112	1065		242	1339		236	198		363	412	
v/s Ratio Prot	0.04	c0.30		c0.14	0.25		0.10	0.08		c0.25	c0.19	
v/s Ratio Perm												
v/c Ratio	0.54	0.95		0.94	0.64		0.77	0.63		0.99	0.78	
Uniform Delay, d1	43.1	32.3		40.5	24.0		40.1	39.9		35.8	34.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	17.5		41.9	1.1		14.4	6.5		44.8	9.3	
Delay (s)	48.0	49.8		82.5	25.0		54.5	46.4		80.6	43.2	
Level of Service	D	D		F	C		D	D		F	D	
Approach Delay (s)		49.7			36.9			49.2			61.7	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	95.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	47	2	3	6	3	5	1	84	7	5	283	94
Peak Hour Factor	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	53	2	3	9	4	7	1	91	8	6	325	108

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	59	21	100	439
Volume Left (vph)	53	9	1	6
Volume Right (vph)	3	7	8	108
Hadj (s)	0.20	-0.09	0.13	-0.08
Departure Headway (s)	5.3	5.1	4.7	4.2
Degree Utilization, x	0.09	0.03	0.13	0.51
Capacity (veh/h)	610	625	733	845
Control Delay (s)	8.8	8.2	8.4	11.3
Approach Delay (s)	8.8	8.2	8.4	11.3
Approach LOS	A	A	A	B

Intersection Summary			
Delay	10.5		
HCM Level of Service	B		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1423	5	121	756	2	190
Peak Hour Factor	0.95	0.95	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1498	5	132	822	2	229
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked						
vC, conflicting volume			1503		2174	752
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1503		2174	752
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			70		91	35
cM capacity (veh/h)			442		28	353

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	999	505	132	411	411	231
Volume Left	0	0	132	0	0	2
Volume Right	0	5	0	0	0	229
cSH	1700	1700	442	1700	1700	315
Volume to Capacity	0.59	0.30	0.30	0.24	0.24	0.74
Queue Length 95th (ft)	0	0	31	0	0	137
Control Delay (s)	0.0	0.0	16.6	0.0	0.0	42.5
Lane LOS			C			E
Approach Delay (s)	0.0		2.3			42.5
Approach LOS						E

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.94		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3314		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3314		1770	1583
Volume (vph)	253	1365	764	482	271	142
Peak-hour factor, PHF	0.97	0.97	0.93	0.93	0.87	0.87
Adj. Flow (vph)	261	1407	822	518	311	163
RTOR Reduction (vph)	0	0	100	0	0	127
Lane Group Flow (vph)	261	1407	1240	0	311	36
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.1	56.2	36.1		18.5	18.5
Effective Green, g (s)	16.1	56.2	36.1		18.5	18.5
Actuated g/C Ratio	0.19	0.68	0.44		0.22	0.22
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	345	2405	1447		396	354
v/s Ratio Prot	c0.15	0.40	c0.37		c0.18	
v/s Ratio Perm						0.02
v/c Ratio	0.76	0.59	0.86		0.79	0.10
Uniform Delay, d1	31.4	7.0	21.0		30.2	25.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.1	0.4	5.2		9.8	0.1
Delay (s)	40.6	7.4	26.2		40.1	25.6
Level of Service	D	A	C		D	C
Approach Delay (s)		12.6	26.2		35.1	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	31	31	61	26	1	53	692	94	1	396	6
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	8	37	37	68	29	1	58	752	102	1	455	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	82	98	912	463
Volume Left (vph)	8	68	58	1
Volume Right (vph)	37	1	102	7
Hadj (s)	-0.22	0.17	-0.02	0.03
Departure Headway (s)	6.8	7.1	5.3	5.5
Degree Utilization, x	0.16	0.19	1.33	0.71
Capacity (veh/h)	483	466	688	636
Control Delay (s)	11.1	11.8	175.8	20.9
Approach Delay (s)	11.1	11.8	175.8	20.9
Approach LOS	B	B	F	C

Intersection Summary			
Delay	110.7		
HCM Level of Service	F		
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.90		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3455		1770	3237		1770	1641		1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3455		1770	3237		1770	1641		1770	1603	
Volume (vph)	224	1094	207	354	1023	386	170	173	315	219	109	136
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	238	1164	220	365	1055	398	185	188	342	252	125	156
RTOR Reduction (vph)	0	11	0	0	26	0	0	44	0	0	30	0
Lane Group Flow (vph)	238	1373	0	365	1427	0	185	486	0	252	251	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	50.0		27.0	60.0		18.5	40.0		17.0	38.5	
Effective Green, g (s)	17.0	50.0		27.0	60.0		18.5	40.0		17.0	38.5	
Actuated g/C Ratio	0.11	0.33		0.18	0.40		0.12	0.27		0.11	0.26	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1152		319	1295		218	438		201	411	
v/s Ratio Prot	0.13	c0.40		c0.21	0.44		0.10	c0.30		c0.14	0.16	
v/s Ratio Perm												
v/c Ratio	1.18	1.19		1.14	1.10		0.85	1.11		1.25	0.61	
Uniform Delay, d1	66.5	50.0		61.5	45.0		64.4	55.0		66.5	49.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	122.0	95.3		95.4	57.9		25.2	76.2		148.3	6.6	
Delay (s)	188.5	145.3		156.9	102.9		89.5	131.2		214.8	55.8	
Level of Service	F	F		F	F		F	F		F	E	
Approach Delay (s)		151.6			113.7			120.4			130.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	129.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	118	5	5	7	2	4	2	318	8	8	200	87
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	136	6	6	9	3	5	2	366	9	9	217	95

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	147	17	377	321
Volume Left (vph)	136	9	2	9
Volume Right (vph)	6	5	9	95
Hadj (s)	0.24	0.08	0.02	-0.13
Departure Headway (s)	5.8	6.0	4.8	4.8
Degree Utilization, x	0.24	0.03	0.51	0.42
Capacity (veh/h)	557	504	722	725
Control Delay (s)	10.7	9.2	12.7	11.2
Approach Delay (s)	10.7	9.2	12.7	11.2
Approach LOS	B	A	B	B

Intersection Summary			
Delay	11.7		
HCM Level of Service	B		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	406	1	163	1170	0	67
Peak Hour Factor	0.87	0.87	0.94	0.94	0.60	0.60
Hourly flow rate (vph)	467	1	173	1245	0	112
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.71	
vC, conflicting volume			468		1436	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			468		1210	234
tC, single (s)			4.4		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			83		100	85
cM capacity (veh/h)			1004		103	750

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	311	157	173	622	622	112
Volume Left	0	0	173	0	0	0
Volume Right	0	1	0	0	0	112
cSH	1700	1700	1004	1700	1700	750
Volume to Capacity	0.18	0.09	0.17	0.37	0.37	0.15
Queue Length 95th (ft)	0	0	16	0	0	13
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	10.6
Lane LOS			A			B
Approach Delay (s)	0.0		1.1			10.6
Approach LOS						B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1444	3471	3411		1770	1292
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1444	3471	3411		1770	1292
Volume (vph)	67	425	1125	123	374	206
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.92	0.92
Adj. Flow (vph)	73	462	1210	132	407	224
RTOR Reduction (vph)	0	0	8	0	0	132
Lane Group Flow (vph)	73	462	1334	0	407	92
Heavy Vehicles (%)	25%	4%	2%	25%	2%	25%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	5.6	45.2	35.6		22.7	22.7
Effective Green, g (s)	5.6	45.2	35.6		22.7	22.7
Actuated g/C Ratio	0.07	0.60	0.47		0.30	0.30
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	107	2067	1600		529	386
v/s Ratio Prot	c0.05	0.13	c0.39		c0.23	
v/s Ratio Perm						0.07
v/c Ratio	0.68	0.22	0.83		0.77	0.24
Uniform Delay, d1	34.3	7.2	17.6		24.2	20.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	16.5	0.1	3.9		6.7	0.3
Delay (s)	50.7	7.2	21.5		30.9	20.4
Level of Service	D	A	C		C	C
Approach Delay (s)		13.2	21.5		27.2	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	19	45	75	18	1	18	172	26	0	583	5
Peak Hour Factor	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	3	26	62	87	21	1	21	198	30	0	634	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	90	109	248	639
Volume Left (vph)	3	87	21	0
Volume Right (vph)	62	1	30	5
Hadj (s)	-0.37	0.22	-0.01	0.03
Departure Headway (s)	6.1	6.6	5.4	5.0
Degree Utilization, x	0.15	0.20	0.37	0.88
Capacity (veh/h)	544	507	632	639
Control Delay (s)	10.1	11.2	11.6	32.9
Approach Delay (s)	10.1	11.2	11.6	32.9
Approach LOS	B	B	B	D

Intersection Summary			
Delay	24.0		
HCM Level of Service	C		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.87		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	3418		1656	3449		1770	1595		1444	1704	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1597	3418		1656	3449		1770	1595		1444	1704	
Volume (vph)	59	784	103	211	742	96	159	43	252	346	151	199
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	63	843	111	227	798	103	171	46	271	376	164	216
RTOR Reduction (vph)	0	10	0	0	9	0	0	212	0	0	49	0
Lane Group Flow (vph)	63	944	0	227	892	0	171	105	0	376	331	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.7	29.2		14.1	36.6		12.5	11.9		24.1	23.5	
Effective Green, g (s)	6.7	29.2		14.1	36.6		12.5	11.9		24.1	23.5	
Actuated g/C Ratio	0.07	0.31		0.15	0.38		0.13	0.12		0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	112	1047		245	1325		232	199		365	420	
v/s Ratio Prot	0.04	c0.28		c0.14	0.26		0.10	0.07		c0.26	c0.19	
v/s Ratio Perm												
v/c Ratio	0.56	0.90		0.93	0.67		0.74	0.53		1.03	0.79	
Uniform Delay, d1	42.9	31.7		40.1	24.4		39.8	39.1		35.6	33.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.3	10.7		37.7	1.4		11.5	2.5		55.1	9.5	
Delay (s)	49.2	42.4		77.8	25.7		51.4	41.6		90.7	43.0	
Level of Service	D	D		E	C		D	D		F	D	
Approach Delay (s)		42.8			36.2			45.0			66.7	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	46.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	95.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	45	2	3	6	3	5	1	78	7	5	268	93
Peak Hour Factor	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	51	2	3	9	4	7	1	85	8	6	308	107

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	57	21	93	421
Volume Left (vph)	51	9	1	6
Volume Right (vph)	3	7	8	107
Hadj (s)	0.19	-0.09	0.13	-0.09
Departure Headway (s)	5.3	5.0	4.7	4.1
Degree Utilization, x	0.08	0.03	0.12	0.48
Capacity (veh/h)	619	636	739	849
Control Delay (s)	8.7	8.2	8.3	10.9
Approach Delay (s)	8.7	8.2	8.3	10.9
Approach LOS	A	A	A	B

Intersection Summary			
Delay	10.2		
HCM Level of Service	B		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1368	5	116	721	2	183
Peak Hour Factor	0.95	0.95	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1440	5	126	784	2	220
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked						
vC, conflicting volume			1445		2087	723
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1445		2087	723
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			73		93	40
cM capacity (veh/h)			465		33	369

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	960	485	126	392	392	223
Volume Left	0	0	126	0	0	2
Volume Right	0	5	0	0	0	220
cSH	1700	1700	465	1700	1700	332
Volume to Capacity	0.56	0.29	0.27	0.23	0.23	0.67
Queue Length 95th (ft)	0	0	27	0	0	114
Control Delay (s)	0.0	0.0	15.6	0.0	0.0	35.3
Lane LOS			C			E
Approach Delay (s)	0.0		2.2			35.3
Approach LOS						E

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3325		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3325		1770	1583
Volume (vph)	226	1328	725	415	241	131
Peak-hour factor, PHF	0.97	0.97	0.93	0.93	0.87	0.87
Adj. Flow (vph)	233	1369	780	446	277	151
RTOR Reduction (vph)	0	0	80	0	0	116
Lane Group Flow (vph)	233	1369	1146	0	277	35
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	11.4	47.3	31.9		16.5	16.5
Effective Green, g (s)	11.4	47.3	31.9		16.5	16.5
Actuated g/C Ratio	0.16	0.66	0.44		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	281	2331	1477		407	364
v/s Ratio Prot	c0.13	0.39	c0.34		c0.16	
v/s Ratio Perm						0.02
v/c Ratio	0.83	0.59	0.78		0.68	0.10
Uniform Delay, d1	29.3	6.8	16.9		25.2	21.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	17.9	0.4	2.6		4.6	0.1
Delay (s)	47.2	7.2	19.5		29.9	21.9
Level of Service	D	A	B		C	C
Approach Delay (s)		13.0	19.5		27.1	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	31	31	56	26	1	53	641	90	1	365	5
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	7	37	37	62	29	1	58	697	98	1	420	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	81	92	852	426
Volume Left (vph)	7	62	58	1
Volume Right (vph)	37	1	98	6
Hadj (s)	-0.22	0.16	-0.02	0.03
Departure Headway (s)	6.7	7.0	5.1	5.5
Degree Utilization, x	0.15	0.18	1.22	0.65
Capacity (veh/h)	495	474	709	638
Control Delay (s)	10.9	11.6	129.8	18.1
Approach Delay (s)	10.9	11.6	129.8	18.1
Approach LOS	B	B	F	C

Intersection Summary			
Delay	82.8		
HCM Level of Service	F		
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.90		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3459		1770	3223		1770	1640		1770	1602	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3459		1770	3223		1770	1640		1770	1602	
Volume (vph)	220	1072	190	329	949	382	149	164	301	214	96	130
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	234	1140	202	339	978	394	162	178	327	246	110	149
RTOR Reduction (vph)	0	9	0	0	29	0	0	44	0	0	32	0
Lane Group Flow (vph)	234	1333	0	339	1343	0	162	461	0	246	227	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	50.0		27.0	60.0		17.4	40.0		17.0	39.6	
Effective Green, g (s)	17.0	50.0		27.0	60.0		17.4	40.0		17.0	39.6	
Actuated g/C Ratio	0.11	0.33		0.18	0.40		0.12	0.27		0.11	0.26	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1153		319	1289		205	437		201	423	
v/s Ratio Prot	c0.13	c0.39		c0.19	0.42		0.09	c0.28		c0.14	0.14	
v/s Ratio Perm												
v/c Ratio	1.16	1.16		1.06	1.04		0.79	1.05		1.22	0.54	
Uniform Delay, d1	66.5	50.0		61.5	45.0		64.5	55.0		66.5	47.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	114.8	80.2		67.9	36.7		18.4	58.3		136.8	1.3	
Delay (s)	181.3	130.2		129.4	81.7		83.0	113.3		203.3	48.7	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		137.8			91.2			105.9			124.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	113.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	114	5	5	7	2	4	2	293	8	8	183	82
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	131	6	6	9	3	5	2	337	9	9	199	89

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	143	17	348	297
Volume Left (vph)	131	9	2	9
Volume Right (vph)	6	5	9	89
Hadj (s)	0.24	0.08	0.02	-0.13
Departure Headway (s)	5.7	5.8	4.8	4.7
Degree Utilization, x	0.23	0.03	0.46	0.39
Capacity (veh/h)	572	528	730	735
Control Delay (s)	10.4	9.0	11.8	10.6
Approach Delay (s)	10.4	9.0	11.8	10.6
Approach LOS	B	A	B	B

Intersection Summary			
Delay	11.0		
HCM Level of Service	B		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	361	1	171	1104	0	65
Peak Hour Factor	0.87	0.87	0.94	0.94	0.60	0.60
Hourly flow rate (vph)	415	1	182	1174	0	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.76	
vC, conflicting volume			416		1367	208
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			416		1171	208
tC, single (s)			4.4		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			83		100	86
cM capacity (veh/h)			1052		117	780

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	277	139	182	587	587	108
Volume Left	0	0	182	0	0	0
Volume Right	0	1	0	0	0	108
cSH	1700	1700	1052	1700	1700	780
Volume to Capacity	0.16	0.08	0.17	0.35	0.35	0.14
Queue Length 95th (ft)	0	0	16	0	0	12
Control Delay (s)	0.0	0.0	9.1	0.0	0.0	10.4
Lane LOS			A			B
Approach Delay (s)	0.0		1.2			10.4
Approach LOS						B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1444	3471	3526		1770	1292
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1444	3471	3526		1770	1292
Volume (vph)	8	418	1255	13	33	19
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.92	0.92
Adj. Flow (vph)	9	454	1349	14	36	21
RTOR Reduction (vph)	0	0	0	0	0	17
Lane Group Flow (vph)	9	454	1363	0	36	4
Heavy Vehicles (%)	25%	4%	2%	25%	2%	25%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	0.8	29.3	24.5		7.9	7.9
Effective Green, g (s)	0.8	29.3	24.5		7.9	7.9
Actuated g/C Ratio	0.02	0.65	0.54		0.17	0.17
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	26	2250	1911		309	226
v/s Ratio Prot	0.01	c0.13	c0.39		c0.02	
v/s Ratio Perm						0.00
v/c Ratio	0.35	0.20	0.71		0.12	0.02
Uniform Delay, d1	21.9	3.2	7.7		15.7	15.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.9	0.0	1.3		0.2	0.0
Delay (s)	29.8	3.3	9.0		15.9	15.5
Level of Service	C	A	A		B	B
Approach Delay (s)		3.8	9.0		15.7	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	19	45	481	18	1	18	0	129	0	1	0
Peak Hour Factor	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	0	26	62	559	21	1	21	0	148	0	1	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	88	581	169	1
Volume Left (vph)	0	559	21	0
Volume Right (vph)	62	1	148	0
Hadj (s)	-0.39	0.23	-0.45	0.03
Departure Headway (s)	4.7	4.7	5.1	5.9
Degree Utilization, x	0.11	0.76	0.24	0.00
Capacity (veh/h)	719	752	647	543
Control Delay (s)	8.3	20.8	9.6	8.9
Approach Delay (s)	8.3	20.8	9.6	8.9
Approach LOS	A	C	A	A

Intersection Summary			
Delay	17.2		
HCM Level of Service	C		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.94		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	3361		1656	3320		1770	1674		1444	1713	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1597	3361		1656	3320		1770	1674		1444	1713	
Volume (vph)	182	331	105	71	424	254	76	160	111	1005	605	697
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	196	356	113	76	456	273	82	172	119	1092	658	758
RTOR Reduction (vph)	0	32	0	0	100	0	0	24	0	0	36	0
Lane Group Flow (vph)	196	437	0	76	629	0	82	267	0	1092	1380	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.0	23.9		8.0	22.9		8.0	17.4		24.1	33.5	
Effective Green, g (s)	9.0	23.9		8.0	22.9		8.0	17.4		24.1	33.5	
Actuated g/C Ratio	0.10	0.27		0.09	0.26		0.09	0.19		0.27	0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	161	899		148	850		158	326		389	642	
v/s Ratio Prot	c0.12	0.13		0.05	c0.19		0.05	0.16		c0.76	c0.81	
v/s Ratio Perm												
v/c Ratio	1.22	0.49		0.51	0.74		0.52	0.82		2.81	2.15	
Uniform Delay, d1	40.2	27.6		38.8	30.5		38.9	34.5		32.7	28.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	141.2	0.4		3.0	3.5		2.9	14.7		820.4	522.7	
Delay (s)	181.4	28.0		41.8	34.0		41.7	49.2		853.0	550.7	
Level of Service	F	C		D	C		D	D		F	F	
Approach Delay (s)		73.2			34.8			47.5			682.3	
Approach LOS		E			C			D			F	

Intersection Summary			
HCM Average Control Delay	415.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	122.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	148	2	3	6	3	5	1	77	7	5	289	499
Peak Hour Factor	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	168	2	3	9	4	7	1	84	8	6	332	574

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	174	21	92	911
Volume Left (vph)	168	9	1	6
Volume Right (vph)	3	7	8	574
Hadj (s)	0.23	-0.09	0.13	-0.27
Departure Headway (s)	6.2	6.3	5.6	4.4
Degree Utilization, x	0.30	0.04	0.14	1.12
Capacity (veh/h)	567	546	621	810
Control Delay (s)	11.9	9.5	9.5	88.0
Approach Delay (s)	11.9	9.5	9.5	88.0
Approach LOS	B	A	A	F

Intersection Summary			
Delay	69.5		
HCM Level of Service	F		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1258	5	113	640	2	184
Peak Hour Factor	0.95	0.95	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1324	5	123	696	2	222
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.95	
vC, conflicting volume			1329		1920	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1329		1916	665
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		94	45
cM capacity (veh/h)			515		43	403

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	883	447	123	348	348	224
Volume Left	0	0	123	0	0	2
Volume Right	0	5	0	0	0	222
cSH	1700	1700	515	1700	1700	369
Volume to Capacity	0.52	0.26	0.24	0.20	0.20	0.61
Queue Length 95th (ft)	0	0	23	0	0	96
Control Delay (s)	0.0	0.0	14.2	0.0	0.0	28.7
Lane LOS			B			D
Approach Delay (s)	0.0		2.1			28.7
Approach LOS						D

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3479		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3479		1770	1583
Volume (vph)	22	1420	741	41	21	12
Peak-hour factor, PHF	0.97	0.97	0.93	0.93	0.87	0.87
Adj. Flow (vph)	23	1464	797	44	24	14
RTOR Reduction (vph)	0	0	3	0	0	12
Lane Group Flow (vph)	23	1464	838	0	24	2
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	1.0	27.4	22.4		7.6	7.6
Effective Green, g (s)	1.0	27.4	22.4		7.6	7.6
Actuated g/C Ratio	0.02	0.64	0.52		0.18	0.18
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	41	2255	1812		313	280
v/s Ratio Prot	0.01	c0.41	0.24		c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.56	0.65	0.46		0.08	0.01
Uniform Delay, d1	20.8	4.8	6.5		14.8	14.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	16.4	0.7	0.2		0.1	0.0
Delay (s)	37.2	5.5	6.7		14.9	14.6
Level of Service	D	A	A		B	B
Approach Delay (s)		6.0	6.7		14.8	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	31	31	285	26	1	53	2	512	1	0	2
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Hourly flow rate (vph)	0	37	37	317	29	1	58	2	557	1	0	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	74	347	616	3
Volume Left (vph)	0	317	58	1
Volume Right (vph)	37	1	557	2
Hadj (s)	-0.27	0.21	-0.49	-0.30
Departure Headway (s)	5.8	5.8	4.7	5.8
Degree Utilization, x	0.12	0.56	0.80	0.01
Capacity (veh/h)	554	585	752	547
Control Delay (s)	9.6	15.9	23.6	8.8
Approach Delay (s)	9.6	15.9	23.6	8.8
Approach LOS	A	C	C	A

Intersection Summary			
Delay	20.0		
HCM Level of Service	C		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.89		1.00	0.98		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3459		1770	2790		1770	1809		1770	1604	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3459		1770	2790		1770	1809		1770	1604	
Volume (vph)	728	601	107	142	383	1050	119	627	114	567	347	401
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	774	639	114	146	395	1082	129	682	124	652	399	461
RTOR Reduction (vph)	0	9	0	0	167	0	0	4	0	0	27	0
Lane Group Flow (vph)	774	744	0	146	1310	0	129	802	0	652	833	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	60.1		16.9	60.0		15.5	40.0		17.0	41.5	
Effective Green, g (s)	17.0	60.1		16.9	60.0		15.5	40.0		17.0	41.5	
Actuated g/C Ratio	0.11	0.40		0.11	0.40		0.10	0.27		0.11	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1386		199	1116		183	482		201	444	
v/s Ratio Prot	c0.44	0.22		0.08	c0.47		0.07	0.44		c0.37	c0.52	
v/s Ratio Perm												
v/c Ratio	3.85	0.54		0.73	1.53dr		0.70	1.66		3.24	1.88	
Uniform Delay, d1	66.5	34.3		64.4	45.0		65.0	55.0		66.5	54.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1294.8	0.4		13.1	87.8		11.7	307.5		1022.5	403.0	
Delay (s)	1361.3	34.7		77.4	132.8		76.7	362.5		1089.0	457.2	
Level of Service	F	C		E	F		E	F		F	F	
Approach Delay (s)		707.1			127.8			323.0			729.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	481.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	169.5%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	536	5	5	7	2	4	2	300	8	8	181	311
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.87	0.87	0.87	0.92	0.92	0.92
Hourly flow rate (vph)	616	6	6	9	3	5	2	345	9	9	197	338

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	628	17	356	543
Volume Left (vph)	616	9	2	9
Volume Right (vph)	6	5	9	338
Hadj (s)	0.26	0.08	0.02	-0.31
Departure Headway (s)	7.0	8.8	7.1	6.4
Degree Utilization, x	1.23	0.04	0.70	0.96
Capacity (veh/h)	513	376	497	543
Control Delay (s)	141.2	12.2	24.8	54.7
Approach Delay (s)	141.2	12.2	24.8	54.7
Approach LOS	F	B	C	F

Intersection Summary			
Delay	82.5		
HCM Level of Service	F		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

Appendix B-2: Freeway Operations

Existing Plus Preferred Alternative Conditions

Existing Plus Approved Specific Plan Conditions

Existing Plus Minimal Impact Conditions

Existing Plus No Federal Action Conditions

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Existing Plus Pref. Alt.
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Flow Rate Calculation*											*Speed Calculation*		*Results*	
	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	1,874	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,054	65.0	60.5	**17.4**	**B**
2	SR 99 SB	Riego Road to Elverta Road	AM	2,420	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,361	65.0	60.5	**22.5**	**C**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	3,399	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,912	65.0	59.3	**32.2**	**D**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	4,240	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	2,385	65.0	-	**-**	**F**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	1,327	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	804	65.0	60.5	**13.3**	**B**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	1,131	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	685	65.0	60.5	**11.3**	**B**
7	SR 99 NB	Elverta Road to Riego Road	AM	902	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	547	65.0	60.5	**9.0**	**A**
8	SR 99 NB	Riego Road to Sankey Road	AM	745	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	451	65.0	60.5	**7.5**	**A**
1	SR-99 SB	Sankey Road to Riego Road	PM	1,090	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	607	65.0	60.5	**10.0**	**A**
2	SR 99 SB	Riego Road to Elverta Road	PM	1,239	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	690	65.0	60.5	**11.4**	**B**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	1,722	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	959	65.0	60.5	**15.9**	**B**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	2,052	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	1,143	65.0	60.5	**18.9**	**C**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	4,728	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	2,737	65.0	-	**-**	**F**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	3,664	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	2,121	65.0	56.2	**37.7**	**E**
7	SR 99 NB	Elverta Road to Riego Road	PM	2,514	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,455	65.0	60.5	**24.1**	**C**
8	SR 99 NB	Riego Road to Sankey Road	PM	1,991	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,152	65.0	60.5	**19.0**	**C**

Appendix B-3: Peak Hour Signal Warrant Analysis

Existing Plus Preferred Alternative Conditions

Existing Plus Approved Specific Plan Conditions

Existing Plus Minimal Impact Conditions

Existing Plus No Federal Action Conditions

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Sheet No	1	of	2
Project	Elverta Specific Plan EIS		
Scenario	Existing Plus Preferred Alternative		
Peak Hour	AM		

Major Street	Elkhorn Boulevard
Minor Street	SR 99 SB Off-Ramp

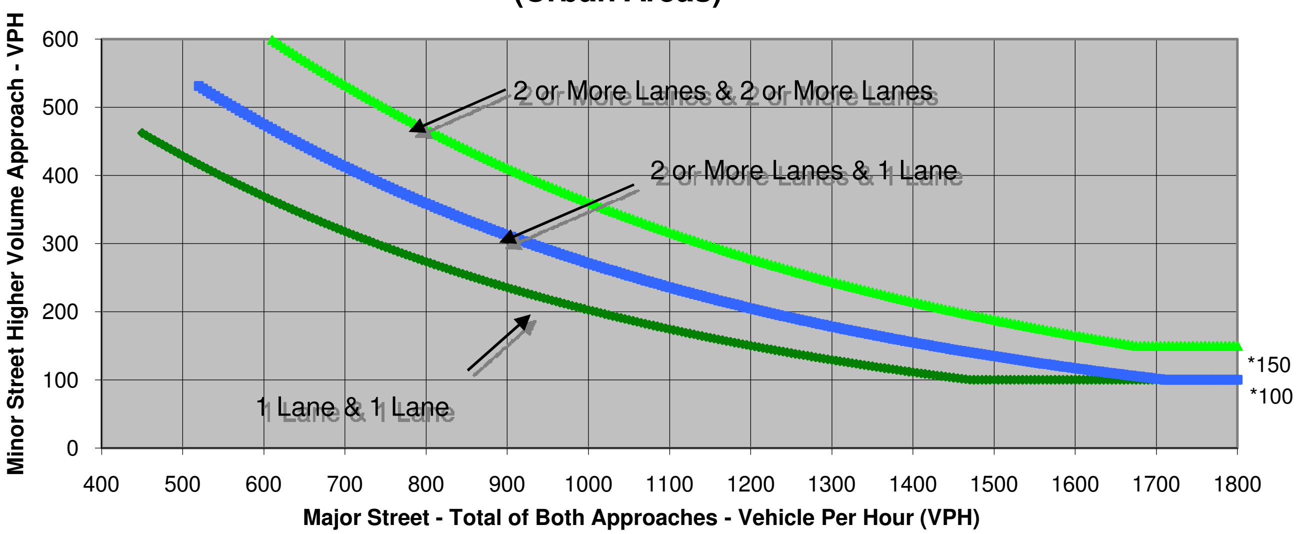
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	115	0	0
Through	0	0	2	7
Right	0	1	0	0
Total	0	116	2	7

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 SB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	9	116	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Plus Preferred Alternative			
Peak Hour	PM			

Major Street	Elkhorn Boulevard
Minor Street	SR 99 SB Off-Ramp

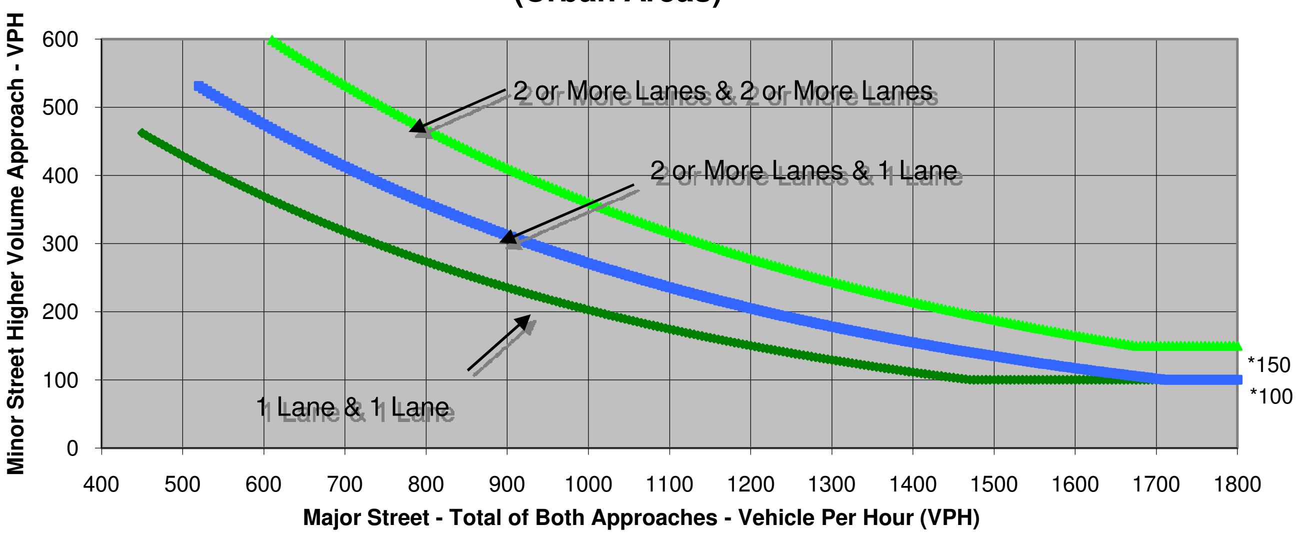
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	90	0	0
Through	0	0	7	13
Right	0	2	0	0
Total	0	92	7	13

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 SB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	20	92	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elkhorn Boulevard
Minor Street	SR 99 NB Off-Ramp
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

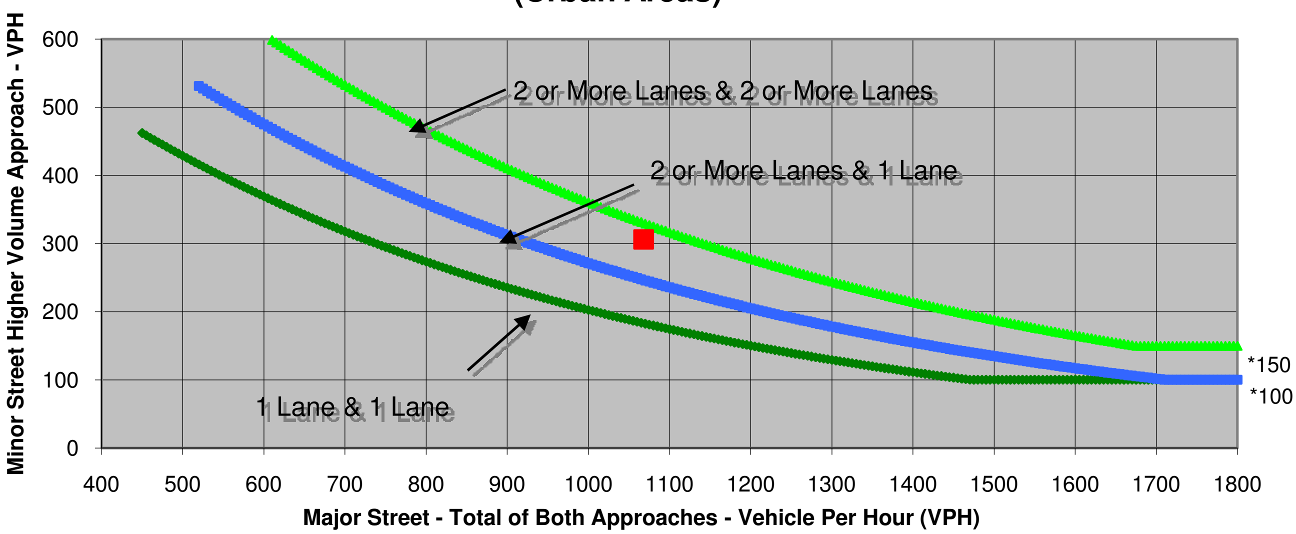
Turn Movement Volumes

	NB	SB	EB	WB
Left	7	0	0	0
Through	0	0	116	952
Right	299	0	0	0
Total	306	0	116	952

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 NB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,068	306	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Plus Preferred Alternative			
Peak Hour	PM			

Major Street	Elkhorn Boulevard
Minor Street	SR 99 NB Off-Ramp

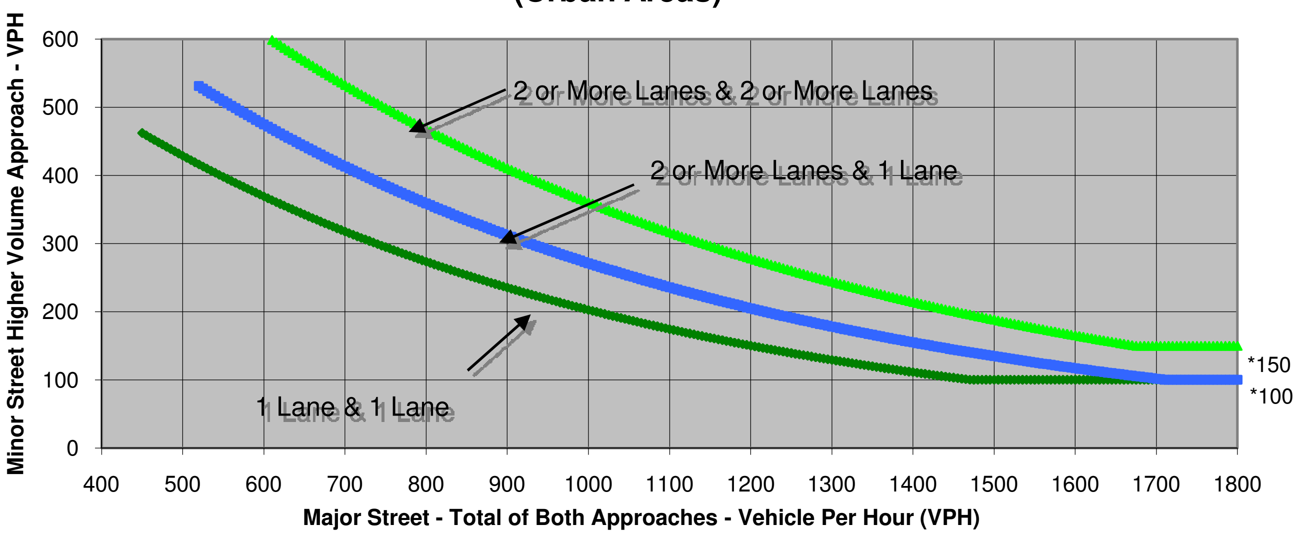
Turn Movement Volumes

	NB	SB	EB	WB
Left	19	0	0	0
Through	0	0	94	410
Right	1,166	0	0	0
Total	1,185	0	94	410

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street SR 99 NB Off-Ramp	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	504	1,185	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elverta Road
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

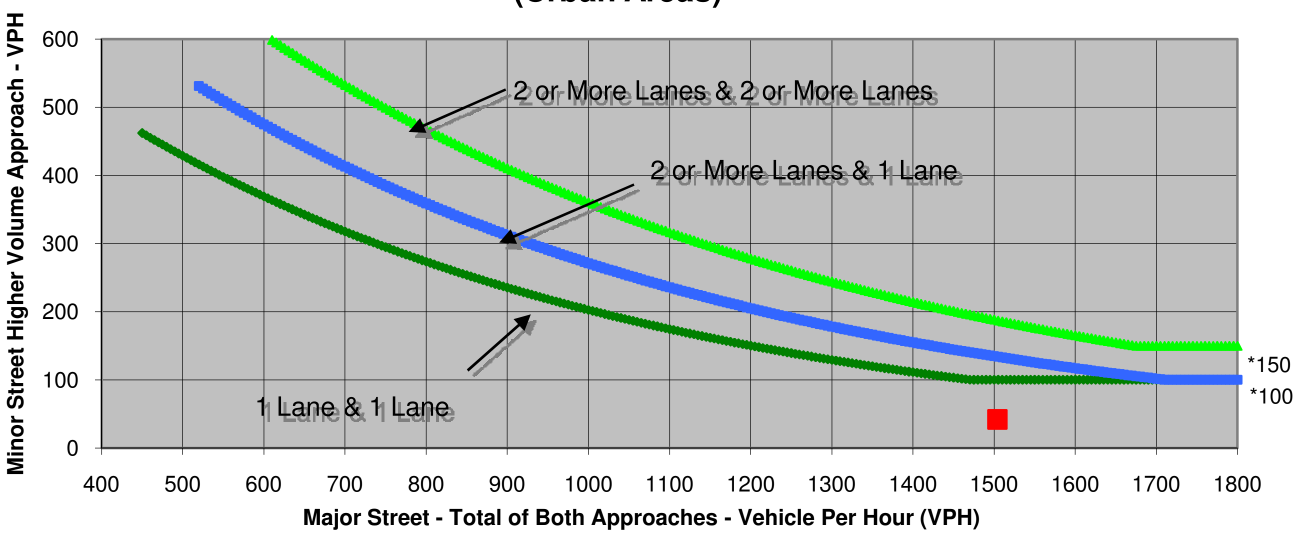
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	3	4	106
Through	13	35	284	1,102
Right	21	4	4	4
Total	35	42	292	1,212

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** E. Levee Road	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,504	42	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elverta Road
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	PM

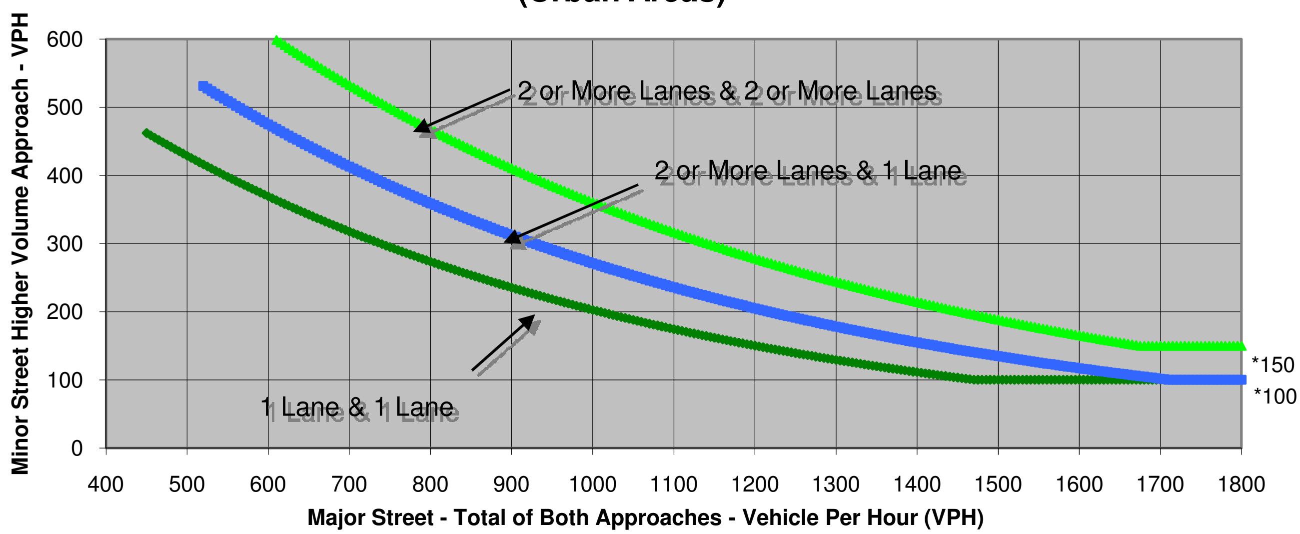
Turn Movement Volumes

	NB	SB	EB	WB
Left	4	4	22	34
Through	60	25	1,397	562
Right	96	2	0	0
Total	160	31	1,419	596

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,015	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2		

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

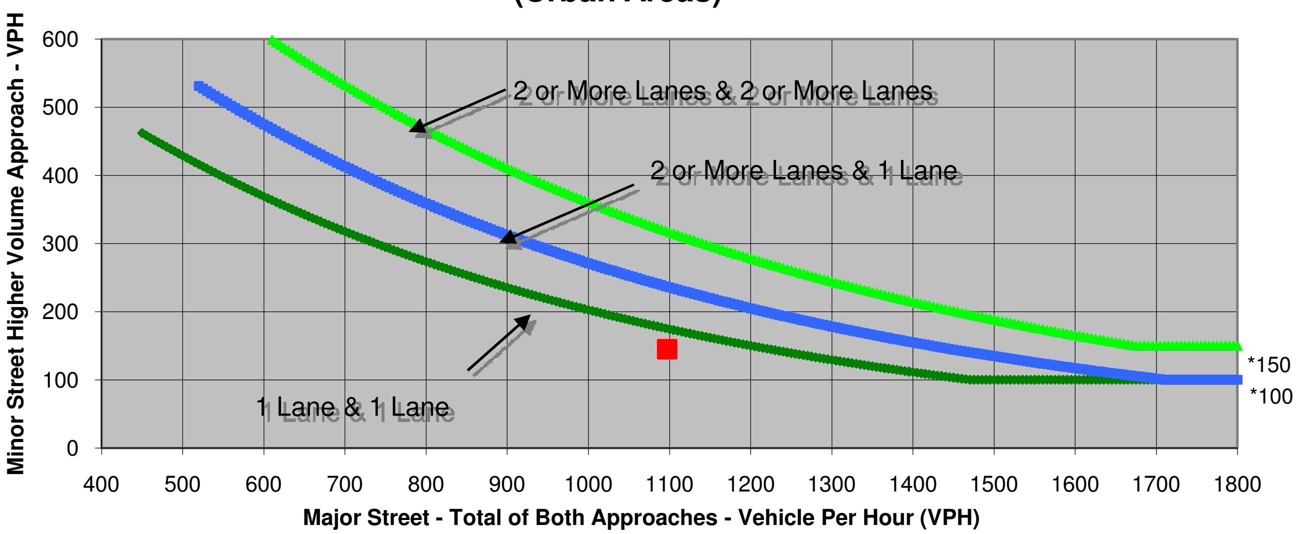
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	24	31	0
Through	0	0	416	644
Right	0	121	0	6
Total	0	145	447	650

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,097	145	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road

Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	PM

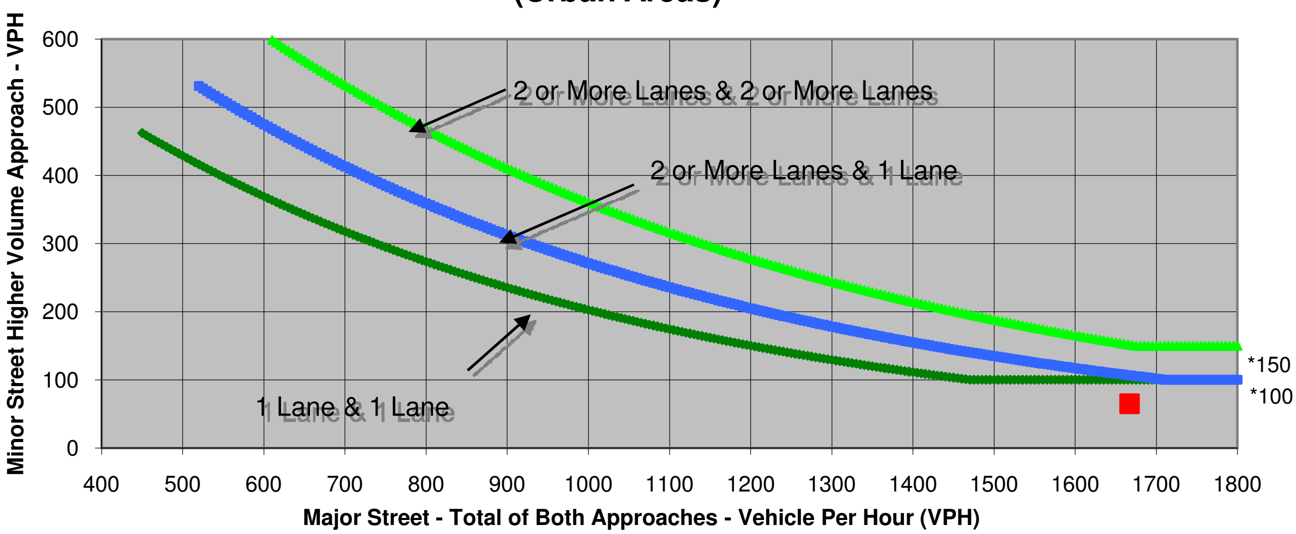
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	11	119	0
Through	0	0	968	546
Right	0	54	0	34
Total	0	65	1,087	580

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,667	65	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Sorento Road
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

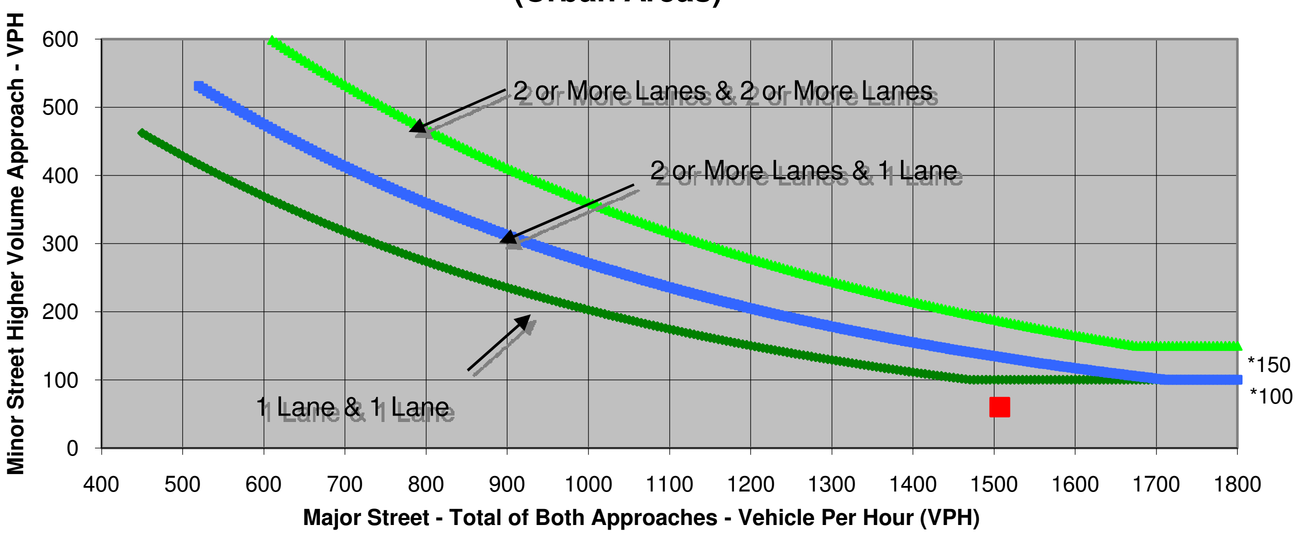
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	9	4	3
Through	1	1	303	1,162
Right	5	50	1	34
Total	6	60	308	1,199

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Sorento Road	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,507	60	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	Elverta Road		Sheet No	2	of 2
Minor Street	Sorento Road		Project	Elverta Specific Plan EIS	
			Scenario	Existing Plus Preferred Alternative	
			Peak Hour	PM	

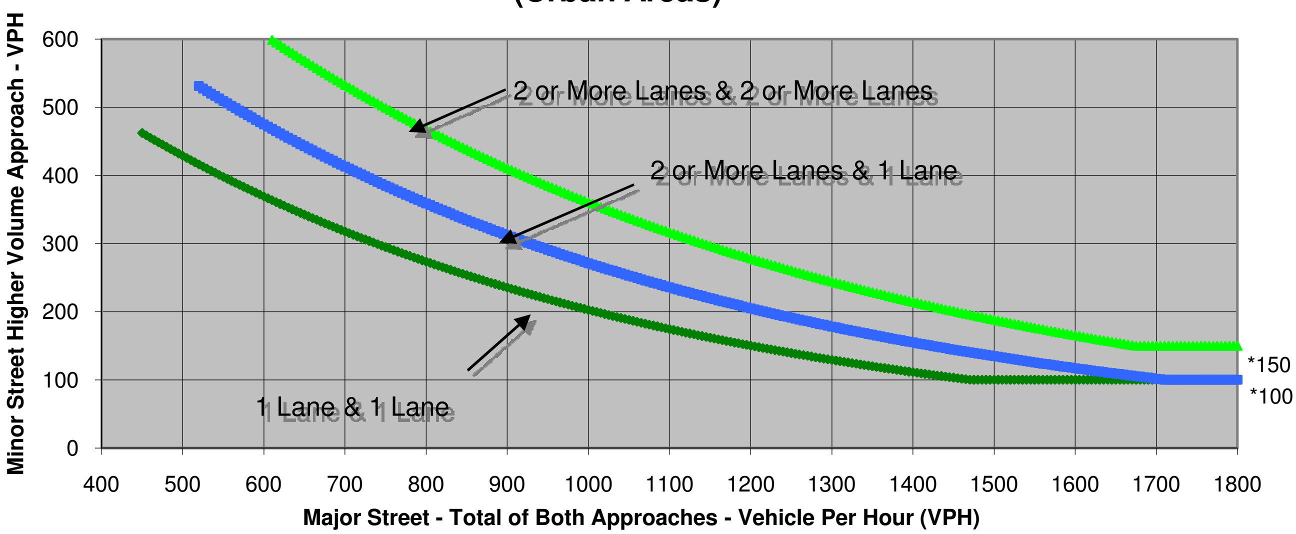
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	39	33	2
Through	1	2	1,461	584
Right	5	11	3	24
Total	7	52	1,497	610

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Sorento Road	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	2,107	52	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Elwyn Road
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

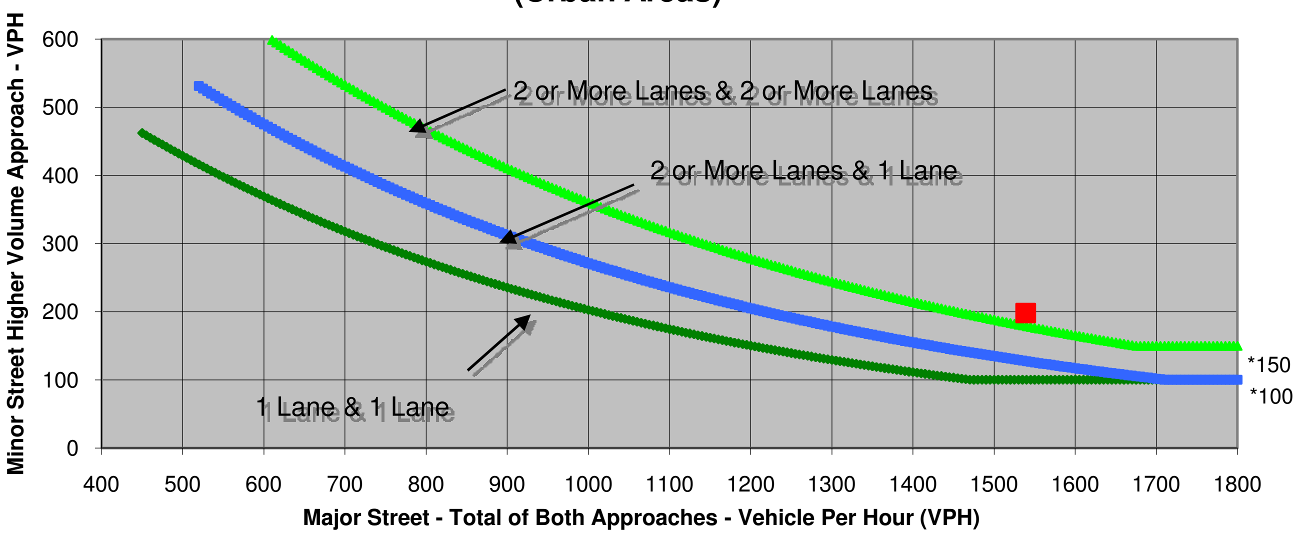
Turn Movement Volumes

	NB	SB	EB	WB
Left	16	109	9	5
Through	27	25	299	1,117
Right	9	64	7	102
Total	52	198	315	1,224

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Elwyn Road	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,539	198	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Plus Preferred Alternative			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	Elwyn Road

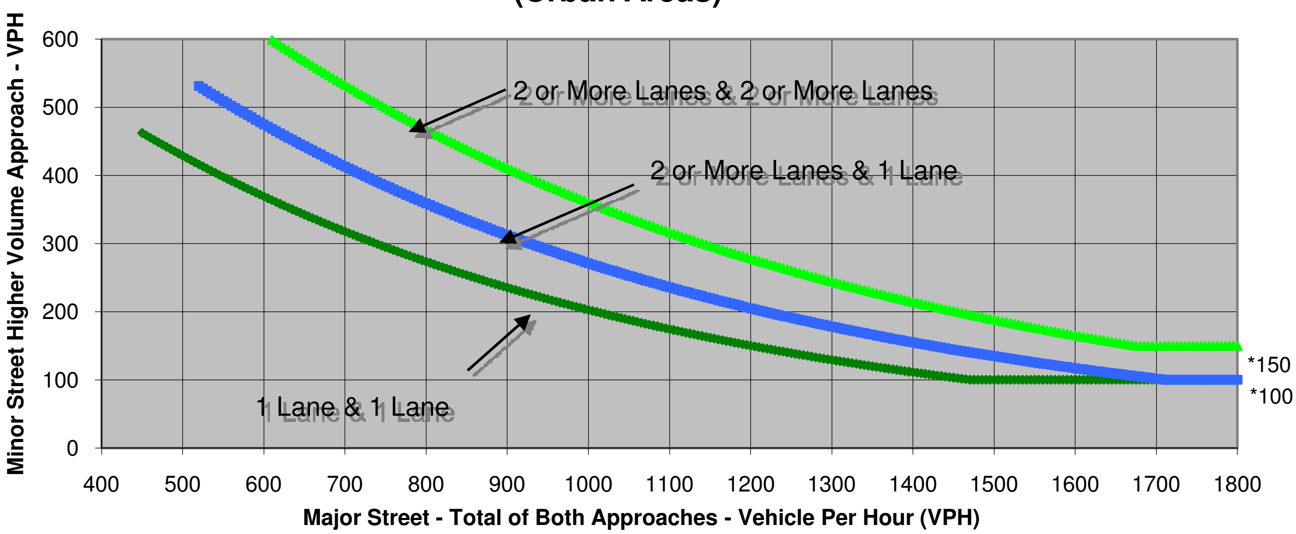
Turn Movement Volumes

	NB	SB	EB	WB
Left	6	124	157	9
Through	18	26	1,326	593
Right	8	10	15	143
Total	32	160	1,498	745

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Elwyn Road	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,243	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elverta Road
Minor Street	Rio Linda Blvd
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

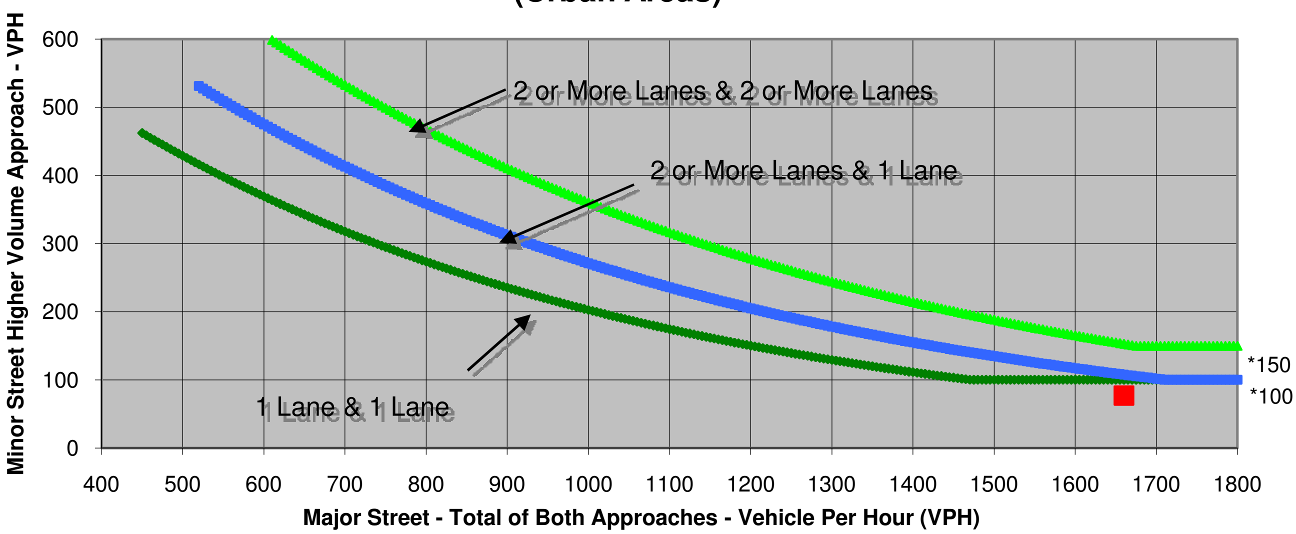
Turn Movement Volumes

	NB	SB	EB	WB
Left	49	0	0	59
Through	0	0	355	1,164
Right	28	0	82	0
Total	77	0	437	1,223

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Rio Linda Blvd	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,660	77	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elverta Road
Minor Street	Rio Linda Blvd

Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	PM

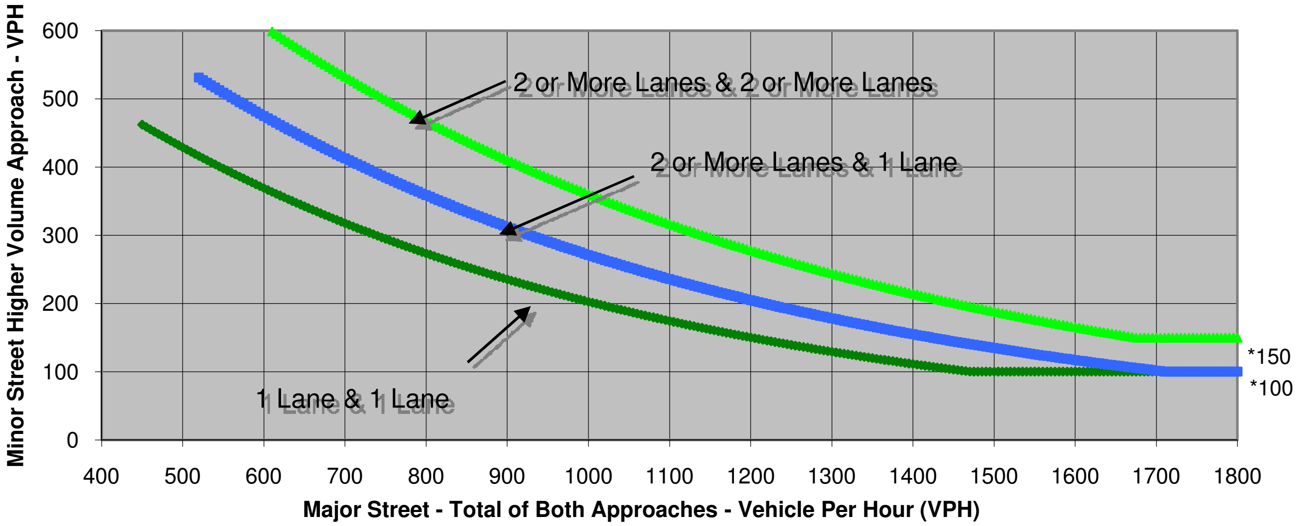
Turn Movement Volumes

	NB	SB	EB	WB
Left	105	0	0	55
Through	0	0	1,385	656
Right	55	0	87	0
Total	160	0	1,472	711

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Rio Linda Blvd	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,183	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	Elverta Road	Project	Elverta Specific Plan EIS
Minor Street	9th Street	Scenario	Existing Plus Preferred Alternative
		Peak Hour	AM

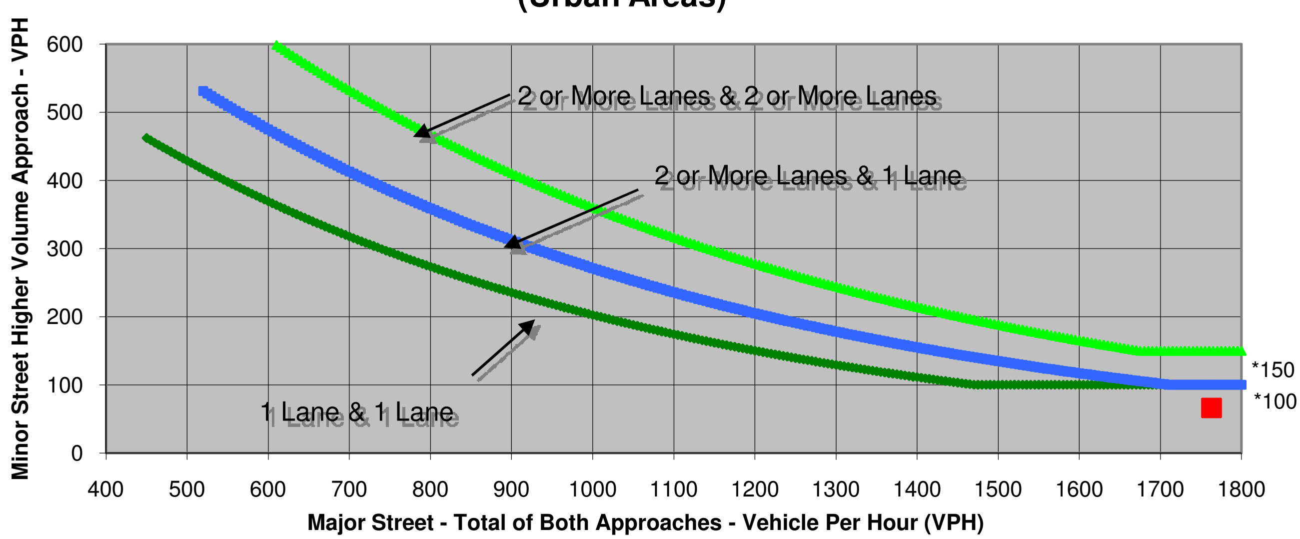
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	162
Through	0	0	407	1,193
Right	66	0	1	0
Total	66	0	408	1,355

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,763	66	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Major Street | Dry Creek Road
Minor Street | U Street

Sheet No 1 of 2

Project | Elverta Specific Plan EIS
Scenario | Existing Plus Preferred Alternative
Peak Hour | AM

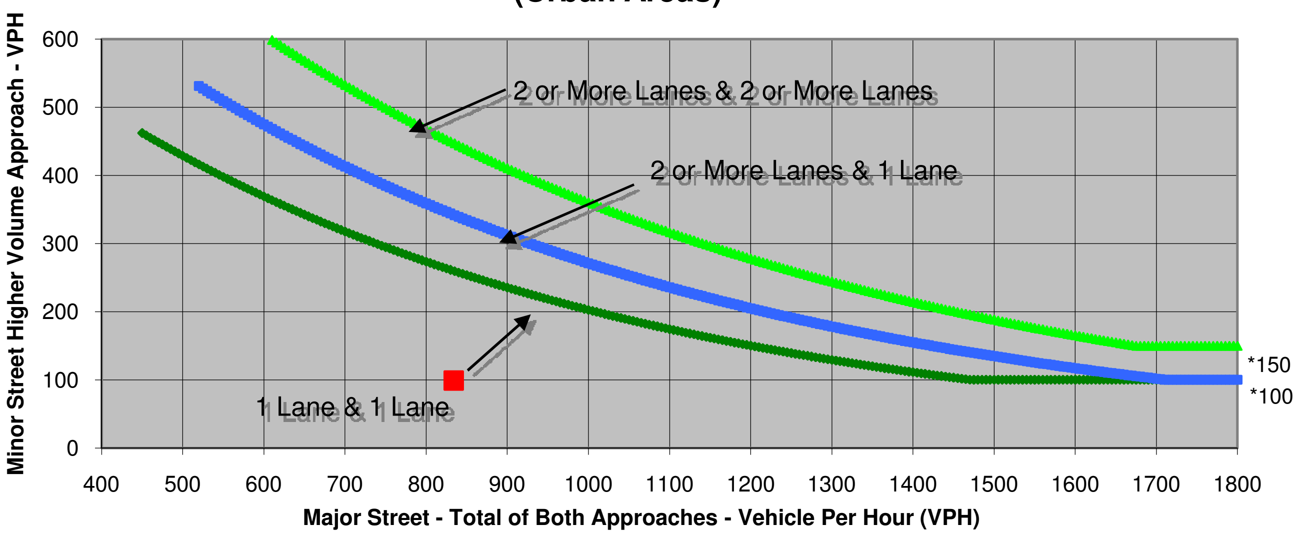
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	0	2	80
Through	173	607	19	18
Right	29	7	45	1
Total	220	614	66	99

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	834	99	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	U Street
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	PM

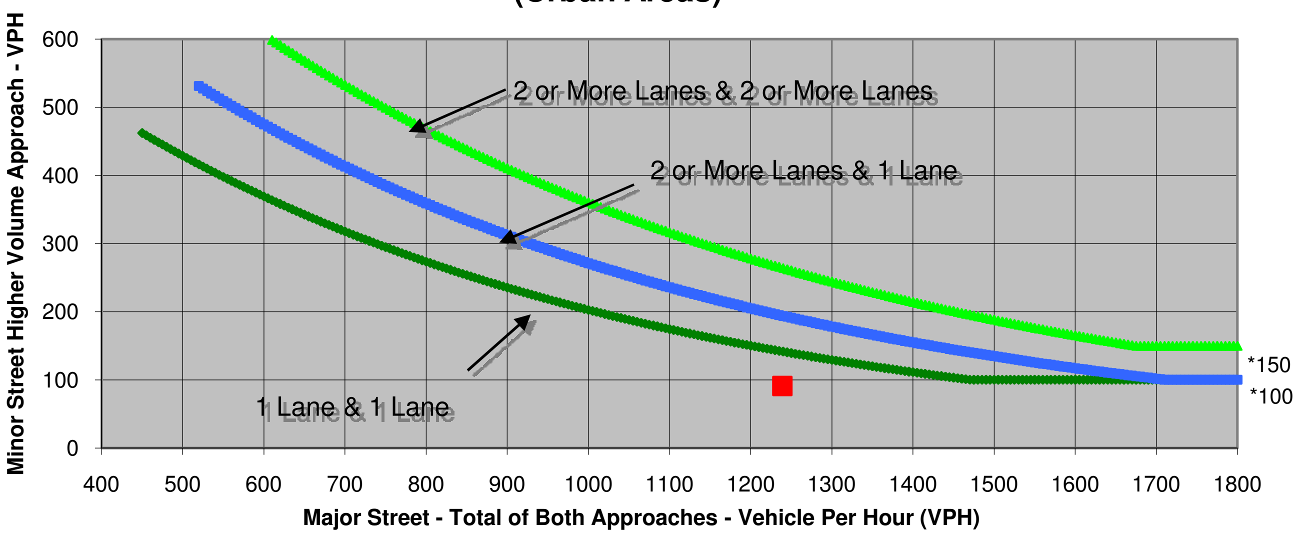
Turn Movement Volumes

	NB	SB	EB	WB
Left	53	1	8	64
Through	688	392	31	26
Right	99	6	31	1
Total	840	399	70	91

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,239	91	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Dry Creek Road
Minor Street	Q Street
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	AM

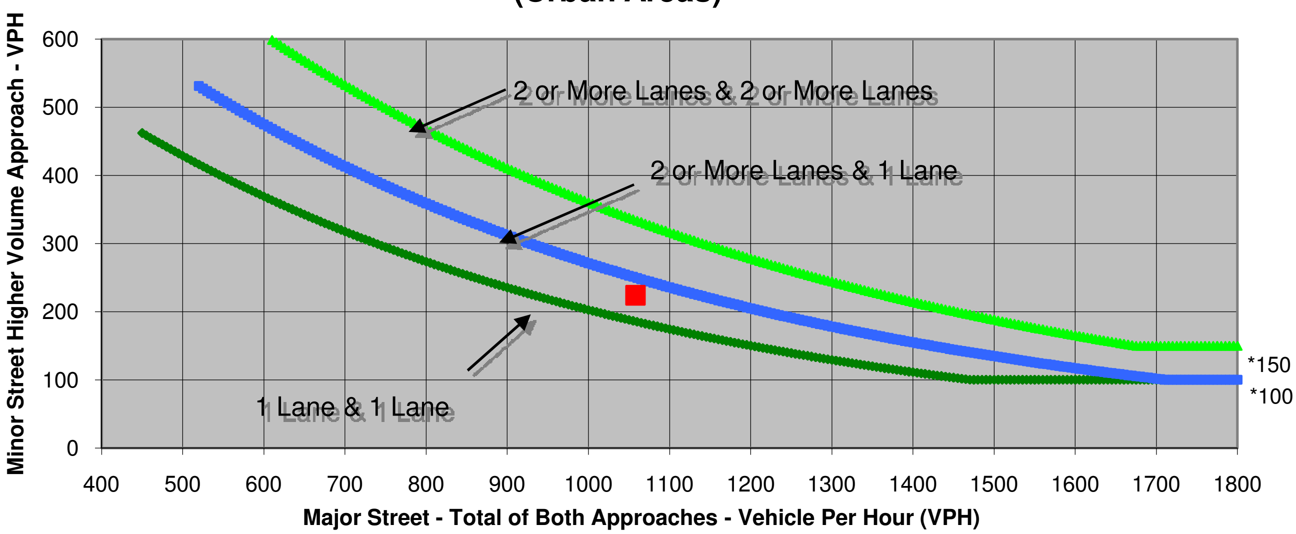
Turn Movement Volumes

	NB	SB	EB	WB
Left	47	36	6	132
Through	208	696	56	77
Right	54	17	53	15
Total	309	749	115	224

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,058	224	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Dry Creek Road
Minor Street	Q Street
Project	Elverta Specific Plan EIS
Scenario	Existing Plus Preferred Alternative
Peak Hour	PM

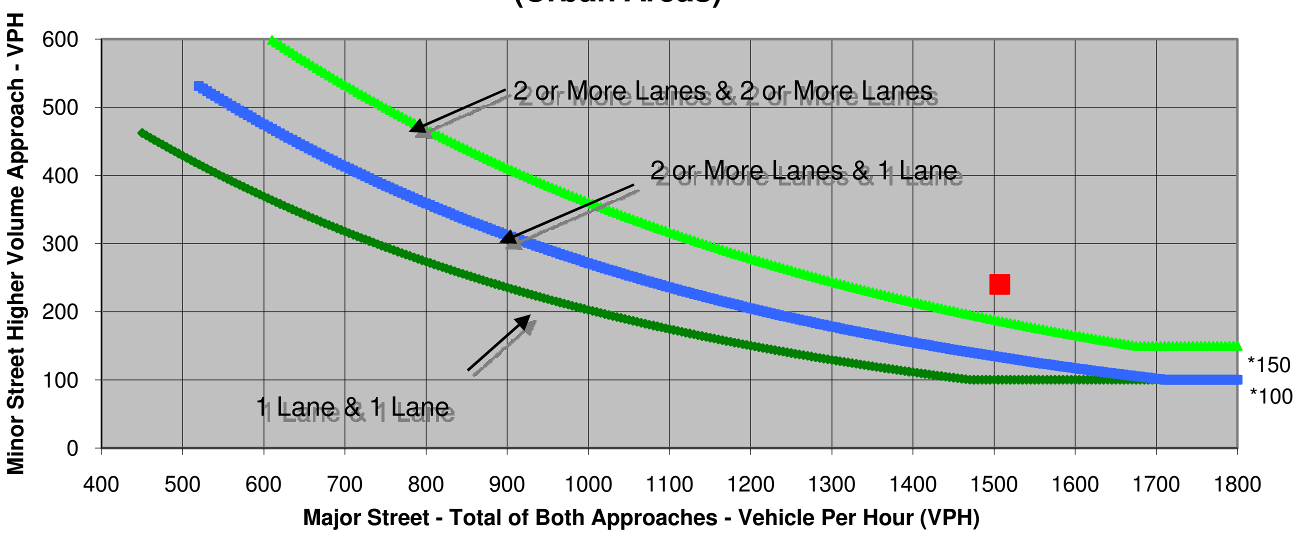
Turn Movement Volumes

	NB	SB	EB	WB
Left	63	21	18	105
Through	786	463	90	89
Right	164	10	44	46
Total	1,013	494	152	240

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,507	240	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Plus Preferred Alternative			
Peak Hour	AM			

Major Street	16th Street
Minor Street	U Street

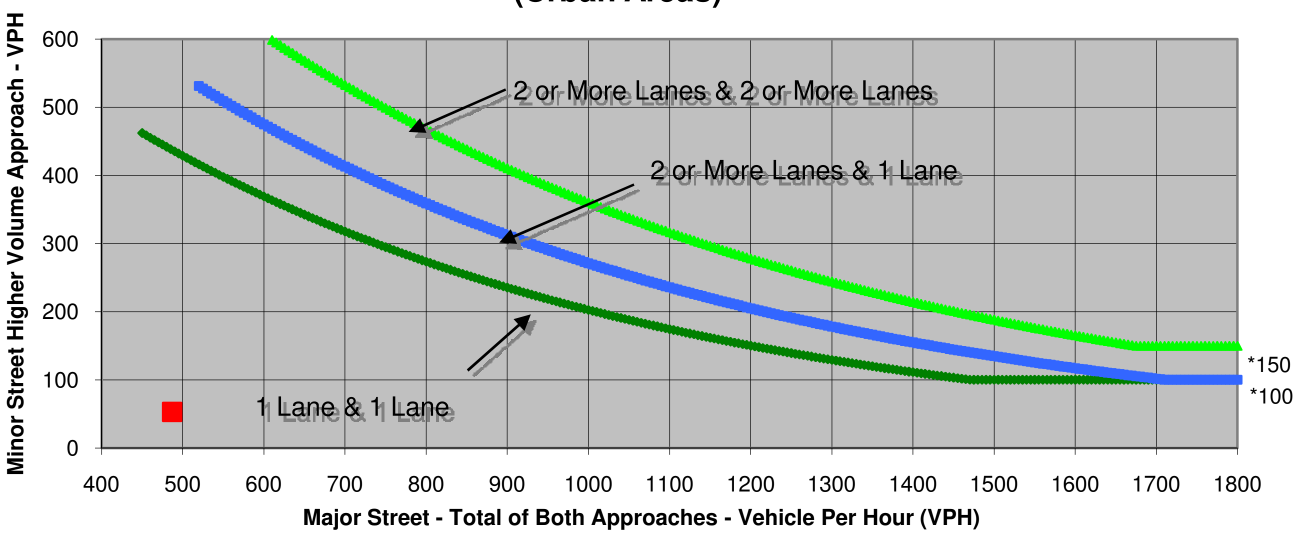
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	5	48	6
Through	86	290	2	3
Right	7	98	3	5
Total	94	393	53	14

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	487	53	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Major Street	16th Street	Project	Elverta Specific Plan EIS	
Minor Street	U Street	Scenario	Existing Plus Preferred Alternative	
		Peak Hour	PM	

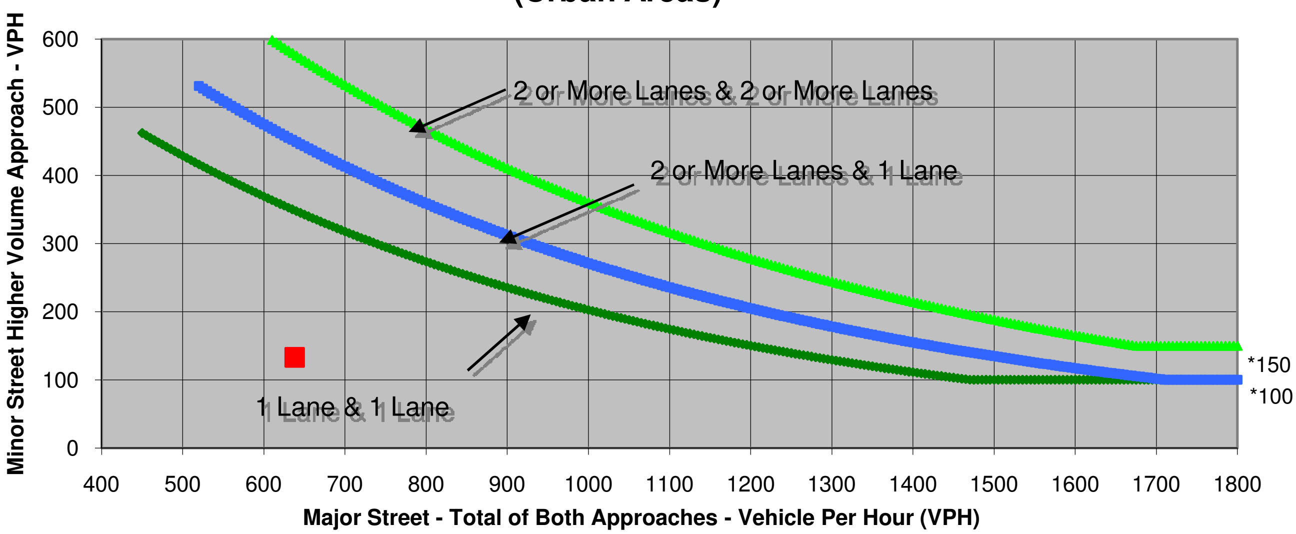
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	8	123	7
Through	325	205	5	2
Right	8	90	5	4
Total	335	303	133	13

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	638	133	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Existing Plus Preferred Alternative			
Peak Hour	AM			

Major Street: 16th Street
Minor Street: Q Street

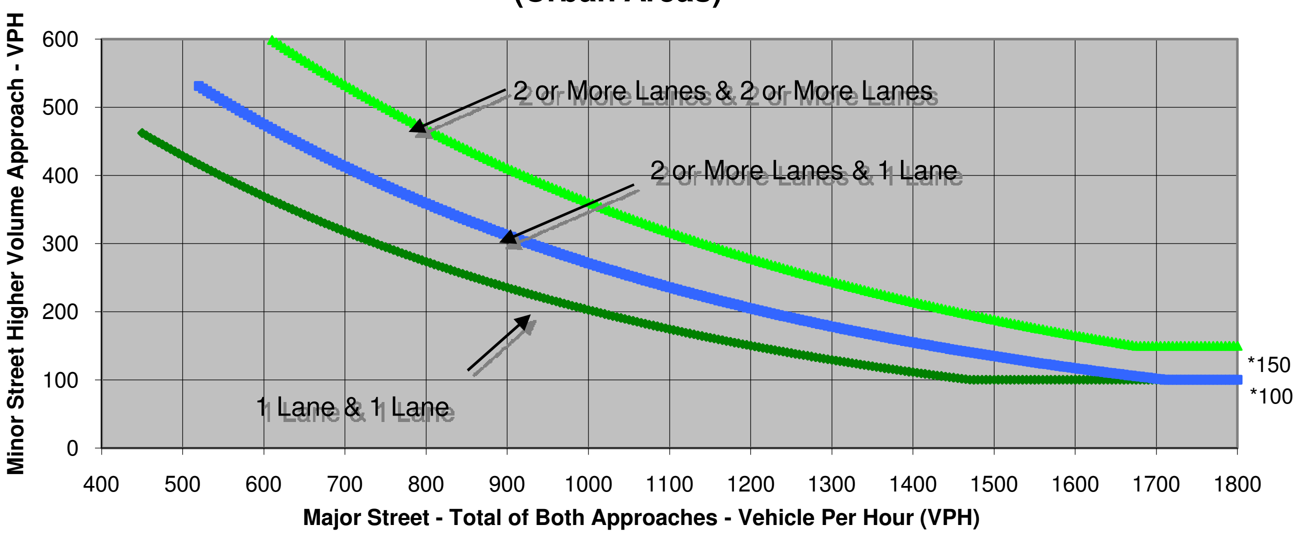
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	163	38	0
Through	0	0	130	76
Right	0	139	0	52
Total	0	302	168	128

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street Q Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	296	302	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No	2	of	2	

Major Street: 16th Street
Minor Street: Q Street

Project: Elverta Specific Plan EIS
Scenario: Existing Plus Preferred Alternative
Peak Hour: PM

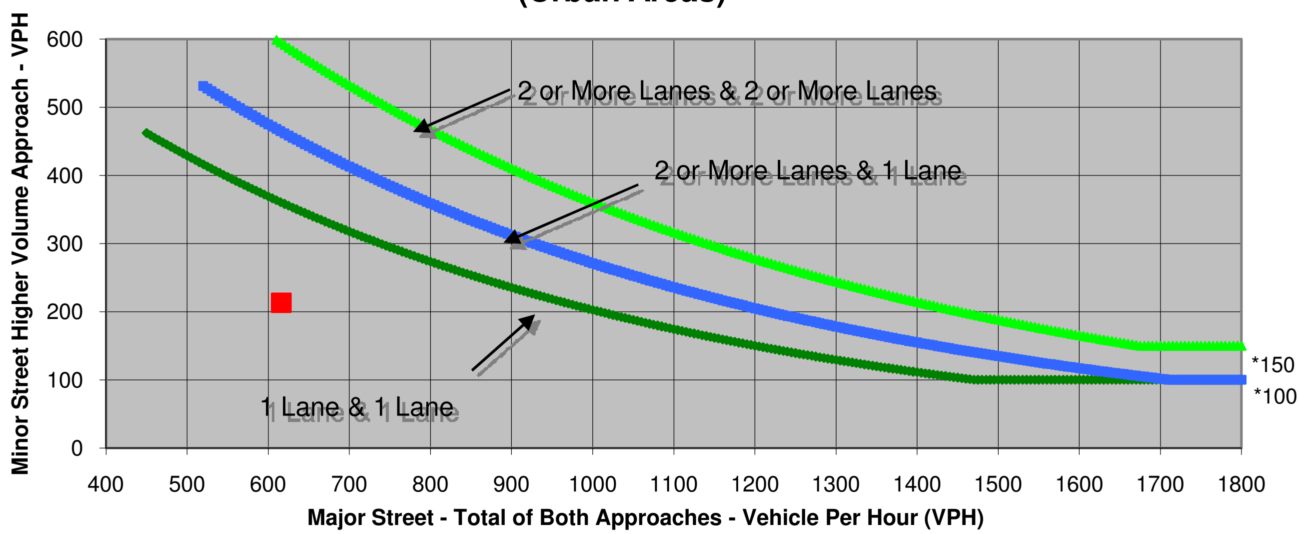
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	114	149	0
Through	0	0	140	141
Right	0	99	0	186
Total	0	213	289	327

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	616	213	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elverta Road
Minor Street	9th Street
Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	AM

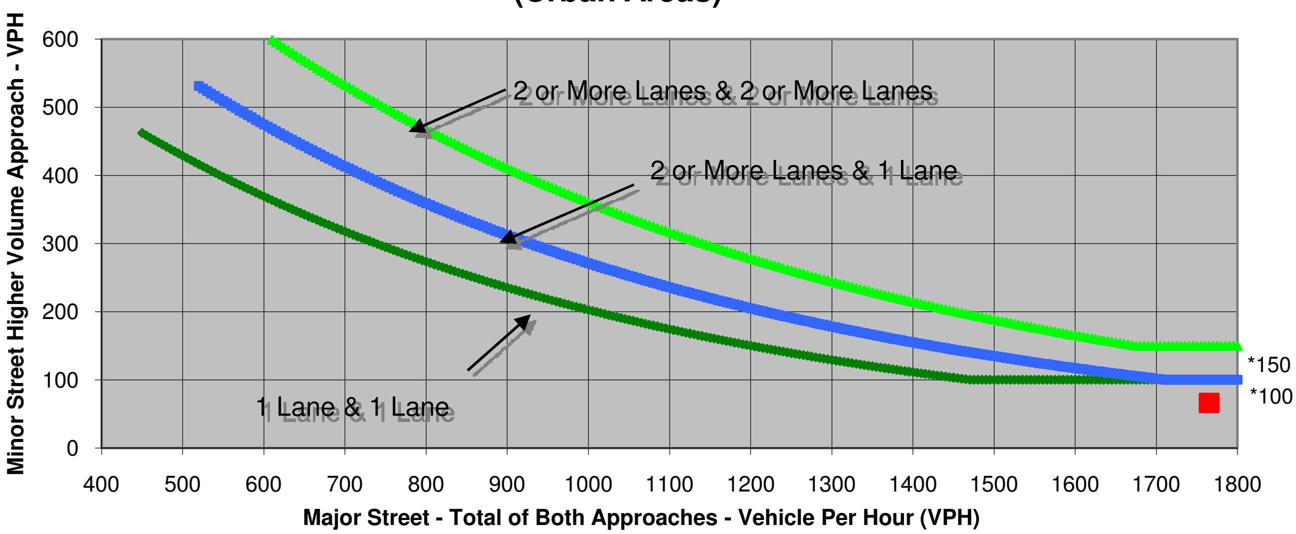
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	163
Through	0	0	408	1,193
Right	66	0	1	0
Total	66	0	409	1,356

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** 9th Street	**Warrant Met**
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	1,765	66	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	PM

Major Street	Elverta Road
Minor Street	9th Street

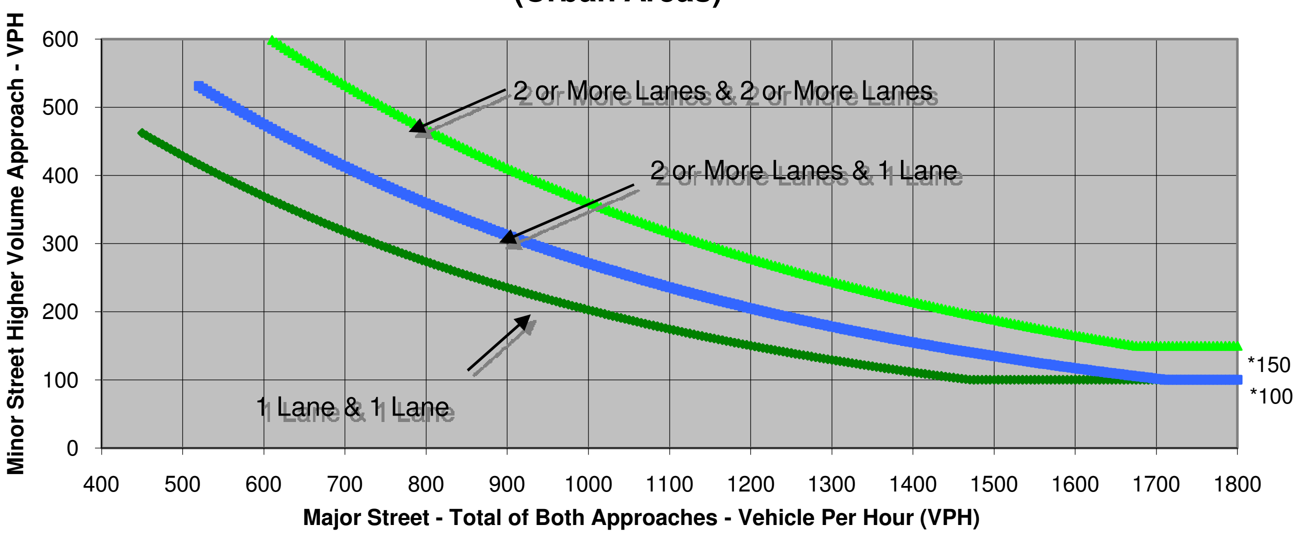
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	0	0	121
Through	0	0	1,423	756
Right	190	0	5	0
Total	192	0	1,428	877

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,305	192	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Dry Creek Road
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	AM

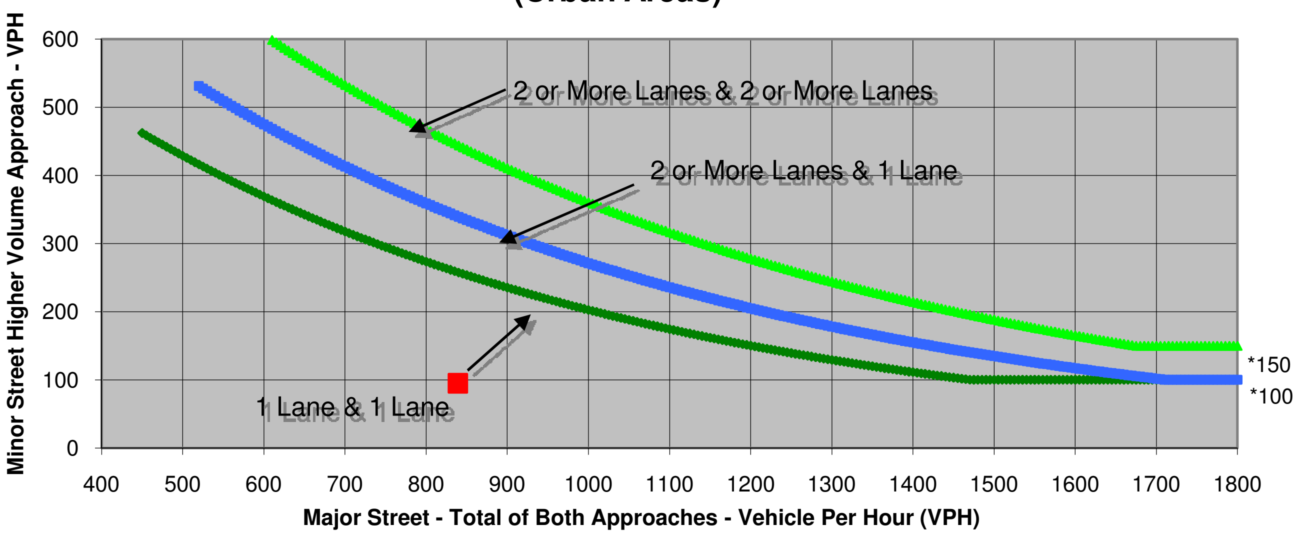
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	0	2	76
Through	175	611	19	18
Right	28	7	45	1
Total	221	618	66	95

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	839	95	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	PM

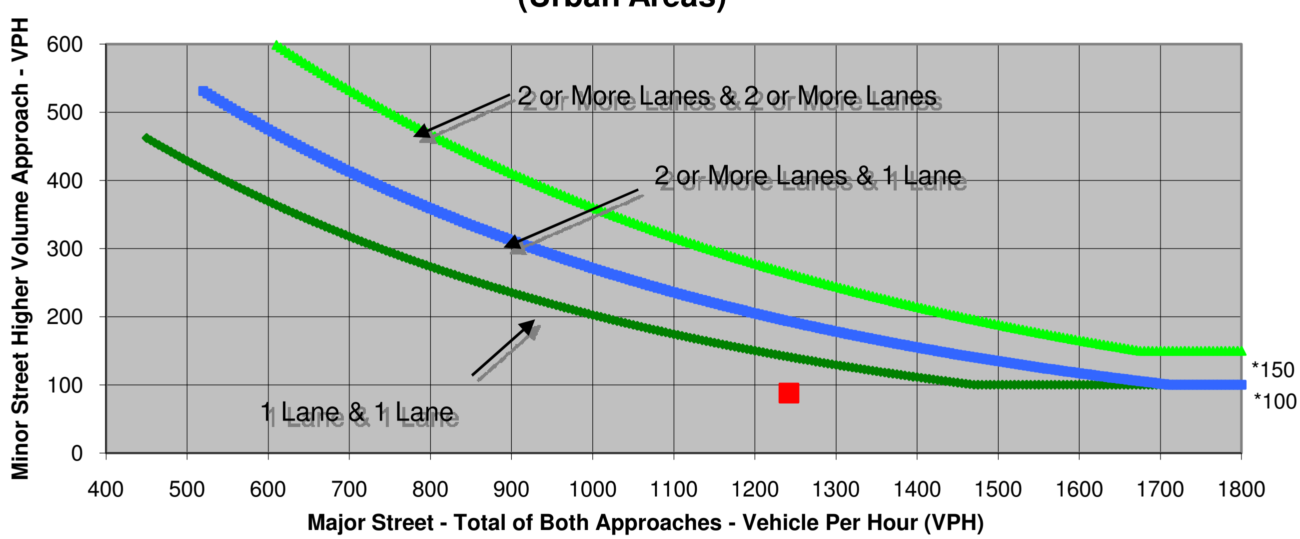
Turn Movement Volumes

	NB	SB	EB	WB
Left	53	1	7	61
Through	692	396	31	26
Right	94	6	31	1
Total	839	403	69	88

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,242	88	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	AM

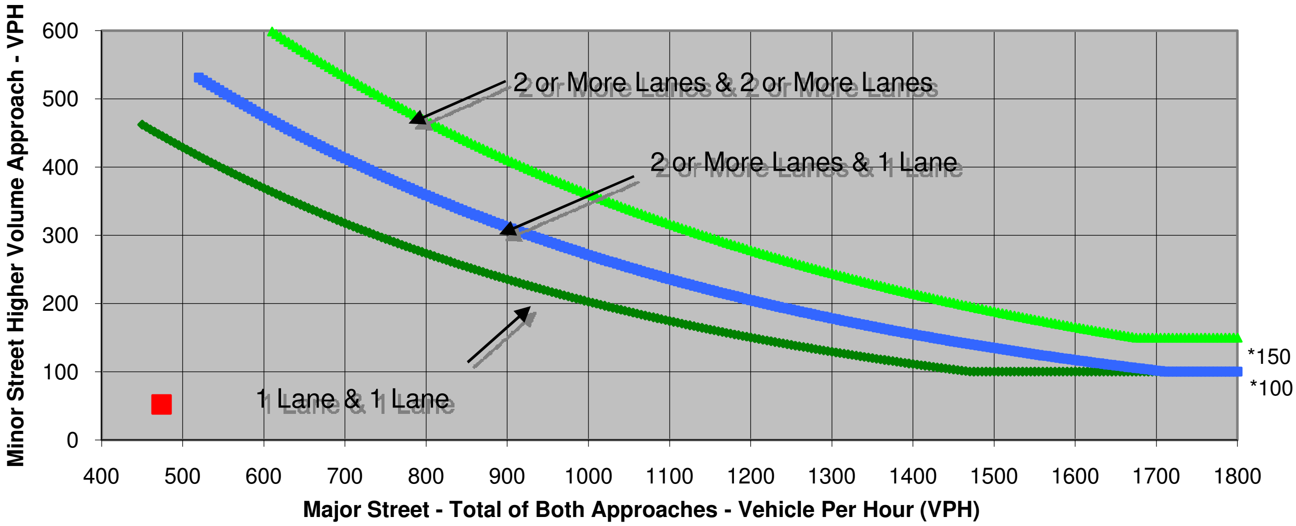
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	5	47	6
Through	84	283	2	3
Right	7	94	3	5
Total	92	382	52	14

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	474	52	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Existing Plus Approved SP
Peak Hour	PM

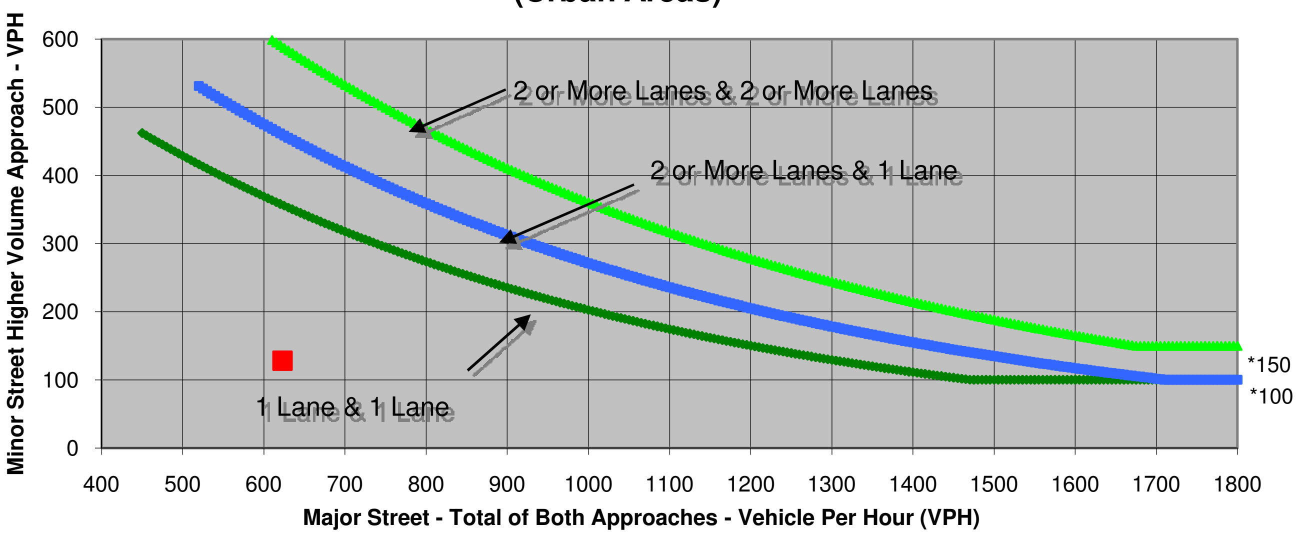
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	8	118	7
Through	318	200	5	2
Right	8	87	5	4
Total	328	295	128	13

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	623	128	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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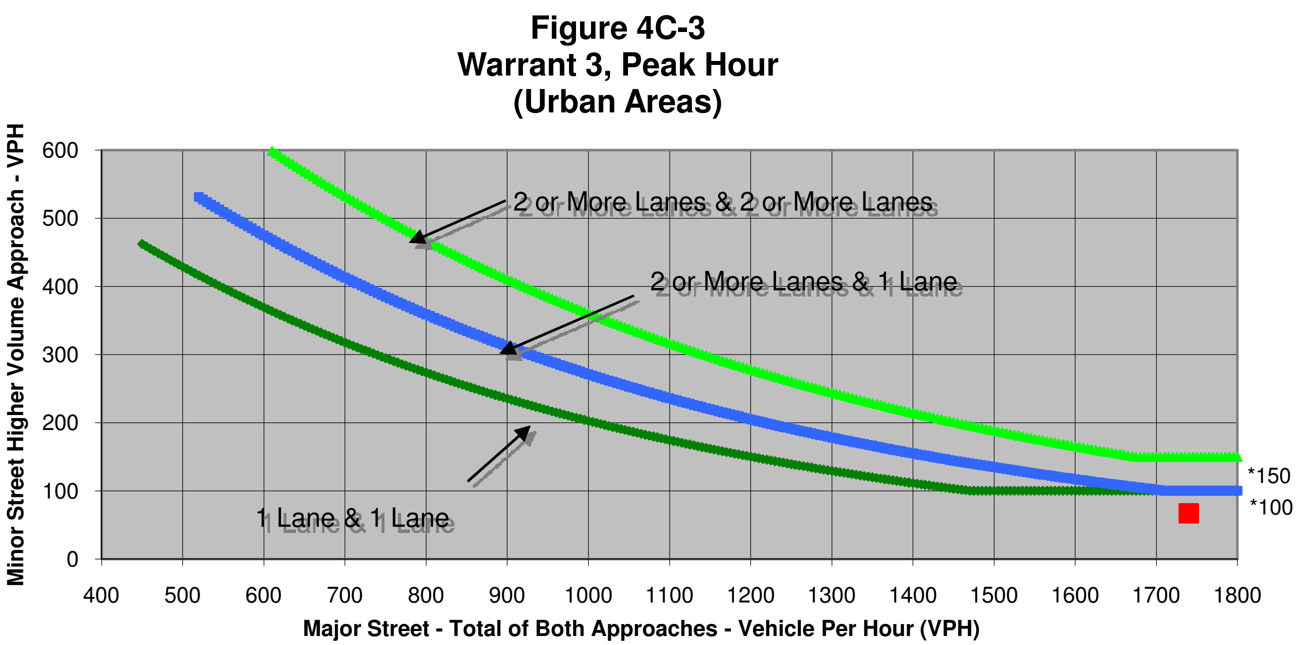
Major Street	Elverta Road
Minor Street	9th Street
Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	163
Through	0	0	406	1,170
Right	67	0	1	0
Total	67	0	407	1,333

Major Street Direction

	North/South
x	East/West



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	1,740	67	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Elverta Road
Minor Street	9th Street

Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	PM

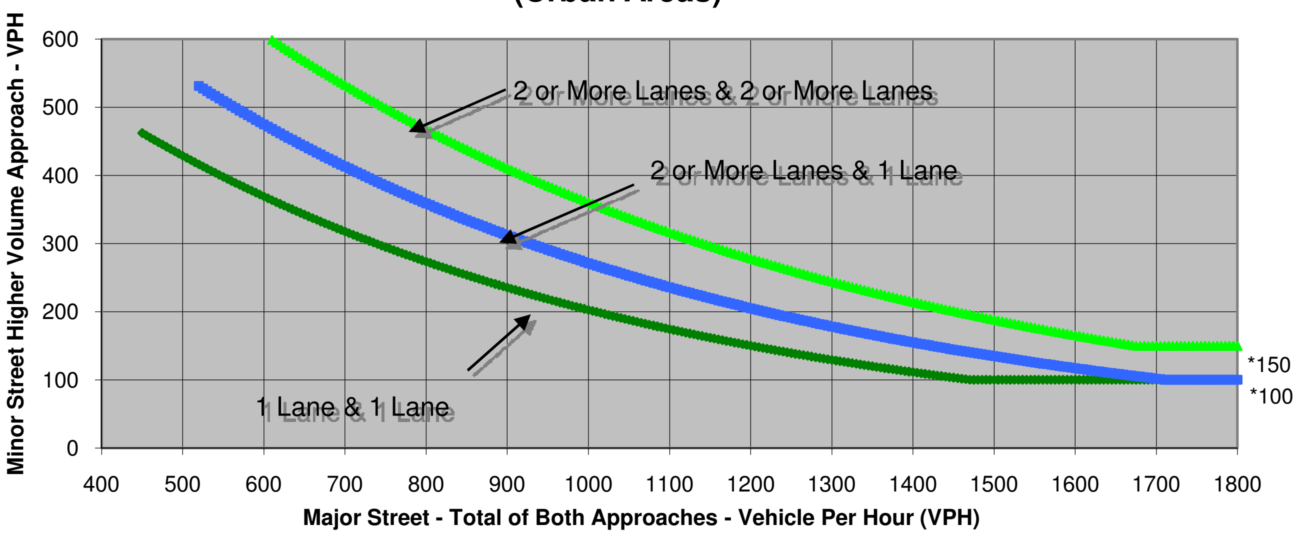
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	0	0	116
Through	0	0	1,368	721
Right	183	0	5	0
Total	185	0	1,373	837

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,210	185	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	AM

Major Street	Dry Creek Road
Minor Street	U Street

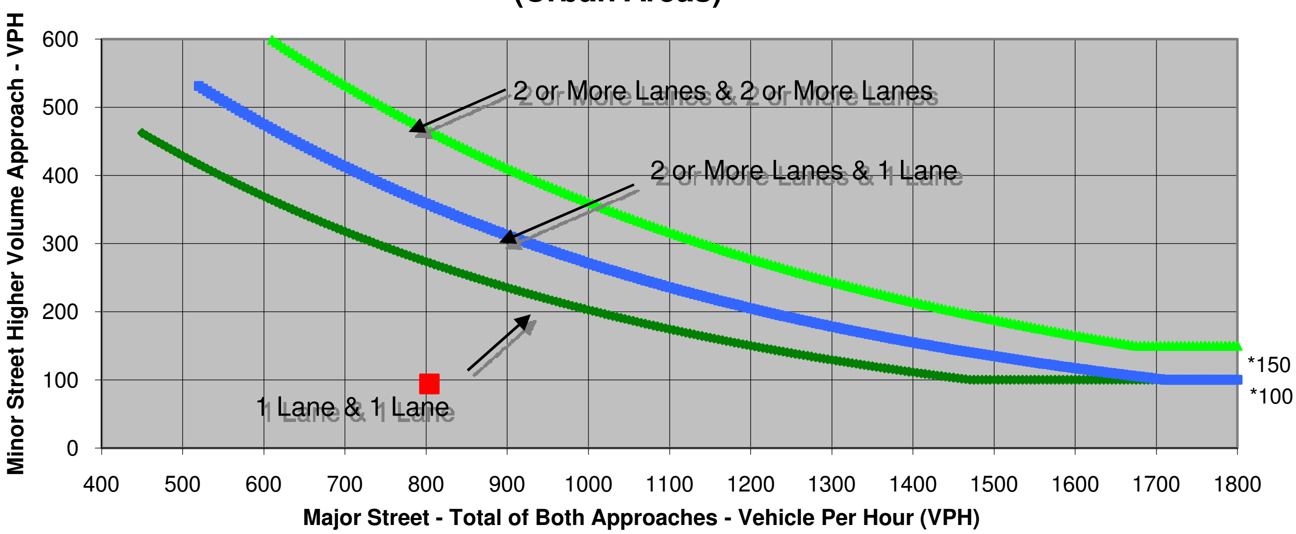
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	0	2	75
Through	172	583	19	18
Right	26	5	45	1
Total	216	588	66	94

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	804	94	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	PM

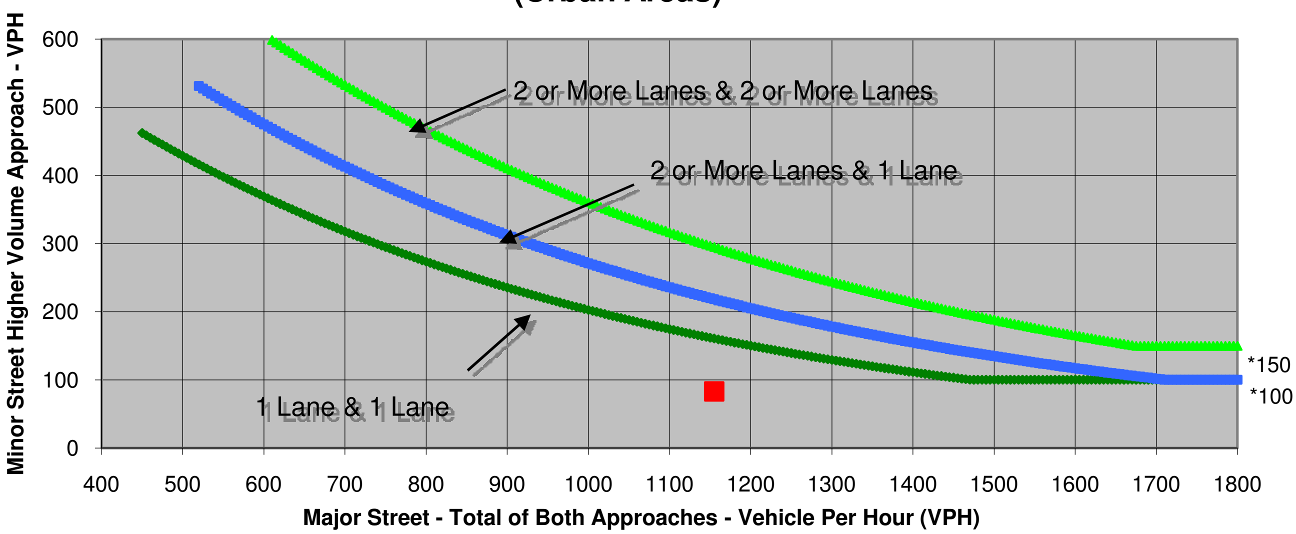
Turn Movement Volumes

	NB	SB	EB	WB
Left	53	1	6	56
Through	641	365	31	26
Right	90	5	31	1
Total	784	371	68	83

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	1,155	83	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	AM

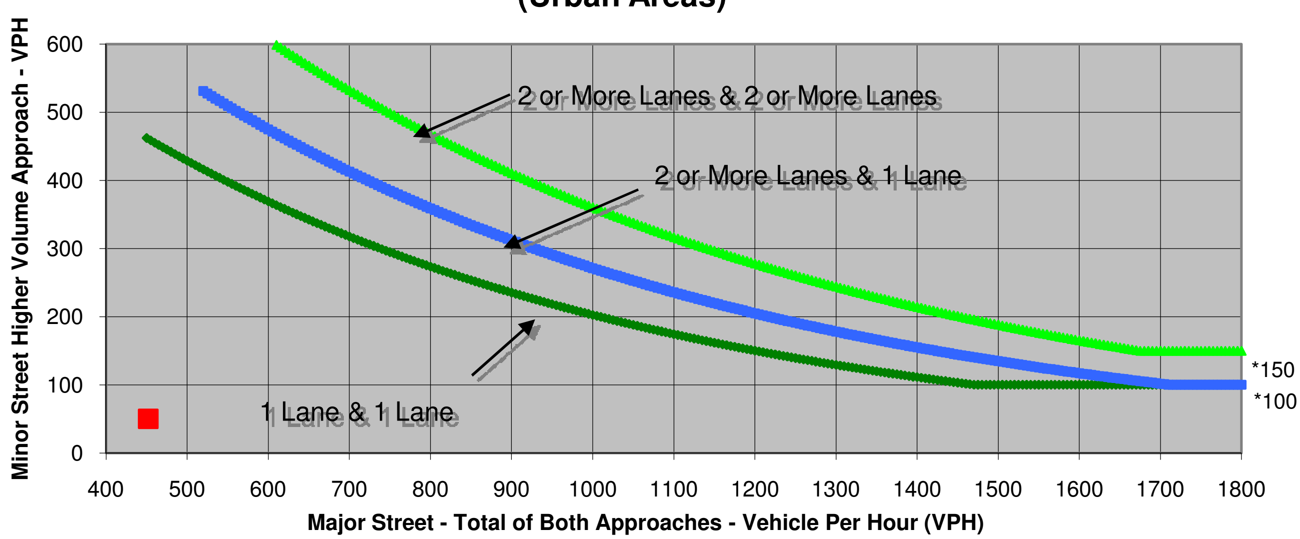
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	5	45	6
Through	78	268	2	3
Right	7	93	3	5
Total	86	366	50	14

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	452	50	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Existing Plus Minimal Impact
Peak Hour	PM

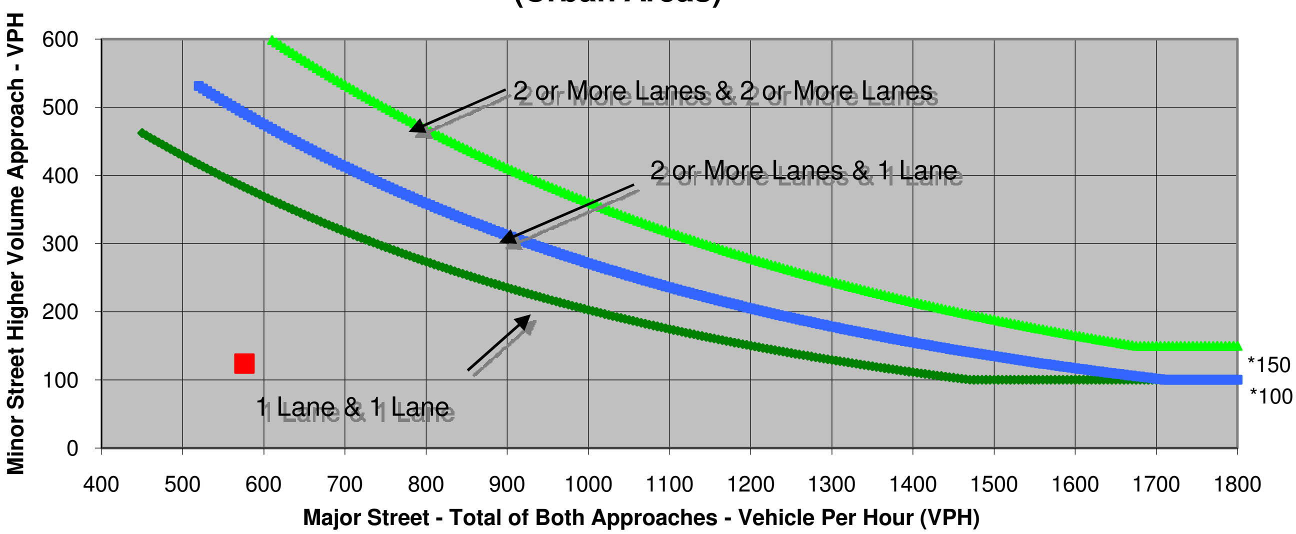
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	8	114	7
Through	293	183	5	2
Right	8	82	5	4
Total	303	273	124	13

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	576	124	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	9th Street
Project	Elverta Specific Plan
Scenario	Existing Plus No Federal Action
Peak Hour	AM

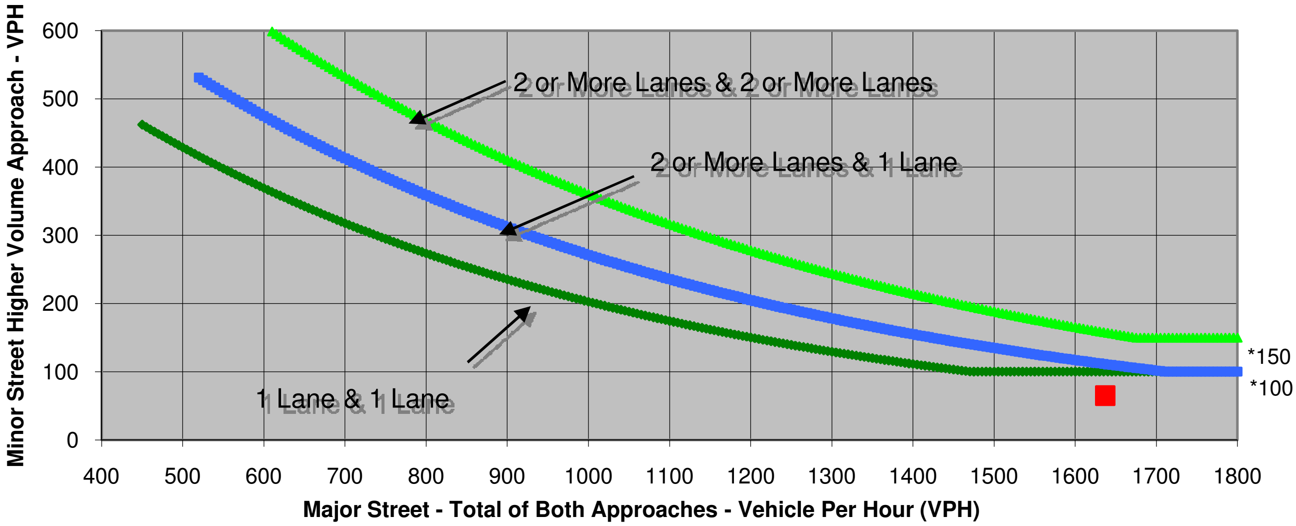
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0	0	171
Through	0	0	361	1,104
Right	65	0	1	0
Total	65	0	362	1,275

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	1,637	65	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elverta Road
Minor Street	9th Street
Project	Elverta Specific Plan
Scenario	Existing Plus No Federal Action
Peak Hour	PM

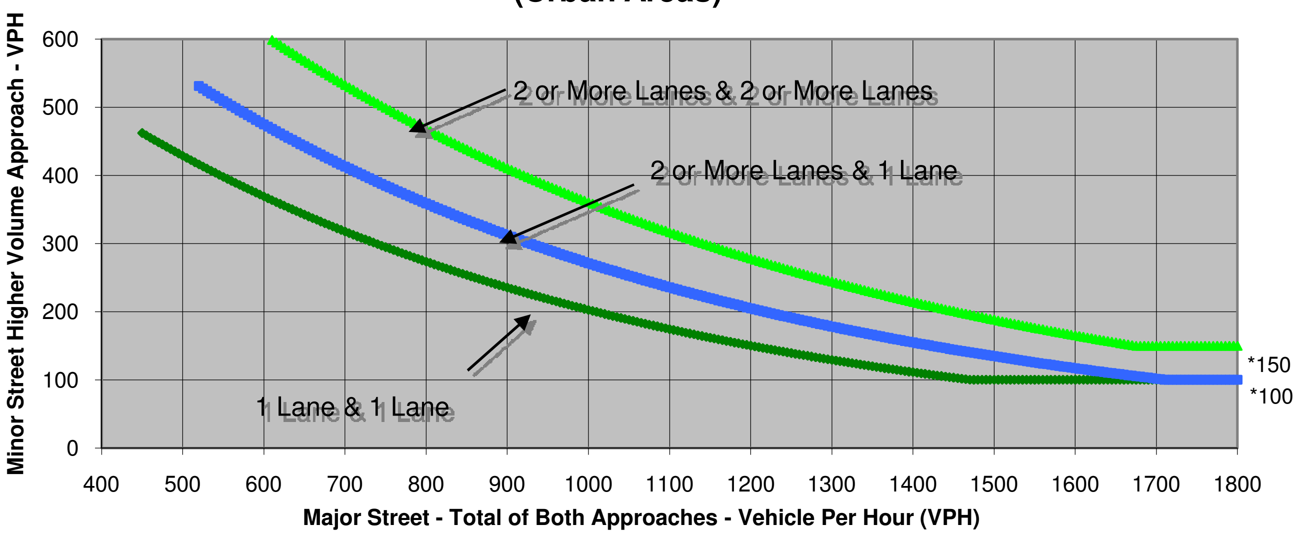
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	0	0	113
Through	0	0	1,258	640
Right	184	0	5	0
Total	186	0	1,263	753

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,016	186	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street: Dry Creek Road
Minor Street: U Street

Project: Elverta Specific Plan
Scenario: Existing Plus No Federal Action
Peak Hour: AM

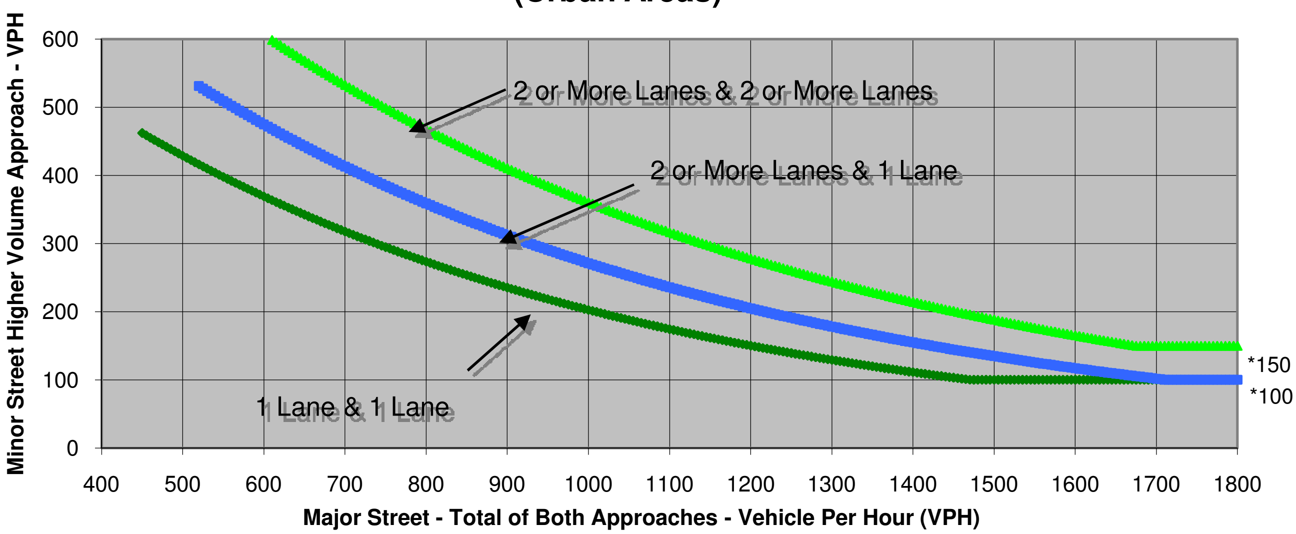
Turn Movement Volumes

	NB	SB	EB	WB
Left	18	0	0	481
Through	0	1	19	18
Right	129	0	45	1
Total	147	1	64	500

Major Street Direction

x North/South
East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	148	500	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS TRANSPORTATION CONSULTANTS

Sheet No	2	of	2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Existing Plus No Federal Action
Peak Hour	PM

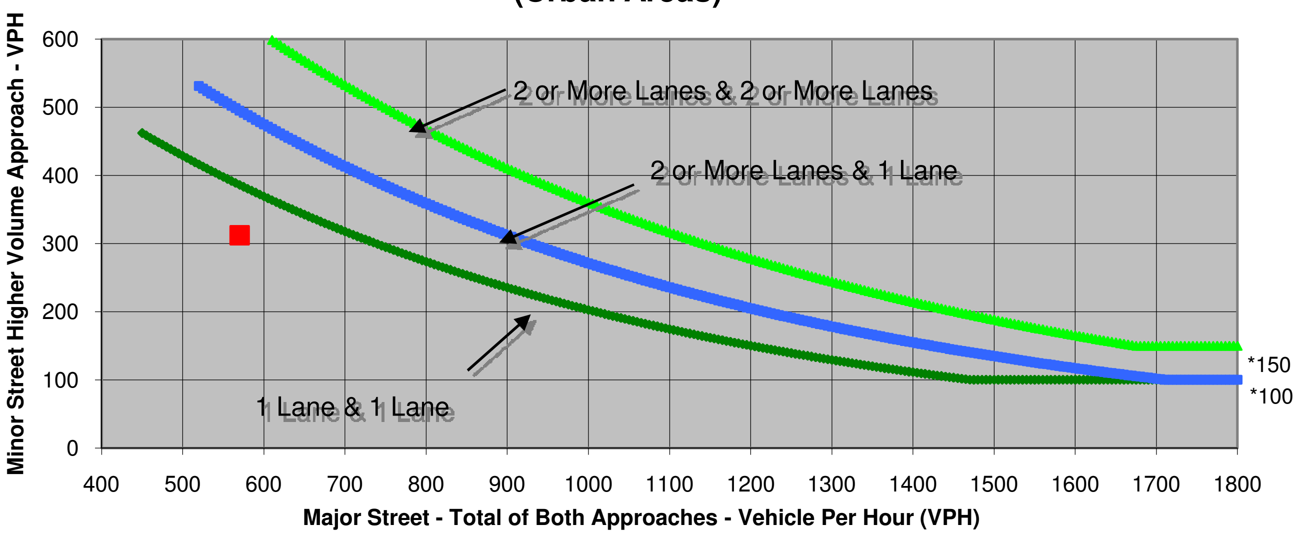
Turn Movement Volumes

	NB	SB	EB	WB
Left	53	1	0	285
Through	2	0	31	26
Right	512	2	31	1
Total	567	3	62	312

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	570	312	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Existing Plus No Federal Action
Peak Hour	AM

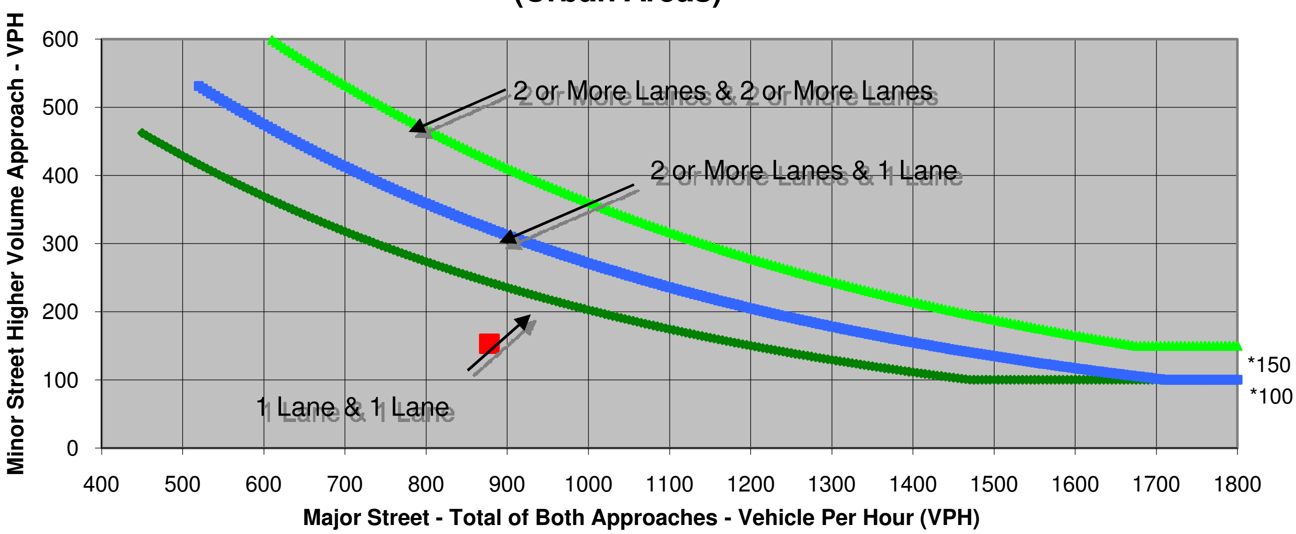
Turn Movement Volumes

	NB	SB	EB	WB
Left	1	5	148	6
Through	77	289	2	3
Right	7	499	3	5
Total	85	793	153	14

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	878	153	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Existing Plus No Federal Action
Peak Hour	PM

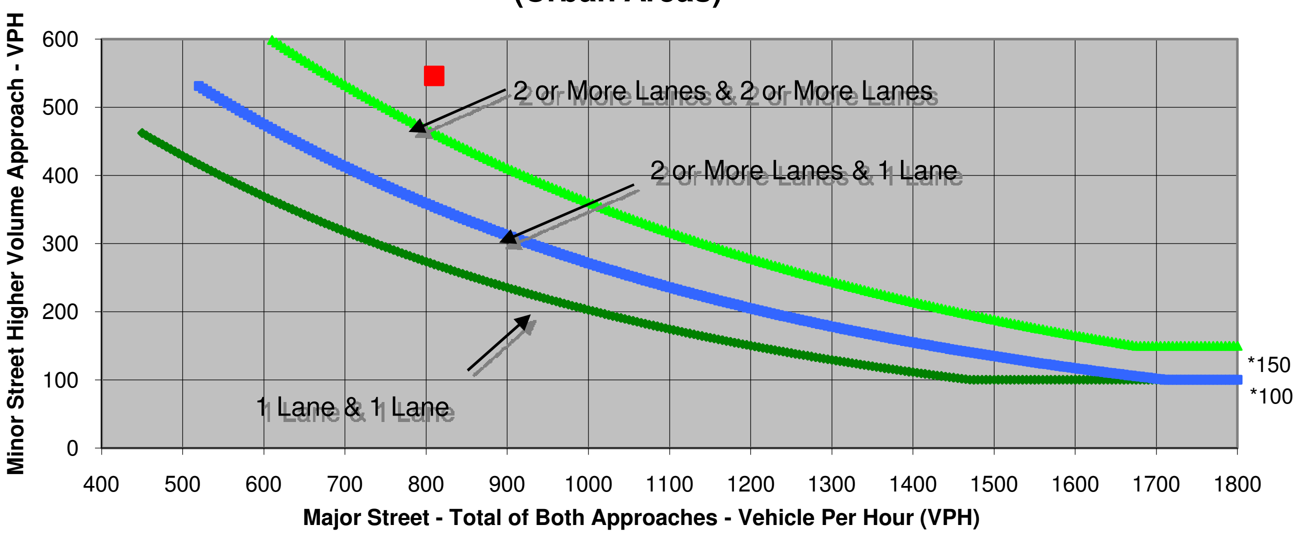
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	8	536	7
Through	300	181	5	2
Right	8	311	5	4
Total	310	500	546	13

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	810	546	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Appendix C

Cumulative Conditions

Appendix C-1: Intersection Operations

Cumulative No Project Conditions

Cumulative Plus Preferred Alternative Conditions

Cumulative Plus Approved Specific Plan Conditions

Cumulative Plus Minimal Impact Conditions

Cumulative Plus No Federal Action Conditions

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.91		1.00	1.00
Frt		1.00	0.93		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	4731		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	4731		1770	1583
Volume (vph)	0	480	1270	1100	400	130
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	495	1309	1134	412	134
RTOR Reduction (vph)	0	0	190	0	0	28
Lane Group Flow (vph)	0	495	2253	0	412	106
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		37.1	37.1		19.4	19.4
Effective Green, g (s)		37.1	37.1		19.4	19.4
Actuated g/C Ratio		0.58	0.58		0.30	0.30
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2036	2721		532	476
v/s Ratio Prot		0.14	c0.48		c0.23	
v/s Ratio Perm						0.07
v/c Ratio		0.24	1.02dr		0.77	0.22
Uniform Delay, d1		6.8	11.1		20.6	16.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	2.2		6.9	0.2
Delay (s)		6.8	13.3		27.5	17.1
Level of Service		A	B		C	B
Approach Delay (s)		6.8	13.3		25.0	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

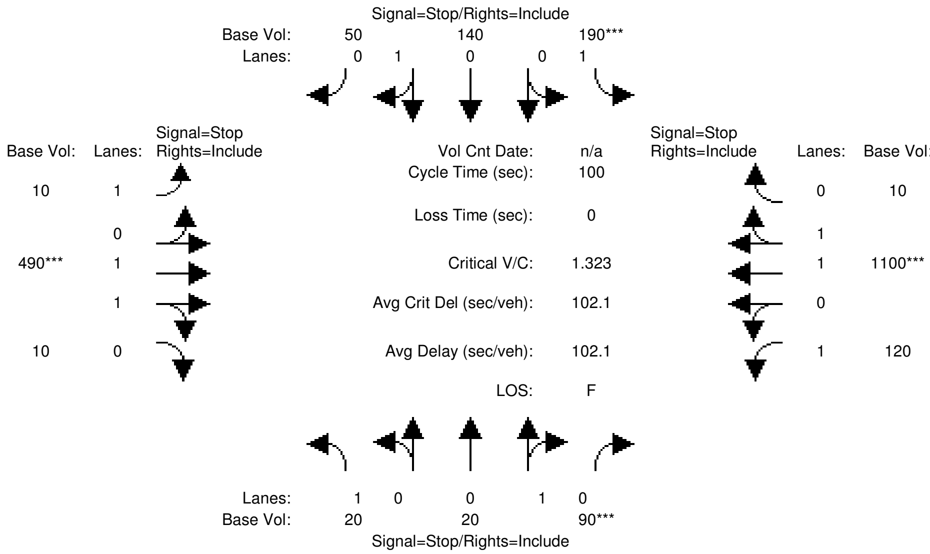
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4973			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4973			5085	1770	1583
Volume (vph)	750	130	0	1970	400	530
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	773	134	0	2031	412	546
RTOR Reduction (vph)	35	0	0	0	0	76
Lane Group Flow (vph)	872	0	0	2031	412	470
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	28.1			28.1	20.7	20.7
Effective Green, g (s)	28.1			28.1	20.7	20.7
Actuated g/C Ratio	0.49			0.49	0.36	0.36
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2460			2516	645	577
v/s Ratio Prot	0.18			c0.40	0.23	
v/s Ratio Perm						c0.30
v/c Ratio	0.35			0.81	0.64	0.82
Uniform Delay, d1	8.8			12.1	15.0	16.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.0	2.1	8.7
Delay (s)	8.9			14.1	17.0	25.0
Level of Service	A			B	B	C
Approach Delay (s)	8.9			14.1	21.6	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project AM

Intersection #5: Elverta Road / East Levee Road




```
Street Name:         East Levee Road                    Elverta Road
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      20   20    90   190  140    50    10  490    10   120 1100    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20   20    90   190  140    50    10  490    10   120 1100    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97
PHF Volume:    21   21    93   196  144    52    10  505    10   124 1134    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   21   21    93   196  144    52    10  505    10   124 1134    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   21   21    93   196  144    52    10  505    10   124 1134    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.18  0.82  1.00 0.74  0.26  1.00 1.96  0.04  1.00 1.98  0.02
Final Sat.:   349   71   321   385  306   109   363  758    15   397  857     8
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.29  0.29  0.51 0.47  0.47  0.03 0.67  0.67  0.31 1.32  1.32
Crit Moves:             ****  ****                  ****              ****
Delay/Veh:   13.2 14.9  14.9  20.8 18.3  18.3  12.7 28.0  27.9  15.3  184 183.7
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.2 14.9  14.9  20.8 18.3  18.3  12.7 28.0  27.9  15.3  184 183.7
LOS by Move:    B    B     B     C    C     C     B    D     D     C    F     F
ApproachDel:      14.6             19.6              27.7             167.7
Delay Adj:        1.00             1.00              1.00              1.00
ApprAdjDel:       14.6             19.6              27.7             167.7
LOS by Appr:        B                C                  D                 F
AllWayAvgQ:   0.1  0.4   0.4   0.9  0.8   0.8   0.0  1.7   1.7   0.4 20.8  20.8
Note: Queue reported is the number of cars per lane.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Elverta Road / East Levee Road
********************************************************************************
Base Volume Alternative: Peak Hour Warrant Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound        West Bound
```

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   20   20    90   190  140    50    10  490    10   120 1100    10
------------|---------------||---------------||---------------||---------------|
Major Street Volume:            1740
Minor Approach Volume:          380
Minor Approach Volume Threshold: 136 [less than minimum of 150]
--------------------------------------------------------------------------------
```

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	90	630	1650	30	60	260
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	93	649	1701	31	62	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1732				2119	582
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1732				2119	582
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	74				0	41
cM capacity (veh/h)	360				32	456

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	93	216	216	216	680	680	371	62	268
Volume Left	93	0	0	0	0	0	0	62	0
Volume Right	0	0	0	0	0	0	31	0	268
cSH	360	1700	1700	1700	1700	1700	1700	32	456
Volume to Capacity	0.26	0.13	0.13	0.13	0.40	0.40	0.22	1.92	0.59
Queue Length 95th (ft)	25	0	0	0	0	0	0	175	92
Control Delay (s)	18.4	0.0	0.0	0.0	0.0	0.0	0.0	699.7	23.5
Lane LOS	C							F	C
Approach Delay (s)	2.3				0.0			150.3	
Approach LOS								F	

Intersection Summary			
Average Delay	18.3		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	170	590	10	10	900	10	10	10	10	10	10	330
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	175	608	10	10	928	10	10	10	10	10	10	340
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	938			619			1794	1923	309	1624	1923	469
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	938			619			1794	1923	309	1624	1923	469
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	76			99			20	79	98	78	79	37
cM capacity (veh/h)	726			958			13	50	687	46	50	541

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	175	405	213	10	619	320	10	21	10	351
Volume Left	175	0	0	10	0	0	10	0	10	0
Volume Right	0	0	10	0	0	10	0	10	0	340
cSH	726	1700	1700	958	1700	1700	13	93	46	419
Volume to Capacity	0.24	0.24	0.13	0.01	0.36	0.19	0.80	0.22	0.22	0.84
Queue Length 95th (ft)	24	0	0	1	0	0	45	20	19	199
Control Delay (s)	11.5	0.0	0.0	8.8	0.0	0.0	561.9	54.6	105.0	44.6
Lane LOS	B			A			F	F	F	E
Approach Delay (s)	2.5			0.1			223.7		46.3	
Approach LOS							F		E	

Intersection Summary			
Average Delay	12.1		
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project AM

Intersection #8: Elverta Road / Elwyn Road

Signal=Stop/Rights=Include
Base Vol: 80 280 360***
Lanes: 0 1 0 0 1

Signal=Stop Rights=Include (West approach)
Base Vol: 10, Lanes: 1
Lanes: 0
Base Vol: 480***, Lanes: 1
Lanes: 1
Base Vol: 60, Lanes: 0

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 1.584
Avg Crit Del (sec/veh): 155.3
Avg Delay (sec/veh): 155.3
LOS: F

Signal=Stop Rights=Include (East approach)
Lanes: 0, Base Vol: 300
Lanes: 1
Lanes: 1, Base Vol: 910***
Lanes: 0
Lanes: 1, Base Vol: 180

Lanes: 1 0 0 1 0
Base Vol: 20 70*** 20
Signal=Stop/Rights=Include

Street Name:	Elwyn Road						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	20	70	20	360	280	80	10	480	60	180	910	300
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	70	20	360	280	80	10	480	60	180	910	300
User Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	20	70	20	360	280	80	10	480	60	180	910	300
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	70	20	360	280	80	10	480	60	180	910	300
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	20	70	20	360	280	80	10	480	60	180	910	300
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.78	0.22	1.00	0.78	0.22	1.00	1.78	0.22	1.00	1.50	0.50
Final Sat.:	314	260	74	376	314	90	306	587	74	349	574	194
Capacity Analysis Module:												
Vol/Sat:	0.06	0.27	0.27	0.96	0.89	0.89	0.03	0.82	0.81	0.52	1.58	1.55
Crit Moves:		****		****				****			****	
Delay/Veh:	14.6	16.9	16.9	67.1	51.5	51.5	14.5	47.0	45.8	22.5	299	281.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.6	16.9	16.9	67.1	51.5	51.5	14.5	47.0	45.8	22.5	299	281.4
LOS by Move:	B	C	C	F	F	F	B	E	E	C	F	F
ApproachDel:		16.5			59.3			46.3			259.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		16.5			59.3			46.3			259.2	
LOS by Appr:		C			F			E			F	
AllWayAvgQ:	0.1	0.3	0.3	5.7	4.5	4.5	0.0	3.1	3.0	0.9	30.9	29.3

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 Elverta Road / Elwyn Road

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   20   70    20   360  280    80    10  480    60   180  910   300
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             1940
Minor Approach Volume:           720
Minor Approach Volume Threshold: 89 [less than minimum of 150]
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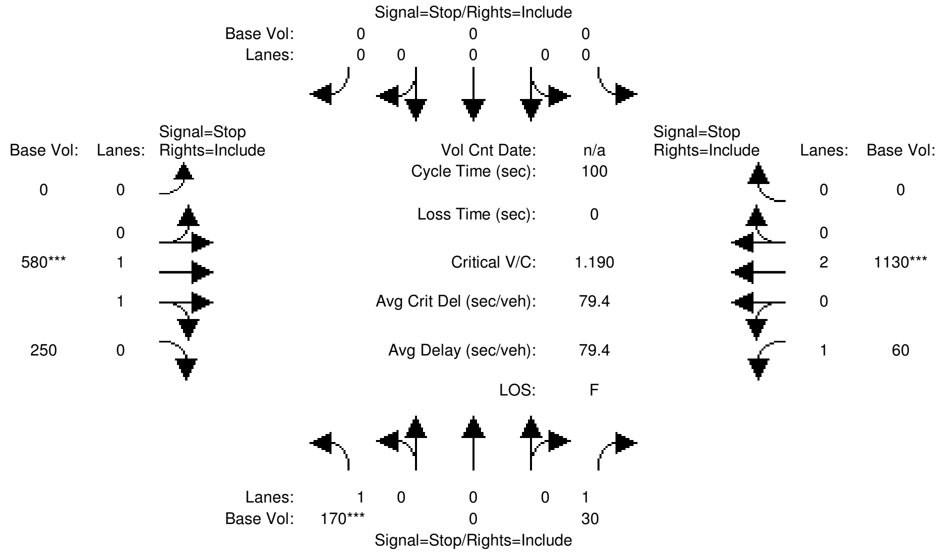
SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project AM

Intersection #9: Elverta Road / Rio Linda Boulevard



Street Name:	Rio Linda Boulevard						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	170	0	30	0	0	0	0	580	250	60	1130	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	170	0	30	0	0	0	0	580	250	60	1130	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	175	0	31	0	0	0	0	598	258	62	1165	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	175	0	31	0	0	0	0	598	258	62	1165	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	175	0	31	0	0	0	0	598	258	62	1165	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.40	0.60	1.00	2.00	0.00
Final Sat.:	397	0	451	0	0	0	0	729	328	451	979	0
Capacity Analysis Module:												
Vol/Sat:	0.44	xxxx	0.07	xxxx	xxxx	xxxx	xxxx	0.82	0.78	0.14	1.19	xxxx
Crit Moves:	****							****			****	
Delay/Veh:	18.1	0.0	10.9	0.0	0.0	0.0	0.0	33.7	29.0	11.8	129	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.1	0.0	10.9	0.0	0.0	0.0	0.0	33.7	29.0	11.8	129	0.0
LOS by Move:	C	*	B	*	*	*	*	D	D	B	F	*
ApproachDel:	17.0			xxxxxx			32.3			122.7		
Delay Adj:	1.00			xxxxx			1.00			1.00		
ApprAdjDel:	17.0			xxxxxx			32.3			122.7		
LOS by Appr:	C			*			D			F		
AllWayAvgQ:	0.7	0.0	0.1	0.0	0.0	0.0	0.0	3.7	3.0	0.2	16.1	0.0

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #9 Elverta Road / Rio Linda Boulevard

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:         1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
Initial Vol:  170    0    30      0    0     0      0  580   250    60 1130     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:            2020
Minor Approach Volume:          200
Minor Approach Volume Threshold: 72 [less than minimum of 150]
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SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	660	10	270	1190	10	80
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	680	10	278	1227	10	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			691		1856	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			691		1856	345
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			69		77	87
cM capacity (veh/h)			900		45	651

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	454	237	278	613	613	10	82
Volume Left	0	0	278	0	0	10	0
Volume Right	0	10	0	0	0	0	82
cSH	1700	1700	900	1700	1700	45	651
Volume to Capacity	0.27	0.14	0.31	0.36	0.36	0.23	0.13
Queue Length 95th (ft)	0	0	33	0	0	19	11
Control Delay (s)	0.0	0.0	10.8	0.0	0.0	107.2	11.3
Lane LOS			B			F	B
Approach Delay (s)	0.0		2.0			22.0	
Approach LOS						C	

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	70	670	960	10	10	500
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	72	691	990	10	10	515
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1000				1485	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1000				1485	500
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				90	0
cM capacity (veh/h)	688				103	516

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	72	345	345	660	340	10	515
Volume Left	72	0	0	0	0	10	0
Volume Right	0	0	0	0	10	0	515
cSH	688	1700	1700	1700	1700	103	516
Volume to Capacity	0.10	0.20	0.20	0.39	0.20	0.10	1.00
Queue Length 95th (ft)	9	0	0	0	0	8	346
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	43.7	67.6
Lane LOS	B					E	F
Approach Delay (s)	1.0			0.0		67.1	
Approach LOS						F	

Intersection Summary			
Average Delay	15.8		
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	50	110	230	30	10	20	10	190	10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	52	113	237	31	10	21	10	196	10	10	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	175	278	227	31
Volume Left (vph)	10	237	21	10
Volume Right (vph)	113	10	196	10
Hadj (s)	-0.34	0.18	-0.47	-0.10
Departure Headway (s)	4.6	4.9	4.6	5.2
Degree Utilization, x	0.22	0.38	0.29	0.04
Capacity (veh/h)	730	693	715	602
Control Delay (s)	8.8	10.9	9.4	8.5
Approach Delay (s)	8.8	10.9	9.4	8.5
Approach LOS	A	B	A	A

Intersection Summary			
Delay	9.8		
HCM Level of Service	A		
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	90	60	210	100	10	50	180	30	20	280	50
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	21	93	62	216	103	10	52	186	31	21	289	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	175	330	268	361
Volume Left (vph)	21	216	52	21
Volume Right (vph)	62	10	31	52
Hadj (s)	-0.15	0.15	0.00	-0.04
Departure Headway (s)	6.6	6.5	6.4	6.2
Degree Utilization, x	0.32	0.59	0.48	0.62
Capacity (veh/h)	463	508	508	538
Control Delay (s)	12.7	18.4	15.1	18.6
Approach Delay (s)	12.7	18.4	15.1	18.6
Approach LOS	B	C	C	C

Intersection Summary			
Delay	16.8		
HCM Level of Service	C		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Volume (vph)	120	570	210	150	950	90	100	240	190	140	480	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	588	216	155	979	93	103	247	196	144	495	52
RTOR Reduction (vph)	0	0	150	0	0	65	0	0	153	0	0	38
Lane Group Flow (vph)	124	588	66	155	979	28	103	247	43	144	495	14
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8			4
Actuated Green, G (s)	4.3	17.8	17.8	3.2	17.0	17.0	3.8	12.5	12.5	6.9	15.4	15.4
Effective Green, g (s)	5.1	18.9	18.9	4.7	18.5	18.5	5.3	13.6	13.6	8.4	16.7	16.7
Actuated g/C Ratio	0.08	0.31	0.31	0.08	0.30	0.30	0.09	0.22	0.22	0.14	0.27	0.27
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5	5.5	5.5	5.1	5.1	5.5	5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	284	1560	486	262	1527	475	152	411	349	241	959	429
v/s Ratio Prot	0.04	0.12		c0.05	c0.19		0.06	0.13		c0.08	c0.14	
v/s Ratio Perm			0.04			0.02			0.03			0.01
v/c Ratio	0.44	0.38	0.14	0.59	0.64	0.06	0.68	0.60	0.12	0.60	0.52	0.03
Uniform Delay, d1	26.9	16.7	15.4	27.5	18.7	15.3	27.3	21.6	19.2	25.0	19.0	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0	2.4	0.7	0.0	9.0	1.7	0.1	2.6	0.2	0.0
Delay (s)	27.3	16.8	15.5	29.9	19.4	15.4	36.4	23.3	19.3	27.7	19.2	16.5
Level of Service	C	B	B	C	B	B	D	C	B	C	B	B
Approach Delay (s)		17.9			20.4			24.3			20.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	70	590	30	150	840	190	20	210	60	330	420	90
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	72	608	31	155	866	196	21	216	62	340	433	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1062			639			1820	2139	320	1892	2057	531
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1062			639			1820	2139	320	1892	2057	531
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			84			0	0	91	0	0	81
cM capacity (veh/h)	652			941			0	36	676	0	41	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	72	405	234	155	577	485	21	278	340	526
Volume Left	72	0	0	155	0	0	21	0	340	0
Volume Right	0	0	31	0	0	196	0	62	0	93
cSH	652	1700	1700	941	1700	1700	0	45	0	48
Volume to Capacity	0.11	0.24	0.14	0.16	0.34	0.29	Err	6.12	Err	10.88
Queue Length 95th (ft)	9	0	0	15	0	0	Err	Err	Err	Err
Control Delay (s)	11.2	0.0	0.0	9.6	0.0	0.0	Err	Err	Err	Err
Lane LOS	B			A			F	F	F	F
Approach Delay (s)	1.1			1.2			Err		Err	
Approach LOS							F		F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	10	40	30	10	10	10	50	10	10	290	310
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	237	10	41	31	10	10	10	52	10	10	299	320

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	289	52	72	629
Volume Left (vph)	237	31	10	10
Volume Right (vph)	41	10	10	320
Hadj (s)	0.11	0.03	-0.02	-0.27
Departure Headway (s)	5.9	6.4	5.9	4.8
Degree Utilization, x	0.47	0.09	0.12	0.84
Capacity (veh/h)	575	516	564	733
Control Delay (s)	14.1	10.0	9.7	27.8
Approach Delay (s)	14.1	10.0	9.7	27.8
Approach LOS	B	A	A	D

Intersection Summary			
Delay	21.9		
HCM Level of Service	C		
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	140	70	40	100	260
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	21	144	72	41	103	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	113				278	93
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				278	93
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				85	72
cM capacity (veh/h)	1476				702	964

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	165	113	371
Volume Left	21	0	103
Volume Right	0	41	268
cSH	1476	1700	873
Volume to Capacity	0.01	0.07	0.42
Queue Length 95th (ft)	1	0	54
Control Delay (s)	1.0	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	1.0	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1770	1583
Volume (vph)	10	730	140	610	1140	60	290
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	753	144	629	1175	62	299
RTOR Reduction (vph)	0	0	87	0	0	0	254
Lane Group Flow (vph)	10	753	57	629	1175	62	45
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.3	21.7	21.7	14.2	28.6	7.3	7.3
Effective Green, g (s)	1.0	22.8	22.8	14.2	29.7	8.7	8.7
Actuated g/C Ratio	0.02	0.40	0.40	0.25	0.51	0.15	0.15
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	31	2009	626	436	2617	267	239
v/s Ratio Prot	0.01	0.15		c0.36	c0.23	c0.04	
v/s Ratio Perm			0.04				0.03
v/c Ratio	0.32	0.37	0.09	1.44	0.45	0.23	0.19
Uniform Delay, d1	28.0	12.4	10.9	21.8	8.8	21.6	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2	0.1	211.8	0.2	0.2	0.1
Delay (s)	30.2	12.6	11.1	233.6	9.1	21.7	21.6
Level of Service	C	B	B	F	A	C	C
Approach Delay (s)		12.6			87.4	21.6	
Approach LOS		B			F	C	

Intersection Summary			
HCM Average Control Delay	57.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	57.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3452		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3452		1770	3539	1770	1583
Volume (vph)	1010	200	360	1280	30	250
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1041	206	371	1320	31	258
RTOR Reduction (vph)	11	0	0	0	0	247
Lane Group Flow (vph)	1236	0	371	1320	31	11
Turn Type			Split			Perm
Protected Phases	2		1	1	3	
Permitted Phases						3
Actuated Green, G (s)	55.3		57.4	57.4	6.6	6.6
Effective Green, g (s)	56.3		58.2	58.2	6.1	6.1
Actuated g/C Ratio	0.41		0.42	0.42	0.04	0.04
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1403		744	1487	78	70
v/s Ratio Prot	c0.36		0.21	c0.37	c0.02	
v/s Ratio Perm						0.01
v/c Ratio	0.88		0.50	0.89	0.40	0.16
Uniform Delay, d1	38.0		29.4	37.1	64.4	63.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9		1.6	7.7	1.2	0.4
Delay (s)	45.9		31.0	44.8	65.6	64.1
Level of Service	D		C	D	E	E
Approach Delay (s)	45.9			41.8	64.3	
Approach LOS	D			D	E	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	138.5	Sum of lost time (s)	17.9
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	340	1080	40	410	1520	10	40	490	190	10	610	500
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	351	1113	41	423	1567	10	41	505	196	10	629	515
RTOR Reduction (vph)	0	0	27	0	0	6	0	0	91	0	0	287
Lane Group Flow (vph)	351	1113	14	423	1567	4	41	505	105	10	629	228
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6		4	8	1	7	3	
Permitted Phases			2			6			8			3
Actuated Green, G (s)	8.9	20.1	20.1	10.1	20.9	20.9	3.6	17.9	28.0	0.7	13.4	13.4
Effective Green, g (s)	8.9	22.1	22.1	9.7	22.9	22.9	3.9	16.9	26.6	0.7	13.7	13.7
Actuated g/C Ratio	0.14	0.34	0.34	0.15	0.35	0.35	0.06	0.26	0.41	0.01	0.21	0.21
Clearance Time (s)	4.0	6.0	6.0	3.6	6.0	6.0	4.3	3.0	3.6	4.0	4.3	4.3
Vehicle Extension (s)	3.0	2.0	2.0	1.0	2.0	2.0	1.0	0.2	1.0	3.0	1.0	1.0
Lane Grp Cap (vph)	467	1718	535	509	1781	554	106	915	741	19	741	332
v/s Ratio Prot	0.10	0.22		c0.12	c0.31		0.02	c0.14	0.02	0.01	c0.18	
v/s Ratio Perm			0.01			0.00			0.05			0.14
v/c Ratio	0.75	0.65	0.03	0.83	0.88	0.01	0.39	0.55	0.14	0.53	0.85	0.69
Uniform Delay, d1	27.2	18.4	14.5	27.1	20.0	13.8	29.6	21.0	12.2	32.2	24.9	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	0.6	0.0	10.6	5.2	0.0	0.9	0.4	0.0	23.9	8.6	4.7
Delay (s)	33.9	19.0	14.5	37.6	25.1	13.8	30.5	21.4	12.2	56.0	33.5	28.5
Level of Service	C	B	B	D	C	B	C	C	B	E	C	C
Approach Delay (s)		22.3			27.7			19.5			31.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	520	140	640	430	470	350	860	1270	90	120	1870	540
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	536	144	660	443	485	361	887	1309	93	124	1928	557
RTOR Reduction (vph)	0	0	211	0	0	97	0	0	50	0	0	165
Lane Group Flow (vph)	536	144	449	443	485	264	887	1309	43	124	1928	392
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.5	38.1	38.1	13.5	35.0	35.0	27.5	68.5	68.5	7.8	48.4	48.4
Effective Green, g (s)	18.0	39.7	39.7	15.0	36.7	36.7	29.0	70.0	70.0	9.3	50.3	50.3
Actuated g/C Ratio	0.12	0.26	0.26	0.10	0.24	0.24	0.19	0.47	0.47	0.06	0.34	0.34
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	412	1346	419	343	1244	387	664	2373	739	213	1705	531
v/s Ratio Prot	c0.16	0.03		0.13	0.10		c0.26	0.26		0.04	c0.38	
v/s Ratio Perm			c0.28			0.17			0.03			0.25
v/c Ratio	1.30	0.11	1.07	1.29	0.39	0.68	1.34	0.55	0.06	0.58	1.13	0.74
Uniform Delay, d1	66.0	41.7	55.1	67.5	47.3	51.3	60.5	28.7	21.9	68.5	49.9	44.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	152.2	0.1	64.4	151.3	0.6	7.2	161.2	0.5	0.1	2.6	66.9	6.8
Delay (s)	218.2	41.8	119.5	218.8	47.9	58.6	221.7	29.3	22.0	71.1	116.7	50.8
Level of Service	F	D	F	F	D	E	F	C	C	E	F	D
Approach Delay (s)		150.7			109.6			103.5			100.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	111.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	330	670	270	270	1000	280	380	930	50	270	1750	470
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	340	691	278	278	1031	289	392	959	52	278	1804	485
RTOR Reduction (vph)	0	0	167	0	0	177	0	0	30	0	0	168
Lane Group Flow (vph)	340	691	111	278	1031	112	392	959	22	278	1804	317
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.9	31.4	31.4	14.0	30.7	30.7	17.0	56.9	56.9	14.0	53.9	53.9
Effective Green, g (s)	16.4	33.1	33.1	15.5	32.2	32.2	18.5	58.5	58.5	15.5	55.5	55.5
Actuated g/C Ratio	0.12	0.24	0.24	0.11	0.23	0.23	0.13	0.42	0.42	0.11	0.40	0.40
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	5.6
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9
Lane Grp Cap (vph)	406	1214	378	384	1181	368	458	2146	668	384	2036	634
v/s Ratio Prot	c0.10	0.14		0.08	c0.20		c0.11	c0.19		0.08	c0.35	
v/s Ratio Perm			0.07			0.07			0.01			0.20
v/c Ratio	0.84	0.57	0.29	0.72	0.87	0.31	0.86	0.45	0.03	0.72	0.89	0.50
Uniform Delay, d1	59.8	46.5	43.2	59.5	51.2	44.0	58.7	28.5	23.5	59.5	38.6	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.4	1.0	0.9	5.6	7.9	1.0	14.0	0.3	0.0	5.6	5.4	1.2
Delay (s)	73.2	47.5	44.0	65.1	59.1	44.9	72.8	28.8	23.5	65.1	44.0	32.4
Level of Service	E	D	D	E	E	D	E	C	C	E	D	C
Approach Delay (s)		53.4			57.6			40.9			44.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	138.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Volume (vph)	130	550	810	90	350	170	370	1100	50	140	1810	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	567	835	93	361	175	381	1134	52	144	1866	113
RTOR Reduction (vph)	0	0	170	0	0	110	0	0	35	0	0	68
Lane Group Flow (vph)	134	567	665	93	361	65	381	1134	17	144	1866	45
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.2	44.0	44.0	7.0	43.8	43.8	14.0	37.0	37.0	12.0	35.0	35.0
Effective Green, g (s)	8.2	46.0	46.0	7.0	44.8	44.8	14.0	39.0	39.0	12.0	37.0	37.0
Actuated g/C Ratio	0.07	0.38	0.38	0.06	0.37	0.37	0.12	0.32	0.32	0.10	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	235	1357	607	103	1898	591	401	1653	514	177	1976	488
v/s Ratio Prot	0.04	0.16		c0.05	0.07		c0.11	0.22		0.08	c0.29	
v/s Ratio Perm			c0.42			0.04			0.01			0.03
v/c Ratio	0.57	0.42	1.10	0.90	0.19	0.11	0.95	0.69	0.03	0.81	0.94	0.09
Uniform Delay, d1	54.2	27.2	37.0	56.2	25.4	24.6	52.7	35.2	27.6	52.9	40.5	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.4	65.6	57.5	0.1	0.2	32.0	2.3	0.1	22.9	10.8	0.4
Delay (s)	56.3	27.5	102.6	113.7	25.5	24.8	84.7	37.5	27.8	75.8	51.3	29.9
Level of Service	E	C	F	F	C	C	F	D	C	E	D	C
Approach Delay (s)		70.8			38.3			48.7			51.8	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	54.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.95			0.95					1.00		1.00
Frt		0.98			0.95					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		3463			3351					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		3463			3351					1770		1583
Volume (vph)	0	180	30	0	1200	660	0	0	0	40	0	610
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	186	31	0	1237	680	0	0	0	41	0	629
RTOR Reduction (vph)	0	13	0	0	75	0	0	0	0	0	0	31
Lane Group Flow (vph)	0	204	0	0	1842	0	0	0	0	41	0	598
Turn Type										Prot		custom
Protected Phases		4			8					2		
Permitted Phases												2
Actuated Green, G (s)		54.0			54.0					38.0		38.0
Effective Green, g (s)		54.0			54.0					38.0		38.0
Actuated g/C Ratio		0.54			0.54					0.38		0.38
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		1870			1810					673		602
v/s Ratio Prot		0.06			c0.55					0.02		
v/s Ratio Perm												c0.38
v/c Ratio		0.11			1.02					0.06		0.99
Uniform Delay, d1		11.2			23.0					19.7		30.9
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.0			25.8					0.0		34.8
Delay (s)		11.3			48.8					19.7		65.7
Level of Service		B			D					B		E
Approach Delay (s)		11.3			48.8			0.0			62.9	
Approach LOS		B			D			A			E	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.95			0.95		1.00		1.00			
Frt		0.96			0.99		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		3394			3512		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		3394			3512		1770		1583			
Volume (vph)	0	160	60	0	1500	80	360	0	300	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	165	62	0	1546	82	371	0	309	0	0	0
RTOR Reduction (vph)	0	28	0	0	6	0	0	0	218	0	0	0
Lane Group Flow (vph)	0	199	0	0	1622	0	371	0	91	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		28.5			28.5		15.3		15.3			
Effective Green, g (s)		28.5			28.5		15.3		15.3			
Actuated g/C Ratio		0.55			0.55		0.30		0.30			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1867			1932		523		468			
v/s Ratio Prot		0.06			c0.46		c0.21					
v/s Ratio Perm									0.06			
v/c Ratio		0.11			0.84		0.71		0.20			
Uniform Delay, d1		5.6			9.7		16.3		13.6			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.0			3.4		4.4		0.2			
Delay (s)		5.6			13.1		20.7		13.9			
Level of Service		A			B		C		B			
Approach Delay (s)		5.6			13.1			17.6			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.91			0.91					1.00		1.00
Frt		0.95			0.92					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4815			4655					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4815			4655					1770		1583
Volume (vph)	0	110	60	0	580	750	0	0	0	320	0	280
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	113	62	0	598	773	0	0	0	330	0	289
RTOR Reduction (vph)	0	37	0	0	416	0	0	0	0	0	0	57
Lane Group Flow (vph)	0	138	0	0	955	0	0	0	0	330	0	232
Turn Type										Prot		custom
Protected Phases		4			8					1		
Permitted Phases												1
Actuated Green, G (s)		13.8			13.8					13.1		13.1
Effective Green, g (s)		13.8			13.8					13.1		13.1
Actuated g/C Ratio		0.40			0.40					0.38		0.38
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		1904			1841					664		594
v/s Ratio Prot		0.03			c0.21					c0.19		
v/s Ratio Perm												0.15
v/c Ratio		0.07			0.52					0.50		0.39
Uniform Delay, d1		6.6			8.0					8.4		8.0
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.0			0.2					0.6		0.4
Delay (s)		6.6			8.3					9.0		8.4
Level of Service		A			A					A		A
Approach Delay (s)		6.6			8.3			0.0			8.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	34.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.91			0.91		1.00		1.00			
Frt		0.99			0.99		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		5049			5031		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		5049			5031		1770		1583			
Volume (vph)	0	410	20	0	1180	90	150	0	600	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	423	21	0	1216	93	155	0	619	0	0	0
RTOR Reduction (vph)	0	10	0	0	16	0	0	0	112	0	0	0
Lane Group Flow (vph)	0	434	0	0	1293	0	155	0	507	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		15.3			15.3		17.0		17.0			
Effective Green, g (s)		15.3			15.3		17.0		17.0			
Actuated g/C Ratio		0.38			0.38		0.42		0.42			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1917			1910		747		668			
v/s Ratio Prot		0.09			c0.26		0.09					
v/s Ratio Perm									c0.32			
v/c Ratio		0.23			0.68		0.21		0.76			
Uniform Delay, d1		8.5			10.4		7.4		9.9			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.1			1.0		0.1		5.0			
Delay (s)		8.5			11.4		7.5		14.9			
Level of Service		A			B		A		B			
Approach Delay (s)		8.5			11.4			13.4			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.91		1.00	1.00
Frt		1.00	0.93		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	4712		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	4712		1770	1583
Volume (vph)	0	900	690	660	380	160
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	928	711	680	392	165
RTOR Reduction (vph)	0	0	220	0	0	115
Lane Group Flow (vph)	0	928	1171	0	392	50
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		33.8	33.8		18.0	18.0
Effective Green, g (s)		33.8	33.8		18.0	18.0
Actuated g/C Ratio		0.57	0.57		0.30	0.30
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1053	2663		533	476
v/s Ratio Prot		c0.50	0.25		c0.22	
v/s Ratio Perm						0.03
v/c Ratio		0.88	0.44		0.74	0.10
Uniform Delay, d1		11.3	7.5		18.8	15.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		8.8	0.1		5.2	0.1
Delay (s)		20.1	7.6		24.0	15.2
Level of Service		C	A		C	B
Approach Delay (s)		20.1	7.6		21.4	
Approach LOS		C	A		C	

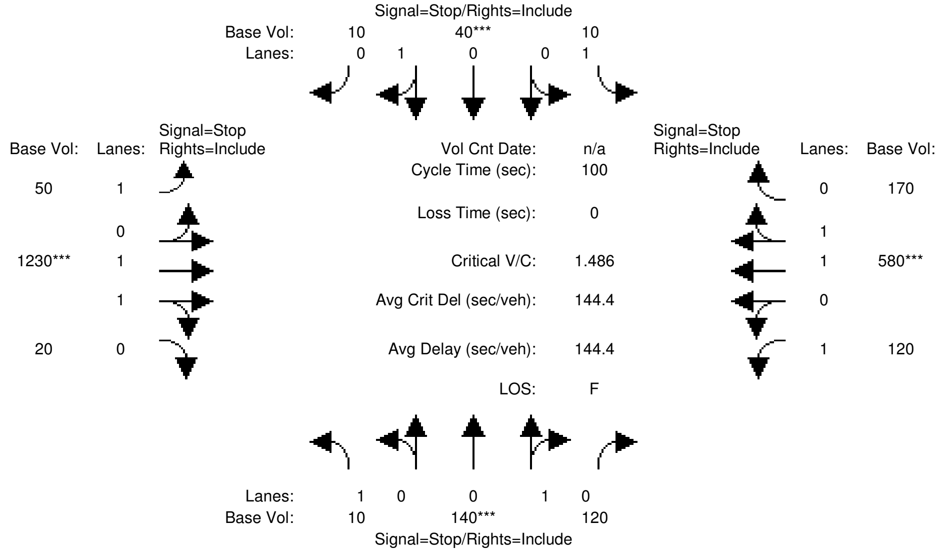
Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4996			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4996			5085	1770	1583
Volume (vph)	1130	150	0	1060	290	1350
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1165	155	0	1093	299	1392
RTOR Reduction (vph)	26	0	0	0	0	0
Lane Group Flow (vph)	1294	0	0	1093	299	1392
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	16.0			16.0	41.0	41.0
Effective Green, g (s)	16.0			16.0	41.0	41.0
Actuated g/C Ratio	0.25			0.25	0.63	0.63
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1230			1252	1116	999
v/s Ratio Prot	c0.26			0.21	0.17	
v/s Ratio Perm						c0.88
v/c Ratio	1.05			0.87	0.27	1.39
Uniform Delay, d1	24.5			23.5	5.3	12.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	40.4			7.0	0.1	183.0
Delay (s)	64.9			30.5	5.5	195.0
Level of Service	E			C	A	F
Approach Delay (s)	64.9			30.5	161.5	
Approach LOS	E			C	F	

Intersection Summary			
HCM Average Control Delay	95.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project PM

Intersection #5: Elverta Road / East Levee Road



Street Name:	East Levee Road						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	10	140	120	10	40	10	50	1230	20	120	580	170
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	140	120	10	40	10	50	1230	20	120	580	170
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	10	144	124	10	41	10	52	1268	21	124	598	175
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	144	124	10	41	10	52	1268	21	124	598	175
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	144	124	10	41	10	52	1268	21	124	598	175
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.54	0.46	1.00	0.80	0.20	1.00	1.97	0.03	1.00	1.55	0.45
Final Sat.:	375	223	191	344	294	74	399	853	14	403	675	203
Capacity Analysis Module:												
Vol/Sat:	0.03	0.65	0.65	0.03	0.14	0.14	0.13	1.49	1.48	0.31	0.89	0.87
Crit Moves:		****			****			****			****	
Delay/Veh:	12.3	25.2	25.2	13.0	13.6	13.6	12.8	253	251.6	15.4	48.1	43.7
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.3	25.2	25.2	13.0	13.6	13.6	12.8	253	251.6	15.4	48.1	43.7
LOS by Move:	B	D	D	B	B	B	B	F	F	C	E	E
ApproachDel:		24.7			13.5			243.3			42.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		24.7			13.5			243.3			42.7	
LOS by Appr:		C			B			F			E	
AllWayAvgQ:	0.0	1.6	1.6	0.0	0.1	0.1	0.1	29.2	29.0	0.4	4.7	4.1

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #5 Elverta Road / East Levee Road

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound


```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   10  140   120    10   40    10    50 1230    20   120  580   170
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2170
Minor Approach Volume:           270
Minor Approach Volume Threshold: 41 [less than minimum of 150]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	240	1860	830	90	40	140
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	247	1918	856	93	41	144
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	948				2036	332
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	948				2036	332
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	66				0	78
cM capacity (veh/h)	720				32	664

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	247	639	639	639	342	342	264	41	144
Volume Left	247	0	0	0	0	0	0	41	0
Volume Right	0	0	0	0	0	0	93	0	144
cSH	720	1700	1700	1700	1700	1700	1700	32	664
Volume to Capacity	0.34	0.38	0.38	0.38	0.20	0.20	0.16	1.28	0.22
Queue Length 95th (ft)	38	0	0	0	0	0	0	113	21
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	438.8	11.9
Lane LOS	B							F	B
Approach Delay (s)	1.4				0.0			106.8	
Approach LOS								F	

Intersection Summary				
Average Delay		7.0		
Intersection Capacity Utilization		45.9%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	310	1040	10	10	600	10	10	10	10	10	10	260
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	320	1072	10	10	619	10	10	10	10	10	10	268
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	629			1082			2320	2366	541	1835	2366	314
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	629			1082			2320	2366	541	1835	2366	314
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			98			0	54	98	54	54	61
cM capacity (veh/h)	949			640			6	23	485	22	23	681

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	320	715	368	10	412	216	10	21	10	278
Volume Left	320	0	0	10	0	0	10	0	10	0
Volume Right	0	0	10	0	0	10	0	10	0	268
cSH	949	1700	1700	640	1700	1700	6	43	22	328
Volume to Capacity	0.34	0.42	0.22	0.02	0.24	0.13	1.75	0.48	0.46	0.85
Queue Length 95th (ft)	37	0	0	1	0	0	57	43	34	190
Control Delay (s)	10.7	0.0	0.0	10.7	0.0	0.0	1502.8	148.9	265.7	55.3
Lane LOS	B			B			F	F	F	F
Approach Delay (s)	2.4			0.2			600.2		62.8	
Approach LOS							F		F	

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project PM

Intersection #8: Elverta Road / Elwyn Road

Signal=Stop/Rights=Include
Base Vol: 20 70 340***
Lanes: 0 1 0 0 1

Base Vol: Lanes: Signal=Stop Rights=Include
170 1
0
920*** 1
1
20 0

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 1.550
Avg Crit Del (sec/veh): 199.3
Avg Delay (sec/veh): 199.3
LOS: F

Signal=Stop Rights=Include Lanes: Base Vol:
0 440
1
1 530***
0
1 30

Lanes: 1 0 0 1 0
Base Vol: 30 180*** 210
Signal=Stop/Rights=Include

Street Name:	Elwyn Road						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	30	180	210	340	70	20	170	920	20	30	530	440
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	30	180	210	340	70	20	170	920	20	30	530	440
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	31	186	216	351	72	21	175	948	21	31	546	454
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	186	216	351	72	21	175	948	21	31	546	454
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	31	186	216	351	72	21	175	948	21	31	546	454
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.46	0.54	1.00	0.78	0.22	1.00	1.96	0.04	1.00	1.09	0.91
Final Sat.:	322	162	189	326	269	77	317	650	14	307	352	309
Capacity Analysis Module:												
Vol/Sat:	0.10	1.14	1.14	1.08	0.27	0.27	0.55	1.46	1.46	0.10	1.55	1.47
Crit Moves:		****		****				****			****	
Delay/Veh:	15.0	125	125.2	105.1	16.8	16.8	27.2	249	248.3	15.7	288	252.4
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	15.0	125	125.2	105.1	16.8	16.8	27.2	249	248.3	15.7	288	252.4
LOS by Move:	C	F	F	F	C	C	D	F	F	C	F	F
ApproachDel:		117.3			86.6			215.2			264.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		117.3			86.6			215.2			264.4	
LOS by Appr:		F			F			F			F	
AllWayAvgQ:	0.1	11.0	11.0	8.3	0.4	0.4	1.2	21.8	21.7	0.1	24.8	22.6

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Elverta Road / Elwyn Road

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound


```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   30  180   210   340   70    20   170  920    20    30  530   440
------------|---------------||---------------||---------------||---------------|
Major Street Volume:           2110
Minor Approach Volume:         430
Minor Approach Volume Threshold: 53 [less than minimum of 150]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
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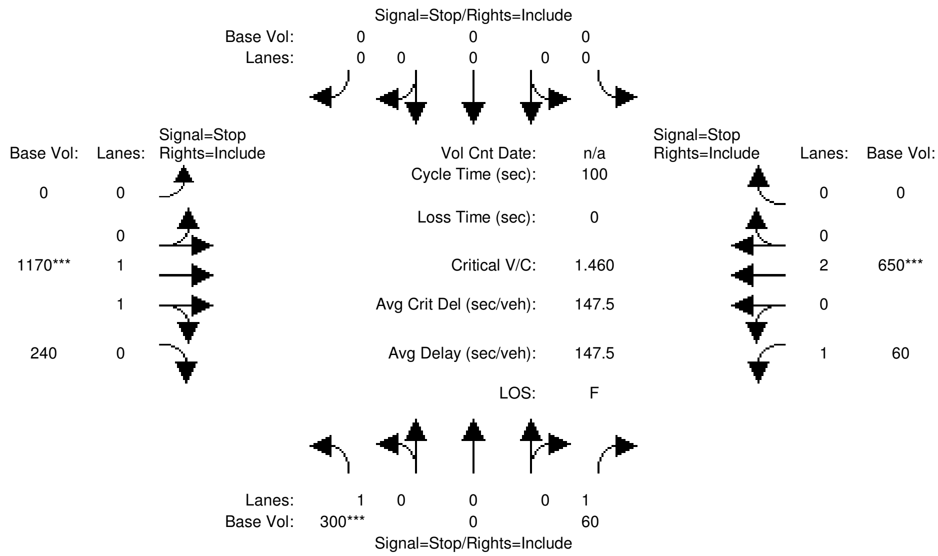
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
Cumulative No Project PM

Intersection #9: Elverta Road / Rio Linda Boulevard



Street Name:	Rio Linda Boulevard						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	300	0	60	0	0	0	0	1170	240	60	650	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	300	0	60	0	0	0	0	1170	240	60	650	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	309	0	62	0	0	0	0	1206	247	62	670	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	309	0	62	0	0	0	0	1206	247	62	670	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	309	0	62	0	0	0	0	1206	247	62	670	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.66	0.34	1.00	2.00	0.00
Final Sat.:	406	0	462	0	0	0	0	826	173	408	867	0
Capacity Analysis Module:												
Vol/Sat:	0.76	xxxx	0.13	xxxx	xxxx	xxxx	xxxx	1.46	1.43	0.15	0.77	xxxx
Crit Moves:	****							****			****	
Delay/Veh:	34.1	0.0	11.5	0.0	0.0	0.0	0.0	238	225.1	13.0	33.7	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.1	0.0	11.5	0.0	0.0	0.0	0.0	238	225.1	13.0	33.7	0.0
LOS by Move:	D	*	B	*	*	*	*	F	F	B	D	*
ApproachDel:		30.3			xxxxxx			235.7			31.9	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		30.3			xxxxxx			235.7			31.9	
LOS by Appr:		D			*			F			D	
AllWayAvgQ:	2.5	0.0	0.1	0.0	0.0	0.0	0.0	32.3	30.4	0.2	2.7	0.0

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Elverta Road / Rio Linda Boulevard

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:         1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
Initial Vol:  300    0    60     0    0     0     0 1170   240    60  650     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:           2120
Minor Approach Volume:         360
Minor Approach Volume Threshold: 51 [less than minimum of 150]
--------------------------------------------------------------------------------
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"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

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a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1250	10	110	770	10	230
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1289	10	113	794	10	237
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1299		1918	649
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1299		1918	649
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			79		78	42
cM capacity (veh/h)			529		47	412

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	859	440	113	397	397	10	237
Volume Left	0	0	113	0	0	10	0
Volume Right	0	10	0	0	0	0	237
cSH	1700	1700	529	1700	1700	47	412
Volume to Capacity	0.51	0.26	0.21	0.23	0.23	0.22	0.58
Queue Length 95th (ft)	0	0	20	0	0	18	88
Control Delay (s)	0.0	0.0	13.6	0.0	0.0	103.1	24.9
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.7			28.2	
Approach LOS						D	

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	440	1040	770	10	10	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	454	1072	794	10	10	124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	804				2242	402
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	804				2242	402
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	44				35	79
cM capacity (veh/h)	816				16	598

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	454	536	536	529	275	10	124
Volume Left	454	0	0	0	0	10	0
Volume Right	0	0	0	0	10	0	124
cSH	816	1700	1700	1700	1700	16	598
Volume to Capacity	0.56	0.32	0.32	0.31	0.16	0.65	0.21
Queue Length 95th (ft)	87	0	0	0	0	41	19
Control Delay (s)	14.8	0.0	0.0	0.0	0.0	424.1	12.6
Lane LOS	B					F	B
Approach Delay (s)	4.4			0.0		44.2	
Approach LOS						E	

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	40	50	200	50	10	110	10	210	10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	41	52	206	52	10	113	10	216	10	10	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	103	268	340	31
Volume Left (vph)	10	206	113	10
Volume Right (vph)	52	10	216	10
Hadj (s)	-0.25	0.16	-0.28	-0.10
Departure Headway (s)	5.0	5.1	4.6	5.2
Degree Utilization, x	0.14	0.38	0.44	0.05
Capacity (veh/h)	654	660	737	607
Control Delay (s)	8.8	11.2	11.2	8.5
Approach Delay (s)	8.8	11.2	11.2	8.5
Approach LOS	A	B	B	A

Intersection Summary			
Delay	10.8		
HCM Level of Service	B		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	110	50	80	120	20	70	280	210	10	240	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	31	113	52	82	124	21	72	289	216	10	247	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	196	227	577	268
Volume Left (vph)	31	82	72	10
Volume Right (vph)	52	21	216	10
Hadj (s)	-0.09	0.05	-0.17	0.02
Departure Headway (s)	7.1	7.1	5.9	6.7
Degree Utilization, x	0.39	0.45	0.94	0.50
Capacity (veh/h)	473	477	603	507
Control Delay (s)	14.5	15.9	48.0	16.1
Approach Delay (s)	14.5	15.9	48.0	16.1
Approach LOS	B	C	E	C

Intersection Summary			
Delay	30.4		
HCM Level of Service	D		
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Volume (vph)	70	1250	190	230	750	170	150	470	110	110	390	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	1289	196	237	773	175	155	485	113	113	402	21
RTOR Reduction (vph)	0	0	130	0	0	113	0	0	79	0	0	14
Lane Group Flow (vph)	72	1289	66	237	773	62	155	485	34	113	402	7
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8			4
Actuated Green, G (s)	2.3	24.3	24.3	3.1	25.4	25.4	3.1	21.4	21.4	5.4	23.5	23.5
Effective Green, g (s)	3.1	25.4	25.4	4.6	26.9	26.9	4.6	22.5	22.5	6.9	24.8	24.8
Actuated g/C Ratio	0.04	0.34	0.34	0.06	0.36	0.36	0.06	0.30	0.30	0.09	0.33	0.33
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5	5.5	5.5	5.1	5.1	5.5	5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	141	1713	533	209	1814	565	108	556	472	162	1164	521
v/s Ratio Prot	0.02	c0.25		c0.07	0.15		c0.09	c0.26		0.06	0.11	
v/s Ratio Perm			0.04			0.04			0.02			0.00
v/c Ratio	0.51	0.75	0.12	1.13	0.43	0.11	1.44	0.87	0.07	0.70	0.35	0.01
Uniform Delay, d1	35.4	22.2	17.3	35.4	18.4	16.2	35.4	25.1	19.0	33.2	19.2	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.7	0.0	103.0	0.1	0.0	240.6	13.7	0.0	10.1	0.1	0.0
Delay (s)	36.7	23.9	17.3	138.4	18.5	16.3	276.0	38.8	19.0	43.3	19.2	17.1
Level of Service	D	C	B	F	B	B	F	D	B	D	B	B
Approach Delay (s)		23.7			42.1			84.6			24.2	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM Average Control Delay	40.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	90	920	30	90	670	350	30	380	140	280	220	80
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	93	948	31	93	691	361	31	392	144	289	227	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1052			979			1876	2387	490	2057	2222	526
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1052			979			1876	2387	490	2057	2222	526
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			87			0	0	72	0	0	83
cM capacity (veh/h)	658			700			0	25	524	0	32	497

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	93	632	347	93	460	591	31	536	289	309
Volume Left	93	0	0	93	0	0	31	0	289	0
Volume Right	0	0	31	0	0	361	0	144	0	82
cSH	658	1700	1700	700	1700	1700	0	34	0	43
Volume to Capacity	0.14	0.37	0.20	0.13	0.27	0.35	Err	15.93	Err	7.27
Queue Length 95th (ft)	12	0	0	11	0	0	Err	Err	Err	Err
Control Delay (s)	11.4	0.0	0.0	10.9	0.0	0.0	Err	Err	Err	Err
Lane LOS	B			B			F	F	F	F
Approach Delay (s)	1.0			0.9			Err		Err	
Approach LOS							F		F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	290	10	10	10	10	10	30	270	30	10	110	240
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	299	10	10	10	10	10	31	278	31	10	113	247

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	320	31	340	371
Volume Left (vph)	299	10	31	10
Volume Right (vph)	10	10	31	247
Hadj (s)	0.20	-0.10	0.00	-0.36
Departure Headway (s)	6.1	6.5	5.6	5.2
Degree Utilization, x	0.54	0.06	0.53	0.54
Capacity (veh/h)	545	432	602	650
Control Delay (s)	15.9	9.9	14.8	14.2
Approach Delay (s)	15.9	9.9	14.8	14.2
Approach LOS	C	A	B	B

Intersection Summary			
Delay	14.8		
HCM Level of Service	B		
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	230	130	160	100	60	70
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	237	134	165	103	62	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	268				825	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	268				825	216
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				78	91
cM capacity (veh/h)	1296				280	823

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	371	268	134
Volume Left	237	0	62
Volume Right	0	103	72
cSH	1296	1700	434
Volume to Capacity	0.18	0.16	0.31
Queue Length 95th (ft)	17	0	32
Control Delay (s)	6.0	0.0	17.0
Lane LOS	A		C
Approach Delay (s)	6.0	0.0	17.0
Approach LOS			C

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1770	1583
Volume (vph)	10	1390	40	420	960	180	590
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	1433	41	433	990	186	608
RTOR Reduction (vph)	0	0	21	0	0	0	498
Lane Group Flow (vph)	10	1433	20	433	990	186	110
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.4	30.3	30.3	9.9	32.4	10.0	10.0
Effective Green, g (s)	1.1	31.4	31.4	9.9	33.5	11.4	11.4
Actuated g/C Ratio	0.02	0.49	0.49	0.15	0.52	0.18	0.18
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	30	2468	768	271	2633	312	279
v/s Ratio Prot	0.01	c0.28		c0.24	0.19	c0.11	
v/s Ratio Perm			0.01				0.07
v/c Ratio	0.33	0.58	0.03	1.60	0.38	0.60	0.39
Uniform Delay, d1	31.4	11.9	8.7	27.4	9.3	24.5	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.5	0.0	285.7	0.2	2.0	0.3
Delay (s)	33.8	12.5	8.7	313.1	9.5	26.6	23.9
Level of Service	C	B	A	F	A	C	C
Approach Delay (s)		12.5			101.9	24.5	
Approach LOS		B			F	C	

Intersection Summary			
HCM Average Control Delay	49.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3514		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3514		1770	3539	1770	1583
Volume (vph)	1430	70	320	1190	280	350
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1474	72	330	1227	289	361
RTOR Reduction (vph)	2	0	0	0	0	307
Lane Group Flow (vph)	1544	0	330	1227	289	54
Turn Type			Split			Perm
Protected Phases	2		1	1	3	
Permitted Phases						3
Actuated Green, G (s)	55.6		43.3	43.3	21.5	21.5
Effective Green, g (s)	56.6		44.1	44.1	21.0	21.0
Actuated g/C Ratio	0.41		0.32	0.32	0.15	0.15
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1425		559	1118	266	238
v/s Ratio Prot	c0.44		0.19	c0.35	c0.16	
v/s Ratio Perm						0.03
v/c Ratio	1.08		0.59	1.10	1.09	0.23
Uniform Delay, d1	41.5		40.2	47.8	59.3	52.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	49.8		3.2	57.7	80.2	0.2
Delay (s)	91.3		43.4	105.4	139.5	52.3
Level of Service	F		D	F	F	D
Approach Delay (s)	91.3			92.3	91.1	
Approach LOS	F			F	F	

Intersection Summary			
HCM Average Control Delay	91.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	139.6	Sum of lost time (s)	17.9
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	500	1770	50	210	1180	10	50	580	350	10	530	410
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	515	1825	52	216	1216	10	52	598	361	10	546	423
RTOR Reduction (vph)	0	0	31	0	0	7	0	0	93	0	0	338
Lane Group Flow (vph)	515	1825	21	216	1216	3	52	598	268	10	546	85
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6		4	8	1	7	3	
Permitted Phases			2			6			8			3
Actuated Green, G (s)	12.1	23.5	23.5	6.0	17.0	17.0	4.6	17.0	23.0	0.7	11.5	11.5
Effective Green, g (s)	12.1	25.5	25.5	5.6	19.0	19.0	4.9	16.0	21.6	0.7	11.8	11.8
Actuated g/C Ratio	0.19	0.40	0.40	0.09	0.30	0.30	0.08	0.25	0.34	0.01	0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	3.6	6.0	6.0	4.3	3.0	3.6	4.0	4.3	4.3
Vehicle Extension (s)	3.0	2.0	2.0	1.0	2.0	2.0	1.0	0.2	1.0	3.0	1.0	1.0
Lane Grp Cap (vph)	651	2032	633	301	1514	471	136	888	635	19	655	293
v/s Ratio Prot	c0.15	c0.36		0.06	0.24		0.03	c0.17	0.04	0.01	c0.15	
v/s Ratio Perm			0.01			0.00			0.13			0.05
v/c Ratio	0.79	0.90	0.03	0.72	0.80	0.01	0.38	0.67	0.42	0.53	0.83	0.29
Uniform Delay, d1	24.6	17.9	11.6	28.3	20.7	15.8	28.0	21.5	16.3	31.4	25.1	22.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	5.6	0.0	6.6	3.0	0.0	0.7	1.6	0.2	23.9	8.6	0.2
Delay (s)	31.2	23.5	11.7	35.0	23.7	15.8	28.7	23.1	16.4	55.2	33.6	22.6
Level of Service	C	C	B	C	C	B	C	C	B	E	C	C
Approach Delay (s)		24.9			25.3			21.0			29.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	550	490	930	270	290	90	910	1410	280	140	1260	440
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	567	505	959	278	299	93	938	1454	289	144	1299	454
RTOR Reduction (vph)	0	0	277	0	0	70	0	0	141	0	0	243
Lane Group Flow (vph)	567	505	682	278	299	23	938	1454	148	144	1299	211
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.8	48.4	48.4	9.5	36.0	36.0	33.5	61.2	61.2	8.8	36.1	36.1
Effective Green, g (s)	23.3	50.0	50.0	11.0	37.7	37.7	35.0	62.7	62.7	10.3	38.0	38.0
Actuated g/C Ratio	0.16	0.33	0.33	0.07	0.25	0.25	0.23	0.42	0.42	0.07	0.25	0.25
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	533	1695	528	252	1278	398	801	2126	662	236	1288	401
v/s Ratio Prot	c0.17	0.10		0.08	0.06		c0.27	0.29		0.04	c0.26	
v/s Ratio Perm			c0.43			0.01			0.09			0.13
v/c Ratio	1.06	0.30	1.29	1.10	0.23	0.06	1.17	0.68	0.22	0.61	1.01	0.53
Uniform Delay, d1	63.4	37.0	50.0	69.5	44.7	42.7	57.5	35.6	28.0	67.9	56.0	48.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	57.0	0.2	144.7	87.1	0.3	0.2	90.1	1.3	0.4	3.3	27.2	2.7
Delay (s)	120.4	37.2	194.7	156.6	44.9	42.8	147.6	36.9	28.4	71.2	83.2	50.9
Level of Service	F	D	F	F	D	D	F	D	C	E	F	D
Approach Delay (s)		134.8			91.0			74.7			74.5	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	92.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	570	950	420	240	860	380	320	1800	170	390	1350	340
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	588	979	433	247	887	392	330	1856	175	402	1392	351
RTOR Reduction (vph)	0	0	156	0	0	159	0	0	59	0	0	158
Lane Group Flow (vph)	588	979	277	247	887	233	330	1856	116	402	1392	193
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	22.5	41.1	41.1	11.2	30.0	30.0	14.6	49.9	49.9	15.5	50.8	50.8
Effective Green, g (s)	24.0	42.8	42.8	12.7	31.5	31.5	16.1	51.5	51.5	17.0	52.4	52.4
Actuated g/C Ratio	0.17	0.31	0.31	0.09	0.22	0.22	0.12	0.37	0.37	0.12	0.37	0.37
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	5.6
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9
Lane Grp Cap (vph)	589	1555	484	311	1144	356	395	1871	582	417	1903	592
v/s Ratio Prot	c0.17	0.19		0.07	c0.17		0.10	c0.36		c0.12	0.27	
v/s Ratio Perm			0.17			0.15			0.07			0.12
v/c Ratio	1.00	0.63	0.57	0.79	0.78	0.65	0.84	0.99	0.20	0.96	0.73	0.33
Uniform Delay, d1	58.0	41.8	40.9	62.4	50.9	49.3	60.7	44.0	30.2	61.2	37.7	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	36.3	1.1	2.5	12.2	3.9	5.6	13.6	18.9	0.3	34.4	1.8	0.7
Delay (s)	94.3	42.9	43.4	74.6	54.8	54.9	74.2	62.9	30.5	95.6	39.5	31.9
Level of Service	F	D	D	E	D	D	E	E	C	F	D	C
Approach Delay (s)		58.1			58.1			62.1			48.8	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	56.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Volume (vph)	190	470	480	110	590	230	700	1650	90	220	1660	140
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	196	485	495	113	608	237	722	1701	93	227	1711	144
RTOR Reduction (vph)	0	0	259	0	0	181	0	0	46	0	0	91
Lane Group Flow (vph)	196	485	236	113	608	56	722	1701	47	227	1711	53
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	26.0	26.0	6.0	24.4	24.4	22.1	40.2	40.2	15.1	33.2	33.2
Effective Green, g (s)	8.6	28.0	28.0	6.0	25.4	25.4	22.1	42.2	42.2	15.1	35.2	35.2
Actuated g/C Ratio	0.08	0.26	0.26	0.06	0.24	0.24	0.21	0.39	0.39	0.14	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	275	924	413	99	1204	375	707	2000	623	249	2102	519
v/s Ratio Prot	0.06	0.14		c0.06	0.12		c0.21	c0.33		0.13	0.27	
v/s Ratio Perm			c0.15			0.04			0.03			0.03
v/c Ratio	0.71	0.52	0.57	1.14	0.50	0.15	1.02	0.85	0.08	0.91	0.81	0.10
Uniform Delay, d1	48.1	34.0	34.4	50.6	35.5	32.4	42.6	29.7	20.4	45.4	33.0	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.9	2.7	133.6	0.7	0.4	39.3	4.8	0.2	33.8	3.6	0.4
Delay (s)	55.2	34.8	37.1	184.2	36.2	32.8	81.9	34.5	20.6	79.2	36.6	25.5
Level of Service	E	C	D	F	D	C	F	C	C	E	D	C
Approach Delay (s)		39.2			52.8			47.6			40.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	44.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	107.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.95			0.95					1.00		1.00
Frt		0.98			0.89					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		3481			3151					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		3481			3151					1770		1583
Volume (vph)	0	1230	150	0	170	460	0	0	0	120	0	170
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1268	155	0	175	474	0	0	0	124	0	175
RTOR Reduction (vph)	0	14	0	0	191	0	0	0	0	0	0	142
Lane Group Flow (vph)	0	1409	0	0	458	0	0	0	0	124	0	33
Turn Type										Prot		custom
Protected Phases		4			8					2		
Permitted Phases												2
Actuated Green, G (s)		22.5			22.5					7.2		7.2
Effective Green, g (s)		22.5			22.5					7.2		7.2
Actuated g/C Ratio		0.60			0.60					0.19		0.19
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2078			1881					338		302
v/s Ratio Prot		c0.40			0.15					c0.07		
v/s Ratio Perm												0.02
v/c Ratio		0.68			0.24					0.37		0.11
Uniform Delay, d1		5.1			3.6					13.3		12.6
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.9			0.1					0.7		0.2
Delay (s)		6.0			3.7					13.9		12.8
Level of Service		A			A					B		B
Approach Delay (s)		6.0			3.7			0.0			13.3	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	37.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.95			0.95		1.00		1.00			
Frt		0.94			0.99		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		3319			3499		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		3319			3499		1770		1583			
Volume (vph)	0	790	560	0	610	50	20	0	450	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	814	577	0	629	52	21	0	464	0	0	0
RTOR Reduction (vph)	0	250	0	0	12	0	0	0	61	0	0	0
Lane Group Flow (vph)	0	1141	0	0	669	0	21	0	403	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		18.8			18.8		14.6		14.6			
Effective Green, g (s)		18.8			18.8		14.6		14.6			
Actuated g/C Ratio		0.45			0.45		0.35		0.35			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1507			1589		624		558			
v/s Ratio Prot		c0.34			0.19		0.01					
v/s Ratio Perm									c0.25			
v/c Ratio		0.76			0.42		0.03		0.72			
Uniform Delay, d1		9.4			7.6		8.8		11.6			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		2.2			0.2		0.0		4.6			
Delay (s)		11.6			7.8		8.8		16.2			
Level of Service		B			A		A		B			
Approach Delay (s)		11.6			7.8			15.9			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	41.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.91			0.91					1.00		1.00
Frt		0.96			0.88					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4871			4495					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4871			4495					1770		1583
Volume (vph)	0	410	160	0	190	650	0	0	0	80	0	30
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	423	165	0	196	670	0	0	0	82	0	31
RTOR Reduction (vph)	0	85	0	0	344	0	0	0	0	0	0	26
Lane Group Flow (vph)	0	503	0	0	522	0	0	0	0	82	0	5
Turn Type										Prot		custom
Protected Phases		4			8					1		
Permitted Phases												1
Actuated Green, G (s)		10.9			10.9					3.5		3.5
Effective Green, g (s)		10.9			10.9					3.5		3.5
Actuated g/C Ratio		0.49			0.49					0.16		0.16
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2370			2187					277		247
v/s Ratio Prot		0.10			c0.12					c0.05		
v/s Ratio Perm												0.00
v/c Ratio		0.21			0.24					0.30		0.02
Uniform Delay, d1		3.3			3.3					8.4		8.0
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.0			0.1					0.6		0.0
Delay (s)		3.3			3.4					9.0		8.0
Level of Service		A			A					A		A
Approach Delay (s)		3.3			3.4			0.0			8.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	22.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.91			0.91		1.00		1.00			
Frt		0.98			0.96		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		4992			4864		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		4992			4864		1770		1583			
Volume (vph)	0	430	60	0	760	310	80	0	1030	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	443	62	0	784	320	82	0	1062	0	0	0
RTOR Reduction (vph)	0	28	0	0	114	0	0	0	37	0	0	0
Lane Group Flow (vph)	0	477	0	0	990	0	82	0	1025	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		15.8			15.8		41.0		41.0			
Effective Green, g (s)		15.8			15.8		41.0		41.0			
Actuated g/C Ratio		0.24			0.24		0.63		0.63			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1217			1186		1120		1002			
v/s Ratio Prot		0.10			c0.20		0.05					
v/s Ratio Perm									c0.65			
v/c Ratio		0.39			0.83		0.07		1.02			
Uniform Delay, d1		20.5			23.3		4.6		11.9			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.2			5.2		0.0		34.5			
Delay (s)		20.7			28.5		4.6		46.4			
Level of Service		C			C		A		D			
Approach Delay (s)		20.7			28.5			43.4			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM Average Control Delay	33.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		0.95	0.91		1.00	1.00
Frt		1.00	0.93		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	4723		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	4723		1770	1583
Volume (vph)	0	500	1280	1160	410	140
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	515	1320	1196	423	144
RTOR Reduction (vph)	0	0	198	0	0	27
Lane Group Flow (vph)	0	515	2318	0	423	117
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		37.7	37.7		19.9	19.9
Effective Green, g (s)		37.7	37.7		19.9	19.9
Actuated g/C Ratio		0.57	0.57		0.30	0.30
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		2034	2714		537	480
v/s Ratio Prot		0.15	c0.49		c0.24	
v/s Ratio Perm						0.07
v/c Ratio		0.25	1.07dr		0.79	0.24
Uniform Delay, d1		6.9	11.7		20.9	17.2
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	2.8		7.5	0.3
Delay (s)		7.0	14.5		28.4	17.5
Level of Service		A	B		C	B
Approach Delay (s)		7.0	14.5		25.6	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	4976			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	4976			5085	1770	1583
Volume (vph)	780	130	0	2050	390	520
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	804	134	0	2113	402	536
RTOR Reduction (vph)	33	0	0	0	0	70
Lane Group Flow (vph)	905	0	0	2113	402	466
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	28.3			28.3	20.6	20.6
Effective Green, g (s)	28.3			28.3	20.6	20.6
Actuated g/C Ratio	0.50			0.50	0.36	0.36
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2475			2529	641	573
v/s Ratio Prot	0.18			c0.42	0.23	
v/s Ratio Perm						c0.29
v/c Ratio	0.37			0.84	0.63	0.81
Uniform Delay, d1	8.8			12.3	15.0	16.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			2.5	1.9	8.7
Delay (s)	8.9			14.8	16.9	25.1
Level of Service	A			B	B	C
Approach Delay (s)	8.9			14.8	21.6	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. AM

Intersection #5: Elverta Road / East Levee Road

```
                         Signal=Stop/Rights=Include
               Base Vol:   40***        150          140
                  Lanes:      0    1      0       0    1

         Signal=Stop                                       Signal=Stop
Base Vol:  Lanes:  Rights=Include     Vol Cnt Date:   n/a  Rights=Include   Lanes:  Base Vol:
                                      Cycle Time (sec):   100
  10         1                                                               0        10
                                      Loss Time (sec):    0
             0                                                               1
 550***      1                        Critical V/C:       1.529              1      1280***
             1                        Avg Crit Del (sec/veh):  154.7         0
  10         0                        Avg Delay (sec/veh):     154.7         1       120
                                      LOS:                F

                  Lanes:      1    0      0       1    0
               Base Vol:     20          20          90***
                         Signal=Stop/Rights=Include
```

```
Street Name:         East Levee Road                    Elverta Road
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|----------------||----------------||----------------||----------------|
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
------------|----------------||----------------||----------------||----------------|
Volume Module:
Base Vol:      20   20    90   140  150    40    10  550    10   120 1280    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   20   20    90   140  150    40    10  550    10   120 1280    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97
PHF Volume:    21   21    93   144  155    41    10  567    10   124 1320    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   21   21    93   144  155    41    10  567    10   124 1320    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   21   21    93   144  155    41    10  567    10   124 1320    10
------------|----------------||----------------||----------------||----------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.18  0.82  1.00 0.79  0.21  1.00 1.96  0.04  1.00 1.98  0.02
Final Sat.:   349   71   321   378  322    86   370  779    14   399  863     7
------------|----------------||----------------||----------------||----------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.29  0.29  0.38 0.48  0.48  0.03 0.73  0.73  0.31 1.53  1.53
Crit Moves:             ****              ****        ****              ****
Delay/Veh:   13.2 14.8  14.8  17.4 18.8  18.8  12.5 32.0  31.9  15.2  271 270.5
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  13.2 14.8  14.8  17.4 18.8  18.8  12.5 32.0  31.9  15.2  271 270.5
LOS by Move:    B    B     B     C    C     C     B    D     D     C    F     F
ApproachDel:      14.6              18.2              31.7             249.2
Delay Adj:        1.00              1.00              1.00              1.00
ApprAdjDel:       14.6              18.2              31.7             249.2
LOS by Appr:         B                 C                 D                 F
AllWayAvgQ:   0.1  0.4   0.4   0.6  0.8   0.8   0.0  2.2   2.2   0.4 31.4  31.4
Note: Queue reported is the number of cars per lane.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #5 Elverta Road / East Levee Road
********************************************************************************
Base Volume Alternative: Peak Hour Warrant Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound        West Bound
```

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   20   20    90   140  150    40    10  550    10   120 1280    10
------------|---------------||---------------||---------------||---------------|
Major Street Volume:            1980
Minor Approach Volume:          330
Minor Approach Volume Threshold: 80 [less than minimum of 150]
--------------------------------------------------------------------------------
```

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	90	600	1850	30	70	260
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	93	619	1907	31	72	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1938				2314	651
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1938				2314	651
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	69				0	35
cM capacity (veh/h)	299				22	411

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	93	206	206	206	763	763	412	72	268
Volume Left	93	0	0	0	0	0	0	72	0
Volume Right	0	0	0	0	0	0	31	0	268
cSH	299	1700	1700	1700	1700	1700	1700	22	411
Volume to Capacity	0.31	0.12	0.12	0.12	0.45	0.45	0.24	3.29	0.65
Queue Length 95th (ft)	32	0	0	0	0	0	0	Err	112
Control Delay (s)	22.4	0.0	0.0	0.0	0.0	0.0	0.0	Err	28.7
Lane LOS	C							F	D
Approach Delay (s)	2.9				0.0			2143.6	
Approach LOS								F	

Intersection Summary			
Average Delay	244.6		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

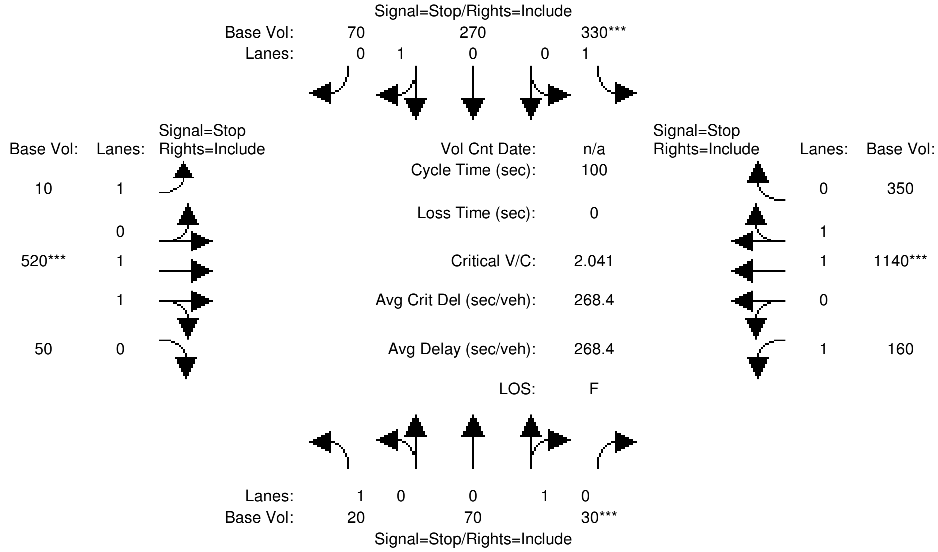
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	170	600	10	10	1100	10	10	10	10	20	10	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	175	619	10	10	1134	10	10	10	10	21	10	309
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1144			629			1876	2139	314	1835	2139	572
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1144			629			1876	2139	314	1835	2139	572
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	71			99			0	70	98	26	70	33
cM capacity (veh/h)	606			949			9	34	681	28	34	463

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	175	412	216	10	756	388	10	21	21	320
Volume Left	175	0	0	10	0	0	10	0	21	0
Volume Right	0	0	10	0	0	10	0	10	0	309
cSH	606	1700	1700	949	1700	1700	9	65	28	329
Volume to Capacity	0.29	0.24	0.13	0.01	0.44	0.23	1.18	0.32	0.74	0.97
Queue Length 95th (ft)	30	0	0	1	0	0	52	29	59	259
Control Delay (s)	13.3	0.0	0.0	8.8	0.0	0.0	929.9	84.7	292.7	78.9
Lane LOS	B			A			F	F	F	F
Approach Delay (s)	2.9			0.1			366.4		91.8	
Approach LOS							F		F	

Intersection Summary			
Average Delay	19.3		
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. AM

Intersection #8: Elverta Road / Elwyn Road



Street Name:	Elwyn Road						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	20	70	30	330	270	70	10	520	50	160	1140	350
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	70	30	330	270	70	10	520	50	160	1140	350
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	21	72	31	340	278	72	10	536	52	165	1175	361
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	72	31	340	278	72	10	536	52	165	1175	361
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	72	31	340	278	72	10	536	52	165	1175	361
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.70	0.30	1.00	0.79	0.21	1.00	1.82	0.18	1.00	1.53	0.47
Final Sat.:	311	233	100	371	315	82	310	610	59	344	576	181
Capacity Analysis Module:												
Vol/Sat:	0.07	0.31	0.31	0.92	0.88	0.88	0.03	0.88	0.87	0.48	2.04	2.00
Crit Moves:			****	****				****			****	
Delay/Veh:	14.7	17.6	17.6	59.3	50.4	50.4	14.4	56.2	55.0	21.5	499	478.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.7	17.6	17.6	59.3	50.4	50.4	14.4	56.2	55.0	21.5	499	478.2
LOS by Move:	B	C	C	F	F	F	B	F	F	C	F	F
ApproachDel:		17.1			54.8			55.4			448.3	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		17.1			54.8			55.4			448.3	
LOS by Appr:		C			F			F			F	
AllWayAvgQ:	0.1	0.4	0.4	4.8	4.3	4.3	0.0	4.0	3.9	0.8	51.4	49.8

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Elverta Road / Elwyn Road

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   20   70    30   330  270    70    10  520    50   160 1140   350
------------|---------------||---------------||---------------||---------------|
Major Street Volume:            2230
Minor Approach Volume:          670
Minor Approach Volume Threshold: 29 [less than minimum of 150]
--------------------------------------------------------------------------------
```

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. AM

Intersection #9: Elverta Road / Rio Linda Boulevard

Signal=Stop/Rights=Include
Base Vol: 0 0 0
Lanes: 0 0 0 0 0

Signal=Stop
Rights=Include
Base Vol: Lanes:
0 0
0
710*** 1
1
160 0

Vol Cnt Date: n/a
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 1.557
Avg Crit Del (sec/veh): 169.1
Avg Delay (sec/veh): 169.1
LOS: F

Signal=Stop
Rights=Include
Lanes: Base Vol:
0 0
0
2 1440***
0
1 100

Lanes: 1 0 0 0 1
Base Vol: 180*** 0 40
Signal=Stop/Rights=Include

Street Name:	Rio Linda Boulevard						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	180	0	40	0	0	0	0	710	160	100	1440	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	180	0	40	0	0	0	0	710	160	100	1440	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	186	0	41	0	0	0	0	732	165	103	1485	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	0	41	0	0	0	0	732	165	103	1485	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	186	0	41	0	0	0	0	732	165	103	1485	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.63	0.37	1.00	2.00	0.00
Final Sat.:	390	0	446	0	0	0	0	833	192	441	954	0
Capacity Analysis Module:												
Vol/Sat:	0.48	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	0.88	0.86	0.23	1.56	xxxx
Crit Moves:	****							****			****	
Delay/Veh:	19.3	0.0	11.3	0.0	0.0	0.0	0.0	41.7	38.2	13.1	280	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.3	0.0	11.3	0.0	0.0	0.0	0.0	41.7	38.2	13.1	280	0.0
LOS by Move:	C	*	B	*	*	*	*	E	E	B	F	*
ApproachDel:		17.8			xxxxxx			41.1			263.0	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		17.8			xxxxxx			41.1			263.0	
LOS by Appr:		C			*			E			F	
AllWayAvgQ:	0.8	0.0	0.1	0.0	0.0	0.0	0.0	4.8	4.1	0.3	35.8	0.0

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Elverta Road / Rio Linda Boulevard

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
Initial Vol:  180    0    40     0     0     0     0  710   160   100 1440     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2410
Minor Approach Volume:           220
Minor Approach Volume Threshold: -4 [less than minimum of 150]
--------------------------------------------------------------------------------
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"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	680	60	330	1160	10	90
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	701	62	340	1196	10	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.82	
vC, conflicting volume			763		2010	381
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			763		2013	381
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			60		59	85
cM capacity (veh/h)			845		25	617

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	467	296	340	598	598	10	93
Volume Left	0	0	340	0	0	10	0
Volume Right	0	62	0	0	0	0	93
cSH	1700	1700	845	1700	1700	25	617
Volume to Capacity	0.27	0.17	0.40	0.35	0.35	0.41	0.15
Queue Length 95th (ft)	0	0	49	0	0	31	13
Control Delay (s)	0.0	0.0	12.1	0.0	0.0	224.8	11.9
Lane LOS			B			F	B
Approach Delay (s)	0.0		2.7			33.2	
Approach LOS						D	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3530		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3530		1770	1583
Volume (vph)	60	710	1130	20	60	360
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	732	1165	21	62	371
RTOR Reduction (vph)	0	0	2	0	0	145
Lane Group Flow (vph)	62	732	1184	0	62	226
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	2.8	30.2	23.4		12.5	12.5
Effective Green, g (s)	2.8	30.2	23.4		12.5	12.5
Actuated g/C Ratio	0.06	0.60	0.46		0.25	0.25
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	98	2108	1629		436	390
v/s Ratio Prot	c0.04	0.21	c0.34		0.04	
v/s Ratio Perm						c0.14
v/c Ratio	0.63	0.35	0.73		0.14	0.58
Uniform Delay, d1	23.4	5.2	11.1		14.9	16.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.6	0.1	1.6		0.2	2.1
Delay (s)	36.0	5.3	12.7		15.1	18.9
Level of Service	D	A	B		B	B
Approach Delay (s)		7.7	12.7		18.3	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	50	110	20	50	10	20	190	100	10	410	60
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	52	113	21	52	10	21	196	103	10	423	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	175	82	320	495
Volume Left (vph)	10	21	21	10
Volume Right (vph)	113	10	103	62
Hadj (s)	-0.34	0.01	-0.15	-0.04
Departure Headway (s)	5.8	6.4	5.3	5.2
Degree Utilization, x	0.28	0.15	0.47	0.71
Capacity (veh/h)	532	474	634	677
Control Delay (s)	11.1	10.5	12.9	19.7
Approach Delay (s)	11.1	10.5	12.9	19.7
Approach LOS	B	B	B	C

Intersection Summary			
Delay	15.6		
HCM Level of Service	C		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	110	60	200	200	10	50	270	60	20	380	120
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	31	113	62	206	206	10	52	278	62	21	392	124

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	206	423	392	536
Volume Left (vph)	31	206	52	21
Volume Right (vph)	62	10	62	124
Hadj (s)	-0.12	0.12	-0.03	-0.10
Departure Headway (s)	9.1	8.2	8.2	8.1
Degree Utilization, x	0.52	0.97	0.89	1.20
Capacity (veh/h)	372	429	426	444
Control Delay (s)	21.5	63.9	49.7	137.8
Approach Delay (s)	21.5	63.9	49.7	137.8
Approach LOS	C	F	E	F

Intersection Summary			
Delay	80.2		
HCM Level of Service	F		
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Volume (vph)	120	590	210	140	1000	90	100	330	180	210	520	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	608	216	144	1031	93	103	340	186	216	536	52
RTOR Reduction (vph)	0	0	151	0	0	65	0	0	138	0	0	36
Lane Group Flow (vph)	124	608	65	144	1031	28	103	340	48	216	536	16
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8			4
Actuated Green, G (s)	4.3	18.9	18.9	3.2	18.1	18.1	3.7	15.5	15.5	7.2	18.8	18.8
Effective Green, g (s)	5.1	20.0	20.0	4.7	19.6	19.6	5.2	16.6	16.6	8.7	20.1	20.1
Actuated g/C Ratio	0.08	0.30	0.30	0.07	0.30	0.30	0.08	0.25	0.25	0.13	0.30	0.30
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5	5.5	5.5	5.1	5.1	5.5	5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	265	1541	480	244	1510	470	139	469	398	233	1078	482
v/s Ratio Prot	0.04	0.12		c0.04	c0.20		0.06	c0.18		c0.12	c0.15	
v/s Ratio Perm			0.04			0.02			0.03			0.01
v/c Ratio	0.47	0.39	0.14	0.59	0.68	0.06	0.74	0.72	0.12	0.93	0.50	0.03
Uniform Delay, d1	29.2	18.2	16.7	29.7	20.5	16.6	29.7	22.6	19.1	28.3	18.8	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	0.0	2.5	1.0	0.0	16.8	4.7	0.0	38.6	0.1	0.0
Delay (s)	29.6	18.3	16.8	32.3	21.5	16.6	46.6	27.3	19.1	66.9	18.9	16.1
Level of Service	C	B	B	C	C	B	D	C	B	E	B	B
Approach Delay (s)		19.4			22.4			28.0			31.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3533		1770	3501		1770	1726		1770	1794	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3533		1770	3501		1770	1726		1770	1794	
Volume (vph)	100	850	10	240	1020	80	10	230	220	170	370	120
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	876	10	247	1052	82	10	237	227	175	381	124
RTOR Reduction (vph)	0	1	0	0	6	0	0	38	0	0	12	0
Lane Group Flow (vph)	103	885	0	247	1128	0	10	426	0	175	493	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	24.6		13.1	31.7		0.8	26.9		9.1	35.2	
Effective Green, g (s)	6.0	24.6		13.1	31.7		0.8	26.9		9.1	35.2	
Actuated g/C Ratio	0.07	0.27		0.15	0.35		0.01	0.30		0.10	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	118	969		258	1237		16	518		180	704	
v/s Ratio Prot	0.06	0.25		c0.14	c0.32		0.01	c0.25		c0.10	0.27	
v/s Ratio Perm												
v/c Ratio	0.87	0.91		0.96	0.91		0.62	0.82		0.97	0.70	
Uniform Delay, d1	41.5	31.5		38.0	27.7		44.3	29.2		40.2	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.0	12.7		43.9	10.2		57.6	10.2		58.6	3.1	
Delay (s)	87.5	44.2		81.9	37.9		101.9	39.4		98.8	26.0	
Level of Service	F	D		F	D		F	D		F	C	
Approach Delay (s)		48.7			45.7			40.7			44.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	45.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	140	10	30	30	10	20	10	80	10	10	600	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	144	10	31	31	10	21	10	82	10	10	619	103

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	186	62	103	732
Volume Left (vph)	144	31	10	10
Volume Right (vph)	31	21	10	103
Hadj (s)	0.09	-0.07	-0.01	-0.05
Departure Headway (s)	6.3	6.4	5.7	4.8
Degree Utilization, x	0.32	0.11	0.16	0.98
Capacity (veh/h)	566	539	606	740
Control Delay (s)	12.2	10.2	9.9	50.2
Approach Delay (s)	12.2	10.2	9.9	50.2
Approach LOS	B	B	A	F

Intersection Summary			
Delay	37.6		
HCM Level of Service	E		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	50	150	70	50	300	360
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	52	155	72	52	309	371
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	124				356	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	124				356	98
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				50	61
cM capacity (veh/h)	1463				620	958

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	206	124	680
Volume Left	52	0	309
Volume Right	0	52	371
cSH	1463	1700	768
Volume to Capacity	0.04	0.07	0.89
Queue Length 95th (ft)	3	0	286
Control Delay (s)	2.1	0.0	34.4
Lane LOS	A		D
Approach Delay (s)	2.1	0.0	34.4
Approach LOS			D

Intersection Summary			
Average Delay	23.6		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1770	1583
Volume (vph)	10	720	230	620	1190	60	270
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	742	237	639	1227	62	278
RTOR Reduction (vph)	0	0	142	0	0	0	237
Lane Group Flow (vph)	10	742	95	639	1227	62	41
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.3	22.3	22.3	14.3	29.2	7.3	7.3
Effective Green, g (s)	1.0	23.4	23.4	14.3	30.3	8.7	8.7
Actuated g/C Ratio	0.02	0.40	0.40	0.24	0.52	0.15	0.15
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	30	2037	634	433	2638	264	236
v/s Ratio Prot	0.01	0.15		c0.36	c0.24	c0.04	
v/s Ratio Perm			0.06				0.03
v/c Ratio	0.33	0.36	0.15	1.48	0.47	0.23	0.18
Uniform Delay, d1	28.4	12.3	11.2	22.0	8.9	21.9	21.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.2	0.2	226.3	0.3	0.2	0.1
Delay (s)	30.8	12.5	11.4	248.3	9.2	22.1	21.8
Level of Service	C	B	B	F	A	C	C
Approach Delay (s)		12.4			91.1	21.9	
Approach LOS		B			F	C	

Intersection Summary			
HCM Average Control Delay	59.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3444		1770	3539	1770	1583
Volume (vph)	1510	330	300	1360	80	240
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1557	340	309	1402	82	247
RTOR Reduction (vph)	12	0	0	0	0	234
Lane Group Flow (vph)	1885	0	309	1402	82	13
Turn Type			Split			Perm
Protected Phases	2		1	1	3	
Permitted Phases						3
Actuated Green, G (s)	55.3		57.3	57.3	7.8	7.8
Effective Green, g (s)	56.3		58.1	58.1	7.3	7.3
Actuated g/C Ratio	0.40		0.42	0.42	0.05	0.05
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1389		737	1473	93	83
v/s Ratio Prot	c0.55		0.17	c0.40	c0.05	
v/s Ratio Perm						0.01
v/c Ratio	1.36		0.42	0.95	0.88	0.16
Uniform Delay, d1	41.6		28.8	39.4	65.7	63.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	165.5		1.2	14.2	55.4	0.3
Delay (s)	207.1		30.0	53.6	121.1	63.5
Level of Service	F		C	D	F	E
Approach Delay (s)	207.1			49.4	77.9	
Approach LOS	F			D	E	

Intersection Summary			
HCM Average Control Delay	127.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	139.6	Sum of lost time (s)	17.9
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	410	1110	40	410	1540	10	40	480	190	10	590	470
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	423	1144	41	423	1588	10	41	495	196	10	608	485
RTOR Reduction (vph)	0	0	27	0	0	6	0	0	92	0	0	289
Lane Group Flow (vph)	423	1144	14	423	1588	4	41	495	104	10	608	196
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6		4	8	1	7	3	
Permitted Phases			2			6			8			3
Actuated Green, G (s)	9.2	20.6	20.6	10.1	21.1	21.1	3.7	17.7	27.8	0.7	13.1	13.1
Effective Green, g (s)	9.2	22.6	22.6	9.7	23.1	23.1	4.0	16.7	26.4	0.7	13.4	13.4
Actuated g/C Ratio	0.14	0.34	0.34	0.15	0.35	0.35	0.06	0.25	0.40	0.01	0.20	0.20
Clearance Time (s)	4.0	6.0	6.0	3.6	6.0	6.0	4.3	3.0	3.6	4.0	4.3	4.3
Vehicle Extension (s)	3.0	2.0	2.0	1.0	2.0	2.0	1.0	0.2	1.0	3.0	1.0	1.0
Lane Grp Cap (vph)	481	1749	545	507	1788	557	108	900	732	19	722	323
v/s Ratio Prot	c0.12	0.22		0.12	c0.31		0.02	c0.14	0.02	0.01	c0.17	
v/s Ratio Perm			0.01			0.00			0.04			0.12
v/c Ratio	0.88	0.65	0.03	0.83	0.89	0.01	0.38	0.55	0.14	0.53	0.84	0.61
Uniform Delay, d1	27.7	18.2	14.3	27.2	20.1	13.8	29.7	21.2	12.5	32.3	25.1	23.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.6	0.7	0.0	10.8	5.6	0.0	0.8	0.4	0.0	23.9	8.5	2.2
Delay (s)	44.3	18.9	14.3	38.1	25.7	13.8	30.5	21.7	12.5	56.2	33.6	26.0
Level of Service	D	B	B	D	C	B	C	C	B	E	C	C
Approach Delay (s)		25.5			28.2			19.7			30.4	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	580	220	930	430	440	350	910	1290	90	120	1890	520
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	598	227	959	443	454	361	938	1330	93	124	1948	536
RTOR Reduction (vph)	0	0	211	0	0	97	0	0	50	0	0	169
Lane Group Flow (vph)	598	227	748	443	454	264	938	1330	43	124	1948	367
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.5	38.1	38.1	13.5	35.0	35.0	27.5	68.5	68.5	7.8	48.4	48.4
Effective Green, g (s)	18.0	39.7	39.7	15.0	36.7	36.7	29.0	70.0	70.0	9.3	50.3	50.3
Actuated g/C Ratio	0.12	0.26	0.26	0.10	0.24	0.24	0.19	0.47	0.47	0.06	0.34	0.34
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	412	1346	419	343	1244	387	664	2373	739	213	1705	531
v/s Ratio Prot	c0.17	0.04		0.13	0.09		c0.27	0.26		0.04	c0.38	
v/s Ratio Perm			c0.47			0.17			0.03			0.23
v/c Ratio	1.45	0.17	1.79	1.29	0.36	0.68	1.41	0.56	0.06	0.58	1.14	0.69
Uniform Delay, d1	66.0	42.4	55.1	67.5	47.0	51.4	60.5	28.9	21.9	68.5	49.9	43.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	216.3	0.1	362.8	151.3	0.5	7.3	194.6	0.6	0.1	2.6	71.7	5.2
Delay (s)	282.3	42.6	418.0	218.8	47.5	58.7	255.1	29.4	22.0	71.1	121.6	48.3
Level of Service	F	D	F	F	D	E	F	C	C	E	F	D
Approach Delay (s)		324.7			111.0			118.8			104.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	158.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	116.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	330	700	350	270	960	280	380	960	50	280	1830	510
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	340	722	361	278	990	289	392	990	52	289	1887	526
RTOR Reduction (vph)	0	0	167	0	0	183	0	0	30	0	0	170
Lane Group Flow (vph)	340	722	194	278	990	106	392	990	22	289	1887	356
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.9	31.4	31.4	14.0	30.7	30.7	17.0	56.7	56.7	14.2	53.9	53.9
Effective Green, g (s)	16.4	33.1	33.1	15.5	32.2	32.2	18.5	58.3	58.3	15.7	55.5	55.5
Actuated g/C Ratio	0.12	0.24	0.24	0.11	0.23	0.23	0.13	0.42	0.42	0.11	0.40	0.40
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	5.6
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9
Lane Grp Cap (vph)	406	1214	378	384	1181	368	458	2139	666	389	2036	634
v/s Ratio Prot	c0.10	0.14		0.08	c0.19		c0.11	c0.19		0.08	c0.37	
v/s Ratio Perm			0.12			0.07			0.01			0.22
v/c Ratio	0.84	0.59	0.51	0.72	0.84	0.29	0.86	0.46	0.03	0.74	0.93	0.56
Uniform Delay, d1	59.8	46.8	45.7	59.5	50.7	43.8	58.7	28.9	23.6	59.5	39.6	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.4	1.2	2.2	5.6	5.9	0.9	14.0	0.3	0.0	6.6	8.2	1.8
Delay (s)	73.2	48.0	48.0	65.1	56.6	44.6	72.8	29.2	23.6	66.1	47.8	34.0
Level of Service	E	D	D	E	E	D	E	C	C	E	D	C
Approach Delay (s)		54.0			55.9			40.9			47.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	138.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Volume (vph)	130	550	830	90	350	170	360	1120	50	140	1790	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	567	856	93	361	175	371	1155	52	144	1845	113
RTOR Reduction (vph)	0	0	170	0	0	110	0	0	35	0	0	70
Lane Group Flow (vph)	134	567	686	93	361	65	371	1155	17	144	1845	43
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.2	44.0	44.0	7.0	43.8	43.8	14.0	37.0	37.0	12.0	35.0	35.0
Effective Green, g (s)	8.2	46.0	46.0	7.0	44.8	44.8	14.0	39.0	39.0	12.0	37.0	37.0
Actuated g/C Ratio	0.07	0.38	0.38	0.06	0.37	0.37	0.12	0.32	0.32	0.10	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	235	1357	607	103	1898	591	401	1653	514	177	1976	488
v/s Ratio Prot	0.04	0.16		c0.05	0.07		c0.11	0.23		0.08	c0.29	
v/s Ratio Perm			c0.43			0.04			0.01			0.03
v/c Ratio	0.57	0.42	1.13	0.90	0.19	0.11	0.93	0.70	0.03	0.81	0.93	0.09
Uniform Delay, d1	54.2	27.2	37.0	56.2	25.4	24.6	52.5	35.4	27.6	52.9	40.3	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.4	78.2	57.5	0.1	0.2	26.6	2.5	0.1	22.9	9.7	0.4
Delay (s)	56.3	27.5	115.2	113.7	25.5	24.8	79.0	37.8	27.8	75.8	50.0	29.9
Level of Service	E	C	F	F	C	C	E	D	C	E	D	C
Approach Delay (s)		78.2			38.3			47.2			50.7	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	55.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.95			0.95					1.00		1.00
Frt		0.98			0.94					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		3463			3324					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		3463			3324					1770		1583
Volume (vph)	0	180	30	0	1040	710	0	0	0	40	0	820
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	186	31	0	1072	732	0	0	0	41	0	845
RTOR Reduction (vph)	0	14	0	0	124	0	0	0	0	0	0	47
Lane Group Flow (vph)	0	203	0	0	1680	0	0	0	0	41	0	798
Turn Type										Prot		custom
Protected Phases		4			8					2		
Permitted Phases												2
Actuated Green, G (s)		52.3			52.3					38.0		38.0
Effective Green, g (s)		52.3			52.3					38.0		38.0
Actuated g/C Ratio		0.53			0.53					0.39		0.39
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		1842			1769					684		612
v/s Ratio Prot		0.06			c0.51					0.02		
v/s Ratio Perm												c0.50
v/c Ratio		0.11			0.95					0.06		1.30
Uniform Delay, d1		11.4			21.8					18.9		30.1
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.0			11.5					0.0		148.2
Delay (s)		11.5			33.3					19.0		178.4
Level of Service		B			C					B		F
Approach Delay (s)		11.5			33.3			0.0			171.0	
Approach LOS		B			C			A			F	

Intersection Summary			
HCM Average Control Delay	73.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.95			0.95		1.00		1.00			
Frt		0.96			0.98		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		3394			3465		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		3394			3465		1770		1583			
Volume (vph)	0	160	60	0	1480	240	270	0	330	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	165	62	0	1526	247	278	0	340	0	0	0
RTOR Reduction (vph)	0	26	0	0	19	0	0	0	252	0	0	0
Lane Group Flow (vph)	0	201	0	0	1754	0	278	0	88	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		30.4			30.4		13.5		13.5			
Effective Green, g (s)		30.4			30.4		13.5		13.5			
Actuated g/C Ratio		0.59			0.59		0.26		0.26			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1988			2030		460		412			
v/s Ratio Prot		0.06			c0.51		c0.16					
v/s Ratio Perm									0.06			
v/c Ratio		0.10			0.86		0.60		0.21			
Uniform Delay, d1		4.7			9.0		16.9		15.0			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.0			4.1		2.2		0.3			
Delay (s)		4.8			13.1		19.1		15.3			
Level of Service		A			B		B		B			
Approach Delay (s)		4.8			13.1			17.0			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.91			0.91					1.00		1.00
Frt		0.95			0.92					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4815			4666					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4815			4666					1770		1583
Volume (vph)	0	110	60	0	670	820	0	0	0	300	0	330
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	113	62	0	691	845	0	0	0	309	0	340
RTOR Reduction (vph)	0	36	0	0	379	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	139	0	0	1157	0	0	0	0	309	0	301
Turn Type										Prot		custom
Protected Phases		4			8					1		
Permitted Phases												1
Actuated Green, G (s)		15.0			15.0					13.1		13.1
Effective Green, g (s)		15.0			15.0					13.1		13.1
Actuated g/C Ratio		0.42			0.42					0.36		0.36
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2001			1939					642		574
v/s Ratio Prot		0.03			c0.25					0.17		
v/s Ratio Perm												c0.19
v/c Ratio		0.07			0.60					0.48		0.52
Uniform Delay, d1		6.3			8.2					8.9		9.0
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.0			0.5					0.6		0.9
Delay (s)		6.4			8.7					9.4		9.9
Level of Service		A			A					A		A
Approach Delay (s)		6.4			8.7			0.0			9.7	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	36.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.91			0.91		1.00		1.00			
Frt		0.99			0.99		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		5047			5023		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		5047			5023		1770		1583			
Volume (vph)	0	390	20	0	1350	120	140	0	600	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	402	21	0	1392	124	144	0	619	0	0	0
RTOR Reduction (vph)	0	10	0	0	18	0	0	0	125	0	0	0
Lane Group Flow (vph)	0	413	0	0	1498	0	144	0	494	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		16.2			16.2		16.8		16.8			
Effective Green, g (s)		16.2			16.2		16.8		16.8			
Actuated g/C Ratio		0.40			0.40		0.41		0.41			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1994			1985		725		649			
v/s Ratio Prot		0.08			c0.30		0.08					
v/s Ratio Perm									c0.31			
v/c Ratio		0.21			0.75		0.20		0.76			
Uniform Delay, d1		8.2			10.7		7.8		10.4			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.1			1.7		0.1		5.3			
Delay (s)		8.2			12.4		7.9		15.7			
Level of Service		A			B		A		B			
Approach Delay (s)		8.2			12.4			14.2			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	500	300	0	1420	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	515	309	0	1464	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				582		
pX, platoon unblocked						
vC, conflicting volume			825		1158	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			825		1158	326
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			801		189	669

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	206	206	412	488	488	488
Volume Left	0	0	0	0	0	0
Volume Right	0	0	309	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.12	0.12	0.24	0.29	0.29	0.29
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1300	2050	380	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1340	2113	392	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		325				
pX, platoon unblocked					0.91	
vC, conflicting volume	2505				2756	900
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2505				2733	900
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	179				15	281

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	447	447	447	845	845	814
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	392
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.26	0.26	0.50	0.50	0.48
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.91		1.00	1.00
Frt		1.00	0.93		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	4710		1770	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	4710		1770	1583
Volume (vph)	0	890	680	660	390	160
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	918	701	680	402	165
RTOR Reduction (vph)	0	0	226	0	0	114
Lane Group Flow (vph)	0	918	1155	0	402	51
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		33.4	33.4		18.3	18.3
Effective Green, g (s)		33.4	33.4		18.3	18.3
Actuated g/C Ratio		0.56	0.56		0.31	0.31
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1042	2635		543	485
v/s Ratio Prot		c0.49	0.25		c0.23	
v/s Ratio Perm						0.03
v/c Ratio		0.88	0.44		0.74	0.10
Uniform Delay, d1		11.4	7.7		18.6	14.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		8.9	0.1		5.4	0.1
Delay (s)		20.3	7.8		24.0	14.9
Level of Service		C	A		C	B
Approach Delay (s)		20.3	7.8		21.3	
Approach LOS		C	A		C	

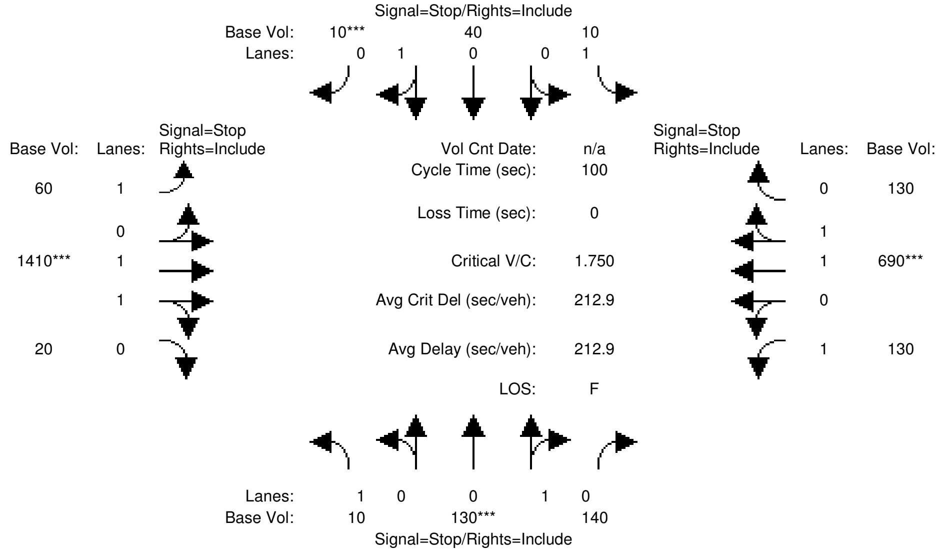
Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5002			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5002			5085	1770	1583
Volume (vph)	1140	140	0	1050	290	1390
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1175	144	0	1082	299	1433
RTOR Reduction (vph)	23	0	0	0	0	0
Lane Group Flow (vph)	1296	0	0	1082	299	1433
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	16.0			16.0	41.0	41.0
Effective Green, g (s)	16.0			16.0	41.0	41.0
Actuated g/C Ratio	0.25			0.25	0.63	0.63
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1231			1252	1116	999
v/s Ratio Prot	c0.26			0.21	0.17	
v/s Ratio Perm						c0.90
v/c Ratio	1.05			0.86	0.27	1.43
Uniform Delay, d1	24.5			23.5	5.3	12.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	40.7			6.4	0.1	201.1
Delay (s)	65.2			29.9	5.5	213.1
Level of Service	E			C	A	F
Approach Delay (s)	65.2			29.9	177.3	
Approach LOS	E			C	F	

Intersection Summary			
HCM Average Control Delay	102.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	117.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. PM

Intersection #5: Elverta Road / East Levee Road



Street Name:	East Levee Road						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	10	130	140	10	40	10	60	1410	20	130	690	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	130	140	10	40	10	60	1410	20	130	690	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	10	134	144	10	41	10	62	1454	21	134	711	134
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	134	144	10	41	10	62	1454	21	134	711	134
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	134	144	10	41	10	62	1454	21	134	711	134
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.48	0.52	1.00	0.80	0.20	1.00	1.97	0.03	1.00	1.68	0.32
Final Sat.:	374	198	214	341	291	73	393	831	12	400	725	139
Capacity Analysis Module:												
Vol/Sat:	0.03	0.68	0.68	0.03	0.14	0.14	0.16	1.75	1.75	0.33	0.98	0.97
Crit Moves:		****				****		****			****	
Delay/Veh:	12.5	27.4	27.4	13.3	13.9	13.9	13.4	368	366.6	16.1	67.8	63.5
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.5	27.4	27.4	13.3	13.9	13.9	13.4	368	366.6	16.1	67.8	63.5
LOS by Move:	B	D	D	B	B	B	B	F	F	C	F	F
ApproachDel:		26.9			13.8			353.2			60.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		26.9			13.8			353.2			60.1	
LOS by Appr:		D			B			F			F	
AllWayAvgQ:	0.0	1.8	1.8	0.0	0.2	0.2	0.2	41.7	41.6	0.5	7.1	6.4

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

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Intersection #5 Elverta Road / East Levee Road

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound


```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   10  130   140    10   40    10    60 1410    20   130  690   130
------------|---------------||---------------||---------------||---------------|
Major Street Volume:            2440
Minor Approach Volume:          280
Minor Approach Volume Threshold: -10 [less than minimum of 150]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	250	1990	810	90	40	150
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	258	2052	835	93	41	155
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	928				2081	325
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	928				2081	325
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	65				0	77
cM capacity (veh/h)	733				30	671

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	258	684	684	684	334	334	260	41	155
Volume Left	258	0	0	0	0	0	0	41	0
Volume Right	0	0	0	0	0	0	93	0	155
cSH	733	1700	1700	1700	1700	1700	1700	30	671
Volume to Capacity	0.35	0.40	0.40	0.40	0.20	0.20	0.15	1.39	0.23
Queue Length 95th (ft)	40	0	0	0	0	0	0	118	22
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	500.4	12.0
Lane LOS	B							F	B
Approach Delay (s)	1.4				0.0			114.8	
Approach LOS								F	

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	330	1220	10	10	690	10	10	10	10	10	10	250
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	340	1258	10	10	711	10	10	10	10	10	10	258
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	722			1268			2582	2686	634	2062	2686	361
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	722			1268			2582	2686	634	2062	2686	361
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	61			98			0	20	98	0	20	59
cM capacity (veh/h)	876			544			2	13	422	8	13	636

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	340	838	430	10	474	247	10	21	10	268
Volume Left	340	0	0	10	0	0	10	0	10	0
Volume Right	0	0	10	0	0	10	0	10	0	258
cSH	876	1700	1700	544	1700	1700	2	25	8	223
Volume to Capacity	0.39	0.49	0.25	0.02	0.28	0.15	5.56	0.82	1.34	1.20
Queue Length 95th (ft)	46	0	0	1	0	0	Err	63	53	332
Control Delay (s)	11.7	0.0	0.0	11.7	0.0	0.0	Err	343.3	1090.4	171.5
Lane LOS	B			B			F	F	F	F
Approach Delay (s)	2.5			0.2			3561.9		205.5	
Approach LOS							F		F	

Intersection Summary			
Average Delay	64.7		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. PM

Intersection #8: Elverta Road / Elwyn Road

Signal=Stop/Rights=Include
Base Vol: 20 80 380***
Lanes: 0 1 0 0 1

Base Vol:	Lanes:	Signal=Stop Rights=Include			Signal=Stop Rights=Include	Lanes:	Base Vol:
160	1		Vol Cnt Date:	n/a		0	370
			Cycle Time (sec):	100			
	0		Loss Time (sec):	0		1	
1150***	1		Critical V/C:	1.826		1	620***
	1		Avg Crit Del (sec/veh):	272.3		0	
20	0		Avg Delay (sec/veh):	272.3		1	30
			LOS:	F			

Lanes: 1 0 0 1 0
Base Vol: 50 230*** 190
Signal=Stop/Rights=Include

```
Street Name:           Elwyn Road                        Elverta Road
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     50  230   190   380   80    20   160 1150    20    30  620   370
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  50  230   190   380   80    20   160 1150    20    30  620   370
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97  0.97 0.97  0.97
PHF Volume:   52  237   196   392   82    21   165 1186    21    31  639   381
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  52  237   196   392   82    21   165 1186    21    31  639   381
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  52  237   196   392   82    21   165 1186    21    31  639   381
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.55  0.45  1.00 0.80  0.20  1.00 1.97  0.03  1.00 1.25  0.75
Final Sat.:  323  191   158   326  276    69   315  649    11   304  404   250
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.16 1.24  1.24  1.20 0.30  0.30  0.52 1.83  1.82  0.10 1.58  1.52
Crit Moves:       ****        ****                  ****              ****
Delay/Veh:   15.9  160 159.8 148.2 17.4  17.4  26.0  408 406.9  15.8  304 277.2
Delay Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  15.9  160 159.8 148.2 17.4  17.4  26.0  408 406.9  15.8  304 277.2
LOS by Move:   C    F     F     F    C     C     D    F     F     C    F     F
ApproachDel:     144.5            120.9             361.9             285.7
Delay Adj:        1.00             1.00              1.00              1.00
ApprAdjDel:      144.5            120.9             361.9             285.7
LOS by Appr:        F                F                 F                 F
AllWayAvgQ:   0.2 14.2  14.2  12.2  0.4   0.4   1.0 36.2  36.1   0.1 26.3  24.5
Note: Queue reported is the number of cars per lane.
                Peak Hour Volume Signal Warrant Report [Urban]
********************************************************************************
Intersection #8 Elverta Road / Elwyn Road
********************************************************************************
Base Volume Alternative: Peak Hour Warrant Met
------------|---------------||---------------||---------------||---------------|
Approach:      North Bound      South Bound       East Bound        West Bound
```



```
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  1  1  0
Initial Vol:   50  230   190   380   80    20   160 1150    20    30  620   370
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2350
Minor Approach Volume:           480
Minor Approach Volume Threshold: 7 [less than minimum of 150]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
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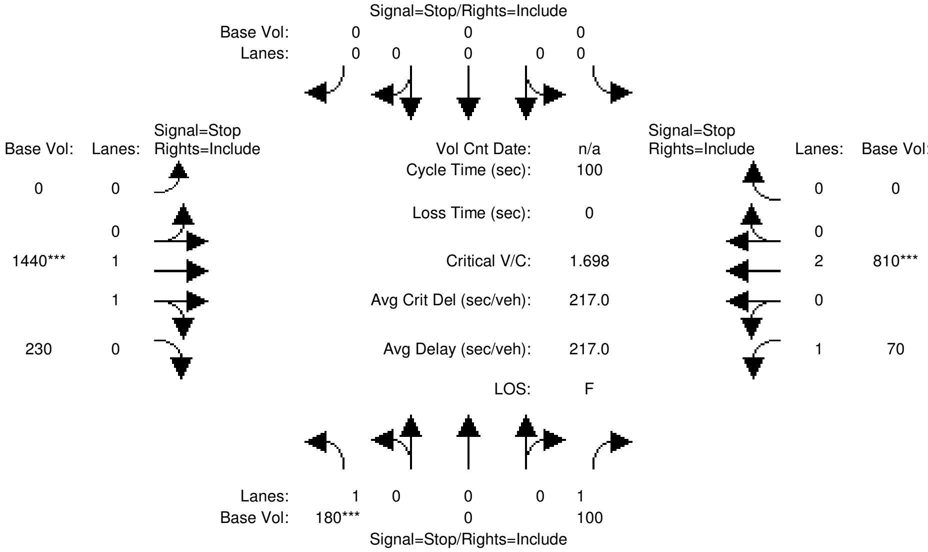
Level Of Service Computation Report
2000 HCM 4-Way Stop (Base Volume Alternative)
C. + Preferred Alt. PM

Intersection #9: Elverta Road / Rio Linda Boulevard



Street Name:	Rio Linda Boulevard						Elverta Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	180	0	100	0	0	0	0	1440	230	70	810	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	180	0	100	0	0	0	0	1440	230	70	810	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
PHF Volume:	186	0	103	0	0	0	0	1485	237	72	835	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	0	103	0	0	0	0	1485	237	72	835	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	186	0	103	0	0	0	0	1485	237	72	835	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.72	0.28	1.00	2.00	0.00
Final Sat.:	390	0	446	0	0	0	0	874	142	426	907	0
Capacity Analysis Module:												
Vol/Sat:	0.48	xxxx	0.23	xxxx	xxxx	xxxx	xxxx	1.70	1.67	0.17	0.92	xxxx
Crit Moves:	****							****			****	
Delay/Veh:	19.5	0.0	12.9	0.0	0.0	0.0	0.0	340	328.4	12.8	52.7	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.5	0.0	12.9	0.0	0.0	0.0	0.0	340	328.4	12.8	52.7	0.0
LOS by Move:	C	*	B	*	*	*	*	F	F	B	F	*
ApproachDel:		17.2			xxxxxx			338.8			49.5	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		17.2			xxxxxx			338.8			49.5	
LOS by Appr:		C			*			F			E	
AllWayAvgQ:	0.8	0.0	0.3	0.0	0.0	0.0	0.0	47.2	45.6	0.2	5.3	0.0

Note: Queue reported is the number of cars per lane.

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #9 Elverta Road / Rio Linda Boulevard

****

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound	South Bound	East Bound	West Bound

```
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign        Stop Sign        Stop Sign
Lanes:         1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
Initial Vol:  180    0   100      0    0     0      0 1440   230    70  810     0
------------|---------------||---------------||---------------||---------------|
Major Street Volume:             2550
Minor Approach Volume:           280
Minor Approach Volume Threshold: -28 [less than minimum of 150]
--------------------------------------------------------------------------------
SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future.  Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction.  Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
```


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1280	40	110	830	60	290
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1320	41	113	856	62	299
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.85	
vC, conflicting volume			1361		1995	680
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1361		1994	680
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			77		0	24
cM capacity (veh/h)			501		34	393

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	880	481	113	428	428	62	299
Volume Left	0	0	113	0	0	62	0
Volume Right	0	41	0	0	0	0	299
cSH	1700	1700	501	1700	1700	34	393
Volume to Capacity	0.52	0.28	0.23	0.25	0.25	1.80	0.76
Queue Length 95th (ft)	0	0	22	0	0	171	156
Control Delay (s)	0.0	0.0	14.3	0.0	0.0	630.9	37.9
Lane LOS			B			F	E
Approach Delay (s)	0.0		1.7			139.6	
Approach LOS						F	

Intersection Summary			
Average Delay	19.3		
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3509		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3509		1770	1583
Volume (vph)	360	1210	830	50	20	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	371	1247	856	52	21	113
RTOR Reduction (vph)	0	0	5	0	0	99
Lane Group Flow (vph)	371	1247	903	0	21	14
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.0	39.5	19.5		6.8	6.8
Effective Green, g (s)	16.0	39.5	19.5		6.8	6.8
Actuated g/C Ratio	0.29	0.73	0.36		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	522	2574	1260		222	198
v/s Ratio Prot	c0.21	0.35	c0.26		c0.01	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.48	0.72		0.09	0.07
Uniform Delay, d1	17.1	3.1	15.0		21.0	21.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.5	0.1	2.0		0.2	0.2
Delay (s)	21.6	3.3	17.0		21.2	21.1
Level of Service	C	A	B		C	C
Approach Delay (s)		7.5	17.0		21.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	54.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	40	60	50	100	70	10	110	390	30	10	220	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	41	62	52	103	72	10	113	402	31	10	227	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	155	186	546	247
Volume Left (vph)	41	103	113	10
Volume Right (vph)	52	10	31	10
Hadj (s)	-0.11	0.11	0.04	0.02
Departure Headway (s)	6.6	6.7	5.6	6.1
Degree Utilization, x	0.28	0.35	0.85	0.42
Capacity (veh/h)	496	492	632	538
Control Delay (s)	12.2	13.2	31.9	13.4
Approach Delay (s)	12.2	13.2	31.9	13.4
Approach LOS	B	B	D	B

Intersection Summary			
Delay	22.1		
HCM Level of Service	C		
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	150	130	50	120	140	20	90	350	210	10	330	50
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	155	134	52	124	144	21	93	361	216	10	340	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	340	289	670	402
Volume Left (vph)	155	124	93	10
Volume Right (vph)	52	21	216	52
Hadj (s)	0.03	0.08	-0.13	-0.04
Departure Headway (s)	8.7	9.0	8.3	8.4
Degree Utilization, x	0.83	0.72	1.55	0.94
Capacity (veh/h)	390	377	433	420
Control Delay (s)	41.6	32.4	278.4	58.3
Approach Delay (s)	41.6	32.4	278.4	58.3
Approach LOS	E	D	F	F

Intersection Summary			
Delay	137.3		
HCM Level of Service	F		
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	1863	1583	1770	3539	1583
Volume (vph)	60	1270	180	200	740	170	140	570	80	110	490	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	1309	186	206	763	175	144	588	82	113	505	21
RTOR Reduction (vph)	0	0	126	0	0	118	0	0	51	0	0	13
Lane Group Flow (vph)	62	1309	60	206	763	57	144	588	31	113	505	8
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8			4
Actuated Green, G (s)	3.3	25.0	25.0	3.1	25.1	25.1	3.1	26.9	26.9	5.3	28.9	28.9
Effective Green, g (s)	4.1	26.1	26.1	4.6	26.6	26.6	4.6	28.0	28.0	6.8	30.2	30.2
Actuated g/C Ratio	0.05	0.32	0.32	0.06	0.33	0.33	0.06	0.34	0.34	0.08	0.37	0.37
Clearance Time (s)	4.8	5.1	5.1	5.5	5.5	5.5	5.5	5.1	5.1	5.5	5.3	5.3
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	173	1628	507	194	1660	517	100	640	544	148	1311	587
v/s Ratio Prot	0.02	c0.26		c0.06	0.15		c0.08	c0.32		0.06	0.14	
v/s Ratio Perm			0.04			0.04			0.02			0.00
v/c Ratio	0.36	0.80	0.12	1.06	0.46	0.11	1.44	0.92	0.06	0.76	0.39	0.01
Uniform Delay, d1	37.4	25.4	19.6	38.5	21.8	19.2	38.5	25.7	17.9	36.6	18.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	2.8	0.0	81.9	0.1	0.0	245.5	17.9	0.0	18.7	0.1	0.0
Delay (s)	37.9	28.2	19.6	120.4	21.8	19.2	284.0	43.6	17.9	55.3	18.9	16.2
Level of Service	D	C	B	F	C	B	F	D	B	E	B	B
Approach Delay (s)		27.5			39.2			83.5			25.2	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM Average Control Delay	41.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3535		1770	3443		1770	1748		1770	1780	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3535		1770	3443		1770	1748		1770	1780	
Volume (vph)	90	1160	10	210	900	200	10	330	230	110	260	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	1196	10	216	928	206	10	340	237	113	268	113
RTOR Reduction (vph)	0	1	0	0	21	0	0	27	0	0	16	0
Lane Group Flow (vph)	93	1205	0	216	1113	0	10	550	0	113	365	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	30.8		11.0	36.2		0.8	30.2		6.0	35.4	
Effective Green, g (s)	5.6	30.8		11.0	36.2		0.8	30.2		6.0	35.4	
Actuated g/C Ratio	0.06	0.33		0.12	0.39		0.01	0.32		0.06	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	1158		207	1326		15	562		113	670	
v/s Ratio Prot	0.05	c0.34		c0.12	0.32		0.01	c0.31		c0.06	0.21	
v/s Ratio Perm												
v/c Ratio	0.89	1.04		1.04	0.84		0.67	0.98		1.00	0.55	
Uniform Delay, d1	43.9	31.6		41.5	26.3		46.5	31.6		44.0	23.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.9	37.7		74.4	4.8		75.9	32.1		84.7	0.9	
Delay (s)	96.8	69.3		115.9	31.1		122.3	63.7		128.7	23.9	
Level of Service	F	E		F	C		F	E		F	C	
Approach Delay (s)		71.3			44.7			64.7			47.9	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	57.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	120	10	10	20	10	10	40	500	30	30	200	160
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	124	10	10	21	10	10	41	515	31	31	206	165

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	144	41	588	402
Volume Left (vph)	124	21	41	31
Volume Right (vph)	10	10	31	165
Hadj (s)	0.16	-0.02	0.02	-0.20
Departure Headway (s)	6.6	6.8	5.1	5.2
Degree Utilization, x	0.27	0.08	0.84	0.58
Capacity (veh/h)	502	463	688	668
Control Delay (s)	12.0	10.4	28.8	15.0
Approach Delay (s)	12.0	10.4	28.8	15.0
Approach LOS	B	B	D	C

Intersection Summary			
Delay	21.4		
HCM Level of Service	C		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	270	130	150	300	90	140
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	278	134	155	309	93	144
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	464				1000	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	464				1000	309
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				54	80
cM capacity (veh/h)	1097				201	731

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	412	464	237
Volume Left	278	0	93
Volume Right	0	309	144
cSH	1097	1700	360
Volume to Capacity	0.25	0.27	0.66
Queue Length 95th (ft)	25	0	112
Control Delay (s)	7.2	0.0	32.4
Lane LOS	A		D
Approach Delay (s)	7.2	0.0	32.4
Approach LOS			D

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1770	1583
Volume (vph)	10	1380	50	410	930	170	640
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	1423	52	423	959	175	660
RTOR Reduction (vph)	0	0	27	0	0	0	497
Lane Group Flow (vph)	10	1423	25	423	959	175	163
Turn Type	Prot		Perm	Prot			Perm
Protected Phases	1	6		4 5	2	3	
Permitted Phases			6				3
Actuated Green, G (s)	0.4	30.3	30.3	9.9	32.4	10.2	10.2
Effective Green, g (s)	1.1	31.4	31.4	9.9	33.5	11.6	11.6
Actuated g/C Ratio	0.02	0.48	0.48	0.15	0.52	0.18	0.18
Clearance Time (s)	4.7	5.1	5.1		5.1	5.4	5.4
Vehicle Extension (s)	1.0	4.9	4.9		4.9	1.0	1.0
Lane Grp Cap (vph)	30	2460	766	270	2625	316	283
v/s Ratio Prot	0.01	c0.28		c0.24	0.19	0.10	
v/s Ratio Perm			0.02				c0.10
v/c Ratio	0.33	0.58	0.03	1.57	0.37	0.55	0.58
Uniform Delay, d1	31.5	12.0	8.8	27.5	9.4	24.3	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.5	0.0	272.3	0.2	1.2	1.8
Delay (s)	33.9	12.5	8.8	299.8	9.5	25.5	26.2
Level of Service	C	B	A	F	A	C	C
Approach Delay (s)		12.5			98.4	26.0	
Approach LOS		B			F	C	

Intersection Summary			
HCM Average Control Delay	47.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3487		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3487		1770	3539	1770	1583
Volume (vph)	1560	170	290	1590	410	300
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1608	175	299	1639	423	309
RTOR Reduction (vph)	5	0	0	0	0	190
Lane Group Flow (vph)	1778	0	299	1639	423	119
Turn Type			Split			Perm
Protected Phases	2		1	1	3	
Permitted Phases						3
Actuated Green, G (s)	55.6		43.3	43.3	21.5	21.5
Effective Green, g (s)	56.6		44.1	44.1	21.0	21.0
Actuated g/C Ratio	0.41		0.32	0.32	0.15	0.15
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1414		559	1118	266	238
v/s Ratio Prot	c0.51		0.17	c0.46	c0.24	
v/s Ratio Perm						0.07
v/c Ratio	1.26		0.53	1.47	1.59	0.50
Uniform Delay, d1	41.5		39.3	47.8	59.3	54.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	121.6		2.5	214.7	282.7	0.6
Delay (s)	163.1		41.8	262.4	342.0	55.1
Level of Service	F		D	F	F	E
Approach Delay (s)	163.1			228.4	220.9	
Approach LOS	F			F	F	

Intersection Summary			
HCM Average Control Delay	201.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	139.6	Sum of lost time (s)	17.9
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	480	1810	50	210	1220	10	50	570	350	10	510	440
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	495	1866	52	216	1258	10	52	588	361	10	526	454
RTOR Reduction (vph)	0	0	31	0	0	7	0	0	94	0	0	340
Lane Group Flow (vph)	495	1866	21	216	1258	3	52	588	267	10	526	114
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6		4	8	1	7	3	
Permitted Phases			2			6			8			3
Actuated Green, G (s)	12.0	24.3	24.3	6.0	17.9	17.9	4.6	16.9	22.9	0.7	11.4	11.4
Effective Green, g (s)	12.0	26.3	26.3	5.6	19.9	19.9	4.9	15.9	21.5	0.7	11.7	11.7
Actuated g/C Ratio	0.19	0.41	0.41	0.09	0.31	0.31	0.08	0.25	0.33	0.01	0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	3.6	6.0	6.0	4.3	3.0	3.6	4.0	4.3	4.3
Vehicle Extension (s)	3.0	2.0	2.0	1.0	2.0	2.0	1.0	0.2	1.0	3.0	1.0	1.0
Lane Grp Cap (vph)	639	2073	645	298	1569	488	134	872	626	19	642	287
v/s Ratio Prot	c0.14	c0.37		0.06	0.25		0.03	c0.17	0.04	0.01	c0.15	
v/s Ratio Perm			0.01			0.00			0.13			0.07
v/c Ratio	0.77	0.90	0.03	0.72	0.80	0.01	0.39	0.67	0.43	0.53	0.82	0.40
Uniform Delay, d1	25.0	17.9	11.5	28.7	20.5	15.4	28.4	22.0	16.7	31.7	25.4	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	5.7	0.0	7.2	2.9	0.0	0.7	1.6	0.2	23.9	7.6	0.3
Delay (s)	30.8	23.6	11.5	35.9	23.4	15.5	29.1	23.6	16.9	55.6	33.0	23.6
Level of Service	C	C	B	D	C	B	C	C	B	E	C	C
Approach Delay (s)		24.8			25.1			21.5			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	530	500	960	270	360	90	1170	1420	280	140	1330	440
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	515	990	278	371	93	1206	1464	289	144	1371	454
RTOR Reduction (vph)	0	0	277	0	0	70	0	0	141	0	0	218
Lane Group Flow (vph)	546	515	713	278	371	23	1206	1464	148	144	1371	236
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.8	48.4	48.4	9.5	36.0	36.0	33.5	61.2	61.2	8.8	36.1	36.1
Effective Green, g (s)	23.3	50.0	50.0	11.0	37.7	37.7	35.0	62.7	62.7	10.3	38.0	38.0
Actuated g/C Ratio	0.16	0.33	0.33	0.07	0.25	0.25	0.23	0.42	0.42	0.07	0.25	0.25
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	533	1695	528	252	1278	398	801	2126	662	236	1288	401
v/s Ratio Prot	c0.16	0.10		0.08	0.07		c0.35	0.29		0.04	c0.27	
v/s Ratio Perm			c0.45			0.01			0.09			0.15
v/c Ratio	1.02	0.30	1.35	1.10	0.29	0.06	1.51	0.69	0.22	0.61	1.06	0.59
Uniform Delay, d1	63.4	37.1	50.0	69.5	45.3	42.7	57.5	35.7	28.0	67.9	56.0	49.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	45.3	0.2	169.6	87.1	0.3	0.2	234.0	1.3	0.4	3.3	44.2	3.7
Delay (s)	108.7	37.3	219.6	156.6	45.7	42.8	291.5	37.0	28.4	71.2	100.2	52.9
Level of Service	F	D	F	F	D	D	F	D	C	E	F	D
Approach Delay (s)		144.3			86.9			139.9			87.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	122.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	610	920	410	240	880	390	400	1840	170	380	1390	350
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	629	948	423	247	907	402	412	1897	175	392	1433	361
RTOR Reduction (vph)	0	0	156	0	0	158	0	0	58	0	0	159
Lane Group Flow (vph)	629	948	267	247	907	244	412	1897	117	392	1433	202
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	22.5	41.1	41.1	11.2	30.0	30.0	15.2	49.9	49.9	15.5	50.2	50.2
Effective Green, g (s)	24.0	42.8	42.8	12.7	31.5	31.5	16.7	51.5	51.5	17.0	51.8	51.8
Actuated g/C Ratio	0.17	0.31	0.31	0.09	0.22	0.22	0.12	0.37	0.37	0.12	0.37	0.37
Clearance Time (s)	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.6	5.6	5.5	5.6	5.6
Vehicle Extension (s)	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9	1.0	4.9	4.9
Lane Grp Cap (vph)	589	1555	484	311	1144	356	410	1871	582	417	1881	586
v/s Ratio Prot	c0.18	0.19		0.07	c0.18		c0.12	c0.37		0.11	0.28	
v/s Ratio Perm			0.17			0.15			0.07			0.13
v/c Ratio	1.07	0.61	0.55	0.79	0.79	0.69	1.00	1.01	0.20	0.94	0.76	0.34
Uniform Delay, d1	58.0	41.5	40.6	62.4	51.2	49.7	61.6	44.2	30.2	61.0	38.7	31.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	56.5	1.0	2.3	12.2	4.4	6.8	45.7	24.3	0.3	29.1	2.2	0.7
Delay (s)	114.5	42.5	42.9	74.6	55.6	56.5	107.3	68.6	30.5	90.1	40.9	32.5
Level of Service	F	D	D	E	E	E	F	E	C	F	D	C
Approach Delay (s)		65.2			58.8			72.3			48.3	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	61.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5085	1583	3433	5085	1583	1770	6408	1583
Volume (vph)	190	480	480	110	590	240	730	1630	90	220	1660	140
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	196	495	495	113	608	247	753	1680	93	227	1711	144
RTOR Reduction (vph)	0	0	259	0	0	189	0	0	47	0	0	91
Lane Group Flow (vph)	196	495	236	113	608	58	753	1680	46	227	1711	53
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	26.0	26.0	6.0	24.4	24.4	22.1	40.2	40.2	15.1	33.2	33.2
Effective Green, g (s)	8.6	28.0	28.0	6.0	25.4	25.4	22.1	42.2	42.2	15.1	35.2	35.2
Actuated g/C Ratio	0.08	0.26	0.26	0.06	0.24	0.24	0.21	0.39	0.39	0.14	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	5.0	5.0	2.0	3.4	3.4	2.0	4.1	4.1
Lane Grp Cap (vph)	275	924	413	99	1204	375	707	2000	623	249	2102	519
v/s Ratio Prot	0.06	0.14		c0.06	0.12		c0.22	c0.33		0.13	0.27	
v/s Ratio Perm			c0.15			0.04			0.03			0.03
v/c Ratio	0.71	0.54	0.57	1.14	0.50	0.16	1.07	0.84	0.07	0.91	0.81	0.10
Uniform Delay, d1	48.1	34.1	34.4	50.6	35.5	32.5	42.6	29.5	20.3	45.4	33.0	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.9	2.7	133.6	0.7	0.4	52.5	4.4	0.2	33.8	3.6	0.4
Delay (s)	55.2	35.0	37.1	184.2	36.2	32.9	95.1	33.9	20.6	79.2	36.6	25.5
Level of Service	E	C	D	F	D	C	F	C	C	E	D	C
Approach Delay (s)		39.2			52.6			51.7			40.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	46.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	107.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.95			0.95					1.00		1.00
Frt		0.99			0.89					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		3491			3139					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		3491			3139					1770		1583
Volume (vph)	0	1310	130	0	170	520	0	0	0	100	0	180
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	1351	134	0	175	536	0	0	0	103	0	186
RTOR Reduction (vph)	0	11	0	0	210	0	0	0	0	0	0	152
Lane Group Flow (vph)	0	1474	0	0	501	0	0	0	0	103	0	34
Turn Type										Prot		custom
Protected Phases		4			8					2		
Permitted Phases												2
Actuated Green, G (s)		23.3			23.3					7.0		7.0
Effective Green, g (s)		23.3			23.3					7.0		7.0
Actuated g/C Ratio		0.61			0.61					0.18		0.18
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2124			1910					323		289
v/s Ratio Prot		c0.42			0.16					c0.06		
v/s Ratio Perm												0.02
v/c Ratio		0.69			0.26					0.32		0.12
Uniform Delay, d1		5.1			3.5					13.6		13.1
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		1.0			0.1					0.6		0.2
Delay (s)		6.1			3.6					14.2		13.3
Level of Service		A			A					B		B
Approach Delay (s)		6.1			3.6			0.0			13.6	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.95			0.95		1.00		1.00			
Frt		0.94			0.99		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		3332			3502		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		3332			3502		1770		1583			
Volume (vph)	0	860	550	0	670	50	20	0	520	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	887	567	0	691	52	21	0	536	0	0	0
RTOR Reduction (vph)	0	203	0	0	11	0	0	0	46	0	0	0
Lane Group Flow (vph)	0	1251	0	0	732	0	21	0	490	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		20.4			20.4		17.1		17.1			
Effective Green, g (s)		20.4			20.4		17.1		17.1			
Actuated g/C Ratio		0.45			0.45		0.38		0.38			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1494			1570		665		595			
v/s Ratio Prot		c0.38			0.21		0.01					
v/s Ratio Perm									c0.31			
v/c Ratio		0.84			0.47		0.03		0.82			
Uniform Delay, d1		11.1			8.8		9.0		12.8			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		4.3			0.2		0.0		9.0			
Delay (s)		15.4			9.0		9.0		21.8			
Level of Service		B			A		A		C			
Approach Delay (s)		15.4			9.0			21.4			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	45.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0		4.0
Lane Util. Factor		0.91			0.91					1.00		1.00
Frt		0.96			0.88					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4895			4473					1770		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4895			4473					1770		1583
Volume (vph)	0	480	160	0	170	690	0	0	0	90	0	30
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	495	165	0	175	711	0	0	0	93	0	31
RTOR Reduction (vph)	0	84	0	0	362	0	0	0	0	0	0	26
Lane Group Flow (vph)	0	576	0	0	524	0	0	0	0	93	0	5
Turn Type										Prot		custom
Protected Phases		4			8					1		
Permitted Phases												1
Actuated Green, G (s)		11.1			11.1					3.5		3.5
Effective Green, g (s)		11.1			11.1					3.5		3.5
Actuated g/C Ratio		0.49			0.49					0.15		0.15
Clearance Time (s)		4.0			4.0					4.0		4.0
Vehicle Extension (s)		3.0			3.0					3.0		3.0
Lane Grp Cap (vph)		2404			2197					274		245
v/s Ratio Prot		c0.12			0.12					c0.05		
v/s Ratio Perm												0.00
v/c Ratio		0.24			0.24					0.34		0.02
Uniform Delay, d1		3.3			3.3					8.5		8.1
Progression Factor		1.00			1.00					1.00		1.00
Incremental Delay, d2		0.1			0.1					0.7		0.0
Delay (s)		3.4			3.4					9.3		8.1
Level of Service		A			A					A		A
Approach Delay (s)		3.4			3.4			0.0			9.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	3.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	22.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0		4.0			
Lane Util. Factor		0.91			0.91		1.00		1.00			
Frt		0.98			0.96		1.00		0.85			
Flt Protected		1.00			1.00		0.95		1.00			
Satd. Flow (prot)		4992			4884		1770		1583			
Flt Permitted		1.00			1.00		0.95		1.00			
Satd. Flow (perm)		4992			4884		1770		1583			
Volume (vph)	0	500	70	0	780	280	80	0	1110	0	0	0
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	515	72	0	804	289	82	0	1144	0	0	0
RTOR Reduction (vph)	0	28	0	0	101	0	0	0	25	0	0	0
Lane Group Flow (vph)	0	559	0	0	992	0	82	0	1119	0	0	0
Turn Type							Prot		custom			
Protected Phases		4			8		2					
Permitted Phases									2			
Actuated Green, G (s)		15.8			15.8		41.0		41.0			
Effective Green, g (s)		15.8			15.8		41.0		41.0			
Actuated g/C Ratio		0.24			0.24		0.63		0.63			
Clearance Time (s)		4.0			4.0		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		1217			1191		1120		1002			
v/s Ratio Prot		0.11			c0.20		0.05					
v/s Ratio Perm									c0.71			
v/c Ratio		0.46			0.83		0.07		1.12			
Uniform Delay, d1		20.9			23.3		4.6		11.9			
Progression Factor		1.00			1.00		1.00		1.00			
Incremental Delay, d2		0.3			5.1		0.0		66.3			
Delay (s)		21.1			28.4		4.6		78.2			
Level of Service		C			C		A		E			
Approach Delay (s)		21.1			28.4			73.3			0.0	
Approach LOS		C			C			E			A	

Intersection Summary			
HCM Average Control Delay	45.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	680	70	320	1170	10	80
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	701	72	330	1206	10	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.82	
vC, conflicting volume			773		2000	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			773		2000	387
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			61		60	87
cM capacity (veh/h)			838		26	612

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	467	306	330	603	603	10	82
Volume Left	0	0	330	0	0	10	0
Volume Right	0	72	0	0	0	0	82
cSH	1700	1700	838	1700	1700	26	612
Volume to Capacity	0.27	0.18	0.39	0.35	0.35	0.40	0.13
Queue Length 95th (ft)	0	0	47	0	0	30	12
Control Delay (s)	0.0	0.0	12.1	0.0	0.0	215.8	11.8
Lane LOS			B			F	B
Approach Delay (s)	0.0		2.6			34.5	
Approach LOS						D	

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3530		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3530		1770	1583
Volume (vph)	60	710	1130	20	60	370
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	732	1165	21	62	381
RTOR Reduction (vph)	0	0	2	0	0	145
Lane Group Flow (vph)	62	732	1184	0	62	236
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	2.8	30.3	23.5		12.8	12.8
Effective Green, g (s)	2.8	30.3	23.5		12.8	12.8
Actuated g/C Ratio	0.05	0.59	0.46		0.25	0.25
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	97	2098	1623		443	397
v/s Ratio Prot	c0.04	0.21	c0.34		0.04	
v/s Ratio Perm						c0.15
v/c Ratio	0.64	0.35	0.73		0.14	0.60
Uniform Delay, d1	23.7	5.3	11.2		14.9	16.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.0	0.1	1.7		0.1	2.4
Delay (s)	36.7	5.4	12.9		15.0	19.3
Level of Service	D	A	B		B	B
Approach Delay (s)		7.9	12.9		18.7	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	50	100	20	60	10	20	190	110	10	460	50
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	52	103	21	62	10	21	196	113	10	474	52

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	93	330	536
Volume Left (vph)	10	21	21	10
Volume Right (vph)	103	10	113	52
Hadj (s)	-0.33	0.01	-0.16	-0.02
Departure Headway (s)	6.0	6.6	5.4	5.2
Degree Utilization, x	0.28	0.17	0.49	0.78
Capacity (veh/h)	530	474	624	671
Control Delay (s)	11.4	10.9	13.5	24.1
Approach Delay (s)	11.4	10.9	13.5	24.1
Approach LOS	B	B	B	C

Intersection Summary			
Delay	18.0		
HCM Level of Service	C		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3533		1770	3500		1770	1726		1770	1784	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3533		1770	3500		1770	1726		1770	1784	
Volume (vph)	100	870	10	230	1000	80	10	230	220	200	330	130
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	897	10	237	1031	82	10	237	227	206	340	134
RTOR Reduction (vph)	0	1	0	0	6	0	0	38	0	0	15	0
Lane Group Flow (vph)	103	906	0	237	1107	0	10	426	0	206	459	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	24.8		13.0	31.8		0.8	26.9		9.1	35.2	
Effective Green, g (s)	6.0	24.8		13.0	31.8		0.8	26.9		9.1	35.2	
Actuated g/C Ratio	0.07	0.28		0.14	0.35		0.01	0.30		0.10	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	118	976		256	1239		16	517		179	699	
v/s Ratio Prot	0.06	0.26		c0.13	c0.32		0.01	c0.25		c0.12	0.26	
v/s Ratio Perm												
v/c Ratio	0.87	0.93		0.93	0.89		0.62	0.82		1.15	0.66	
Uniform Delay, d1	41.5	31.6		37.9	27.4		44.4	29.3		40.4	22.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.0	14.4		36.5	8.5		57.6	10.3		113.7	2.2	
Delay (s)	87.5	46.1		74.5	35.9		101.9	39.5		154.0	24.6	
Level of Service	F	D		E	D		F	D		F	C	
Approach Delay (s)		50.3			42.7			40.9			63.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	150	10	40	30	10	10	20	70	10	10	560	80
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	155	10	41	31	10	10	21	72	10	10	577	82

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	206	52	103	670
Volume Left (vph)	155	31	21	10
Volume Right (vph)	41	10	10	82
Hadj (s)	0.06	0.03	0.01	-0.04
Departure Headway (s)	6.1	6.4	5.7	4.9
Degree Utilization, x	0.35	0.09	0.16	0.90
Capacity (veh/h)	571	525	601	732
Control Delay (s)	12.2	10.0	9.8	35.6
Approach Delay (s)	12.2	10.0	9.8	35.6
Approach LOS	B	B	A	E

Intersection Summary			
Delay	27.1		
HCM Level of Service	D		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1290	40	110	820	70	250
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1330	41	113	845	72	258
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.88	
vC, conflicting volume			1371		2000	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1371		2000	686
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			77		0	34
cM capacity (veh/h)			496		35	390

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	887	485	113	423	423	72	258
Volume Left	0	0	113	0	0	72	0
Volume Right	0	41	0	0	0	0	258
cSH	1700	1700	496	1700	1700	35	390
Volume to Capacity	0.52	0.29	0.23	0.25	0.25	2.04	0.66
Queue Length 95th (ft)	0	0	22	0	0	200	114
Control Delay (s)	0.0	0.0	14.4	0.0	0.0	727.5	30.5
Lane LOS			B			F	D
Approach Delay (s)	0.0		1.7			182.9	
Approach LOS						F	

Intersection Summary			
Average Delay	23.3		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3503		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3503		1770	1583
Volume (vph)	350	1190	830	60	20	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	361	1227	856	62	21	113
RTOR Reduction (vph)	0	0	5	0	0	100
Lane Group Flow (vph)	361	1227	913	0	21	13
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.6	39.4	22.8		6.3	6.3
Effective Green, g (s)	12.6	39.4	22.8		6.3	6.3
Actuated g/C Ratio	0.23	0.73	0.42		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	415	2597	1487		208	186
v/s Ratio Prot	c0.20	0.35	c0.26		c0.01	
v/s Ratio Perm						0.01
v/c Ratio	0.87	0.47	0.61		0.10	0.07
Uniform Delay, d1	19.8	2.9	12.0		21.2	21.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	17.4	0.1	0.8		0.2	0.2
Delay (s)	37.1	3.1	12.8		21.4	21.3
Level of Service	D	A	B		C	C
Approach Delay (s)		10.8	12.8		21.3	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	40	60	60	110	70	10	120	410	30	10	240	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	41	62	62	113	72	10	124	423	31	10	247	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	196	577	268
Volume Left (vph)	41	113	124	10
Volume Right (vph)	62	10	31	10
Hadj (s)	-0.14	0.12	0.04	0.02
Departure Headway (s)	6.9	7.0	5.8	6.3
Degree Utilization, x	0.31	0.38	0.93	0.47
Capacity (veh/h)	487	484	611	543
Control Delay (s)	13.0	14.3	44.4	14.9
Approach Delay (s)	13.0	14.3	44.4	14.9
Approach LOS	B	B	E	B

Intersection Summary			
Delay	28.7		
HCM Level of Service	D		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3535		1770	3442		1770	1742		1770	1780	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3535		1770	3442		1770	1742		1770	1780	
Volume (vph)	90	1130	10	220	930	210	10	330	250	110	260	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	1165	10	227	959	216	10	340	258	113	268	113
RTOR Reduction (vph)	0	1	0	0	22	0	0	29	0	0	16	0
Lane Group Flow (vph)	93	1174	0	227	1153	0	10	569	0	113	365	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.6	30.8		11.0	36.2		0.8	30.2		6.0	35.4	
Effective Green, g (s)	5.6	30.8		11.0	36.2		0.8	30.2		6.0	35.4	
Actuated g/C Ratio	0.06	0.33		0.12	0.39		0.01	0.32		0.06	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	1158		207	1326		15	560		113	670	
v/s Ratio Prot	0.05	c0.33		c0.13	0.34		0.01	c0.33		c0.06	0.21	
v/s Ratio Perm												
v/c Ratio	0.89	1.01		1.10	0.87		0.67	1.02		1.00	0.55	
Uniform Delay, d1	43.9	31.6		41.5	26.7		46.5	31.9		44.0	23.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.9	30.0		90.8	6.4		75.9	42.0		84.7	0.9	
Delay (s)	96.8	61.6		132.3	33.1		122.3	73.9		128.7	23.9	
Level of Service	F	E		F	C		F	E		F	C	
Approach Delay (s)		64.2			49.1			74.7			47.9	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	58.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	120	10	10	20	10	10	50	520	30	30	190	160
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	124	10	10	21	10	10	52	536	31	31	196	165

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	144	41	619	392
Volume Left (vph)	124	21	52	31
Volume Right (vph)	10	10	31	165
Hadj (s)	0.16	-0.02	0.02	-0.20
Departure Headway (s)	6.7	6.9	5.1	5.2
Degree Utilization, x	0.27	0.08	0.88	0.57
Capacity (veh/h)	503	466	693	652
Control Delay (s)	12.1	10.4	34.0	14.9
Approach Delay (s)	12.1	10.4	34.0	14.9
Approach LOS	B	B	D	B

Intersection Summary			
Delay	24.3		
HCM Level of Service	C		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	670	50	340	1200	10	90
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	691	52	351	1237	10	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.81	
vC, conflicting volume			742		2036	371
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			742		2045	371
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			59		56	85
cM capacity (veh/h)			861		23	626

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	460	282	351	619	619	10	93
Volume Left	0	0	351	0	0	10	0
Volume Right	0	52	0	0	0	0	93
cSH	1700	1700	861	1700	1700	23	626
Volume to Capacity	0.27	0.17	0.41	0.36	0.36	0.44	0.15
Queue Length 95th (ft)	0	0	50	0	0	33	13
Control Delay (s)	0.0	0.0	12.0	0.0	0.0	249.5	11.7
Lane LOS			B			F	B
Approach Delay (s)	0.0		2.7			35.5	
Approach LOS						E	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3530		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3530		1770	1583
Volume (vph)	70	690	1160	20	60	380
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	711	1196	21	62	392
RTOR Reduction (vph)	0	0	2	0	0	142
Lane Group Flow (vph)	72	711	1215	0	62	250
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	2.8	31.2	24.4		13.3	13.3
Effective Green, g (s)	2.8	31.2	24.4		13.3	13.3
Actuated g/C Ratio	0.05	0.59	0.46		0.25	0.25
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	94	2103	1641		448	401
v/s Ratio Prot	c0.04	0.20	c0.34		0.04	
v/s Ratio Perm						c0.16
v/c Ratio	0.77	0.34	0.74		0.14	0.62
Uniform Delay, d1	24.5	5.4	11.5		15.2	17.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	30.4	0.1	1.8		0.1	3.0
Delay (s)	54.9	5.5	13.3		15.3	20.4
Level of Service	D	A	B		B	C
Approach Delay (s)		10.0	13.3		19.7	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	52.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	50	80	20	50	10	20	180	120	10	440	40
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	52	82	21	52	10	21	186	124	10	454	41

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	144	82	330	505
Volume Left (vph)	10	21	21	10
Volume Right (vph)	82	10	124	41
Hadj (s)	-0.29	0.01	-0.18	-0.01
Departure Headway (s)	5.9	6.4	5.2	5.1
Degree Utilization, x	0.24	0.15	0.47	0.71
Capacity (veh/h)	521	483	653	688
Control Delay (s)	10.7	10.4	12.7	19.7
Approach Delay (s)	10.7	10.4	12.7	19.7
Approach LOS	B	B	B	C

Intersection Summary			
Delay	15.6		
HCM Level of Service	C		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3533		1770	3500		1770	1726		1770	1795	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3533		1770	3500		1770	1726		1770	1795	
Volume (vph)	100	870	10	210	1000	80	10	210	200	200	340	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	897	10	216	1031	82	10	216	206	206	351	113
RTOR Reduction (vph)	0	1	0	0	6	0	0	38	0	0	12	0
Lane Group Flow (vph)	103	906	0	216	1107	0	10	384	0	206	452	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.1	24.5		12.3	30.7		0.7	25.1		9.1	33.5	
Effective Green, g (s)	6.1	24.5		12.3	30.7		0.7	25.1		9.1	33.5	
Actuated g/C Ratio	0.07	0.28		0.14	0.35		0.01	0.29		0.10	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	124	995		250	1235		14	498		185	691	
v/s Ratio Prot	0.06	0.26		c0.12	c0.32		0.01	c0.22		c0.12	0.25	
v/s Ratio Perm												
v/c Ratio	0.83	0.91		0.86	0.90		0.71	0.77		1.11	0.65	
Uniform Delay, d1	39.9	30.2		36.5	26.6		43.1	28.3		39.0	22.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.4	12.1		25.2	8.7		100.1	7.2		99.9	2.2	
Delay (s)	75.3	42.3		61.7	35.4		143.2	35.5		138.8	24.2	
Level of Service	E	D		E	D		F	D		F	C	
Approach Delay (s)		45.7			39.6			38.0			59.5	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	45.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	160	10	40	30	10	10	10	70	10	10	560	90
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	165	10	41	31	10	10	10	72	10	10	577	93

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	216	52	93	680
Volume Left (vph)	165	31	10	10
Volume Right (vph)	41	10	10	93
Hadj (s)	0.07	0.03	-0.01	-0.04
Departure Headway (s)	6.1	6.4	5.7	4.9
Degree Utilization, x	0.37	0.09	0.15	0.92
Capacity (veh/h)	573	527	598	731
Control Delay (s)	12.5	10.1	9.7	38.2
Approach Delay (s)	12.5	10.1	9.7	38.2
Approach LOS	B	B	A	E

Intersection Summary			
Delay	28.9		
HCM Level of Service	D		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1320	30	110	820	50	270
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1361	31	113	845	52	278
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.85	
vC, conflicting volume			1392		2026	696
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1392		2030	696
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			77		0	28
cM capacity (veh/h)			487		32	384

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	907	485	113	423	423	52	278
Volume Left	0	0	113	0	0	52	0
Volume Right	0	31	0	0	0	0	278
cSH	1700	1700	487	1700	1700	32	384
Volume to Capacity	0.53	0.29	0.23	0.25	0.25	1.59	0.72
Queue Length 95th (ft)	0	0	22	0	0	144	139
Control Delay (s)	0.0	0.0	14.6	0.0	0.0	563.0	35.4
Lane LOS			B			F	E
Approach Delay (s)	0.0		1.7			117.9	
Approach LOS						F	

Intersection Summary			
Average Delay	15.1		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3508		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3508		1770	1583
Volume (vph)	370	1220	820	50	20	110
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	381	1258	845	52	21	113
RTOR Reduction (vph)	0	0	5	0	0	99
Lane Group Flow (vph)	381	1258	892	0	21	14
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	16.5	39.7	19.2		6.8	6.8
Effective Green, g (s)	16.5	39.7	19.2		6.8	6.8
Actuated g/C Ratio	0.30	0.73	0.35		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	536	2578	1236		221	198
v/s Ratio Prot	c0.22	0.36	c0.25		c0.01	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.49	0.72		0.10	0.07
Uniform Delay, d1	16.9	3.1	15.3		21.1	21.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.4	0.1	2.1		0.2	0.2
Delay (s)	21.3	3.3	17.4		21.3	21.2
Level of Service	C	A	B		C	C
Approach Delay (s)		7.5	17.4		21.2	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	50	40	100	70	10	90	400	40	10	240	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	31	52	41	103	72	10	93	412	41	10	247	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	124	186	546	268
Volume Left (vph)	31	103	93	10
Volume Right (vph)	41	10	41	10
Hadj (s)	-0.12	0.11	0.02	0.02
Departure Headway (s)	6.6	6.6	5.5	5.9
Degree Utilization, x	0.23	0.34	0.83	0.44
Capacity (veh/h)	490	497	645	557
Control Delay (s)	11.5	13.0	29.5	13.5
Approach Delay (s)	11.5	13.0	29.5	13.5
Approach LOS	B	B	D	B

Intersection Summary			
Delay	21.0		
HCM Level of Service	C		
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.93		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3535		1770	3449		1770	1741		1770	1769	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3535		1770	3449		1770	1741		1770	1769	
Volume (vph)	110	1120	10	200	930	190	10	310	240	100	240	120
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	113	1155	10	206	959	196	10	320	247	103	247	124
RTOR Reduction (vph)	0	1	0	0	20	0	0	30	0	0	19	0
Lane Group Flow (vph)	113	1164	0	206	1135	0	10	537	0	103	352	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	30.0		11.0	34.0		0.8	30.2		6.0	35.4	
Effective Green, g (s)	7.0	30.0		11.0	34.0		0.8	30.2		6.0	35.4	
Actuated g/C Ratio	0.08	0.32		0.12	0.36		0.01	0.32		0.06	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	1138		209	1258		15	564		114	672	
v/s Ratio Prot	0.06	c0.33		c0.12	c0.33		0.01	c0.31		c0.06	0.20	
v/s Ratio Perm												
v/c Ratio	0.85	1.02		0.99	0.90		0.67	0.95		0.90	0.52	
Uniform Delay, d1	42.6	31.6		41.0	28.0		46.1	30.8		43.3	22.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.8	32.7		57.7	9.2		75.9	26.4		54.9	0.7	
Delay (s)	79.4	64.3		98.7	37.2		121.9	57.2		98.2	23.1	
Level of Service	E	E		F	D		F	E		F	C	
Approach Delay (s)		65.6			46.5			58.3			39.4	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	54.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	140	10	10	20	10	10	50	480	30	30	190	160
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	144	10	10	21	10	10	52	495	31	31	196	165

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	41	577	392
Volume Left (vph)	144	21	52	31
Volume Right (vph)	10	10	31	165
Hadj (s)	0.17	-0.02	0.02	-0.20
Departure Headway (s)	6.6	6.9	5.2	5.3
Degree Utilization, x	0.30	0.08	0.84	0.57
Capacity (veh/h)	503	457	677	657
Control Delay (s)	12.5	10.4	28.9	15.0
Approach Delay (s)	12.5	10.4	28.9	15.0
Approach LOS	B	B	D	C

Intersection Summary			
Delay	21.3		
HCM Level of Service	C		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	690	10	240	1190	10	70
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	711	10	247	1227	10	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.80	
vC, conflicting volume			722		1825	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			722		1782	361
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			72		76	89
cM capacity (veh/h)			876		42	636

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	474	247	247	613	613	10	72
Volume Left	0	0	247	0	0	10	0
Volume Right	0	10	0	0	0	0	72
cSH	1700	1700	876	1700	1700	42	636
Volume to Capacity	0.28	0.15	0.28	0.36	0.36	0.24	0.11
Queue Length 95th (ft)	0	0	29	0	0	20	10
Control Delay (s)	0.0	0.0	10.7	0.0	0.0	115.9	11.4
Lane LOS			B			F	B
Approach Delay (s)	0.0		1.8			24.5	
Approach LOS						C	

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3536		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3536		1770	1583
Volume (vph)	10	750	1400	10	20	30
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	773	1443	10	21	31
RTOR Reduction (vph)	0	0	0	0	0	29
Lane Group Flow (vph)	10	773	1453	0	21	2
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	0.6	29.0	24.4		3.1	3.1
Effective Green, g (s)	0.6	29.0	24.4		3.1	3.1
Actuated g/C Ratio	0.01	0.72	0.61		0.08	0.08
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	26	2559	2152		137	122
v/s Ratio Prot	0.01	c0.22	c0.41		c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.38	0.30	0.68		0.15	0.02
Uniform Delay, d1	19.6	2.0	5.2		17.3	17.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.2	0.1	0.8		0.5	0.1
Delay (s)	28.8	2.0	6.1		17.8	17.2
Level of Service	C	A	A		B	B
Approach Delay (s)		2.4	6.1		17.4	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	5.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	60	90	260	30	10	20	10	180	10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	62	93	268	31	10	21	10	186	10	10	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	309	216	31
Volume Left (vph)	10	268	21	10
Volume Right (vph)	93	10	186	10
Hadj (s)	-0.29	0.19	-0.46	-0.10
Departure Headway (s)	4.6	4.9	4.6	5.3
Degree Utilization, x	0.21	0.42	0.28	0.05
Capacity (veh/h)	717	699	712	595
Control Delay (s)	8.9	11.4	9.4	8.5
Approach Delay (s)	8.9	11.4	9.4	8.5
Approach LOS	A	B	A	A

Intersection Summary			
Delay	10.1		
HCM Level of Service	B		
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3405		1770	1776		1770	1728	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3495		1770	3405		1770	1776		1770	1728	
Volume (vph)	190	660	60	160	860	290	40	220	100	520	480	450
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	196	680	62	165	887	299	41	227	103	536	495	464
RTOR Reduction (vph)	0	8	0	0	37	0	0	19	0	0	37	0
Lane Group Flow (vph)	196	734	0	165	1149	0	41	311	0	536	922	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	26.3		11.5	31.8		2.3	24.5		9.0	31.2	
Effective Green, g (s)	6.0	26.3		11.5	31.8		2.3	24.5		9.0	31.2	
Actuated g/C Ratio	0.07	0.30		0.13	0.36		0.03	0.28		0.10	0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	122	1053		233	1240		47	498		182	618	
v/s Ratio Prot	c0.11	0.21		c0.09	c0.34		0.02	0.18		c0.30	c0.53	
v/s Ratio Perm												
v/c Ratio	1.61	0.70		0.71	0.93		0.87	0.63		2.95	1.49	
Uniform Delay, d1	40.6	27.0		36.3	26.6		42.4	27.4		39.1	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	307.6	2.0		9.4	11.8		84.1	2.4		890.0	230.1	
Delay (s)	348.3	29.0		45.7	38.4		126.5	29.8		929.2	258.2	
Level of Service	F	C		D	D		F	C		F	F	
Approach Delay (s)		95.7			39.3			40.5			498.7	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM Average Control Delay	217.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	10	40	30	10	10	10	70	10	10	390	350
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	237	10	41	31	10	10	10	72	10	10	402	361

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	289	52	93	773
Volume Left (vph)	237	31	10	10
Volume Right (vph)	41	10	10	361
Hadj (s)	0.11	0.03	-0.01	-0.24
Departure Headway (s)	6.2	6.7	6.1	4.9
Degree Utilization, x	0.50	0.10	0.16	1.06
Capacity (veh/h)	571	508	563	724
Control Delay (s)	15.2	10.4	10.2	72.7
Approach Delay (s)	15.2	10.4	10.2	72.7
Approach LOS	C	B	B	F

Intersection Summary			
Delay	51.5		
HCM Level of Service	F		
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1210	10	80	830	10	260
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1247	10	82	856	10	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				714		
pX, platoon unblocked					0.97	
vC, conflicting volume			1258		1845	629
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1258		1841	629
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		81	37
cM capacity (veh/h)			549		55	425

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	832	426	82	428	428	10	268
Volume Left	0	0	82	0	0	10	0
Volume Right	0	10	0	0	0	0	268
cSH	1700	1700	549	1700	1700	55	425
Volume to Capacity	0.49	0.25	0.15	0.25	0.25	0.19	0.63
Queue Length 95th (ft)	0	0	13	0	0	15	105
Control Delay (s)	0.0	0.0	12.7	0.0	0.0	84.5	26.8
Lane LOS			B			F	D
Approach Delay (s)	0.0		1.1			29.0	
Approach LOS						D	

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3522		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3522		1770	1583
Volume (vph)	30	1440	900	30	10	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	1485	928	31	10	21
RTOR Reduction (vph)	0	0	2	0	0	19
Lane Group Flow (vph)	31	1485	957	0	10	2
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	0.8	27.7	22.9		3.0	3.0
Effective Green, g (s)	0.8	27.7	22.9		3.0	3.0
Actuated g/C Ratio	0.02	0.72	0.59		0.08	0.08
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	37	2533	2084		137	123
v/s Ratio Prot	0.02	c0.42	0.27		c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.84	0.59	0.46		0.07	0.01
Uniform Delay, d1	18.9	2.7	4.4		16.6	16.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	84.7	0.3	0.2		0.2	0.0
Delay (s)	103.6	3.0	4.6		16.8	16.5
Level of Service	F	A	A		B	B
Approach Delay (s)		5.1	4.6		16.6	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	5.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	40	40	230	60	10	80	10	220	10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	41	41	237	62	10	82	10	227	10	10	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	93	309	320	31
Volume Left (vph)	10	237	82	10
Volume Right (vph)	41	10	227	10
Hadj (s)	-0.21	0.17	-0.34	-0.10
Departure Headway (s)	5.0	5.1	4.6	5.3
Degree Utilization, x	0.13	0.44	0.41	0.05
Capacity (veh/h)	648	672	730	596
Control Delay (s)	8.7	11.9	10.9	8.6
Approach Delay (s)	8.7	11.9	10.9	8.6
Approach LOS	A	B	B	A

Intersection Summary			
Delay	10.9		
HCM Level of Service	B		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3513		1770	3312		1770	1771		1770	1743	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3513		1770	3312		1770	1771		1770	1743	
Volume (vph)	420	980	50	120	720	540	60	390	190	380	320	240
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	433	1010	52	124	742	557	62	402	196	392	330	247
RTOR Reduction (vph)	0	4	0	0	152	0	0	19	0	0	29	0
Lane Group Flow (vph)	433	1058	0	124	1147	0	62	579	0	392	548	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	32.4		8.5	33.9		3.2	27.9		6.0	30.7	
Effective Green, g (s)	7.0	32.4		8.5	33.9		3.2	27.9		6.0	30.7	
Actuated g/C Ratio	0.08	0.36		0.09	0.37		0.04	0.31		0.07	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	1254		166	1237		62	544		117	589	
v/s Ratio Prot	c0.24	0.30		0.07	c0.35		0.04	c0.33		c0.22	c0.31	
v/s Ratio Perm												
v/c Ratio	3.18	0.84		0.75	0.93		1.00	1.06		3.35	0.93	
Uniform Delay, d1	41.9	26.9		40.1	27.3		43.8	31.4		42.4	29.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1001.7	5.4		16.6	11.9		114.3	56.6		1079.2	21.5	
Delay (s)	1043.6	32.2		56.7	39.2		158.1	88.1		1121.6	50.5	
Level of Service	F	C		E	D		F	F		F	D	
Approach Delay (s)		325.1			40.7			94.6			483.8	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM Average Control Delay	236.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	127.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	320	10	10	10	10	10	40	350	30	10	160	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	330	10	10	10	10	10	41	361	31	10	165	309

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	351	31	433	485
Volume Left (vph)	330	10	41	10
Volume Right (vph)	10	10	31	309
Hadj (s)	0.20	-0.10	0.01	-0.34
Departure Headway (s)	6.8	7.7	6.2	5.8
Degree Utilization, x	0.66	0.07	0.75	0.78
Capacity (veh/h)	496	383	558	595
Control Delay (s)	22.2	11.3	25.3	26.4
Approach Delay (s)	22.2	11.3	25.3	26.4
Approach LOS	C	B	D	D

Intersection Summary			
Delay	24.5		
HCM Level of Service	C		
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

Appendix C-2: Freeway Operations

Cumulative No Project Conditions

Cumulative Plus Preferred Alternative Conditions

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento Co.
Analysis Year Cumulative No Project
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information | *Flow Rate Calculation* | *Speed Calculation* | *Results*

	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	HOV Lane?	HOV Lane Volume	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	4,670	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,491	65.0	-	**-**	**F**
2	SR 99 SB	Riego Road to Elverta Road	AM	4,990	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,662	65.0	-	**-**	**F**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	4,740	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,529	65.0	-	**-**	**F**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	5,650	0.97	3	Yes	904	Level	7%	0%	1.5	1.2	0.966	1.00	2,532	65.0	-	**-**	**F**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	3,200	0.97	3	Yes	864	Level	23%	0%	1.5	1.2	0.897	1.00	1,343	65.0	60.5	**22.2**	**C**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	2,800	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	1,609	65.0	60.5	**26.6**	**D**
7	SR 99 NB	Elverta Road to Riego Road	AM	2,370	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	1,362	65.0	60.5	**22.5**	**C**
8	SR 99 NB	Riego Road to Sankey Road	AM	1,730	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	994	65.0	60.5	**16.4**	**B**
1	SR-99 SB	Sankey Road to Riego Road	PM	2,440	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,289	65.0	60.5	**21.3**	**C**
2	SR 99 SB	Riego Road to Elverta Road	PM	3,190	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,685	65.0	60.4	**27.9**	**D**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	3,320	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,754	65.0	60.3	**29.1**	**D**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	3,940	0.97	3	Yes	630	Level	5%	0%	1.5	1.2	0.976	1.00	1,749	65.0	60.3	**29.0**	**D**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	5,940	0.97	3	Yes	1604	Level	13%	0%	1.5	1.2	0.939	1.00	2,380	65.0	-	**-**	**F**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	4,880	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,679	65.0	-	**-**	**F**
7	SR 99 NB	Elverta Road to Riego Road	PM	5,130	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,816	65.0	-	**-**	**F**
8	SR 99 NB	Riego Road to Sankey Road	PM	4,390	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,410	65.0	-	**-**	**F**

HCM 2000
Merge Ramp Junctions
Capacity Analysis

Jurisdiction Sacramento Co.
Analysis Year Cumulative No Project
Analyst F&P
Agency or Company Caltrans
Date 40455.00
Project Description Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	On-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	AM	2	65.0	4,340	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	4,631	4,631
M-2	SR 99 SB	Elverta Road Slip On	AM	2	65.0	4,710	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	5,026	5,026
M-3	SR 99 NB	Elverta Road Loop On	AM	2	65.0	2,140	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,460	2,460
M-4	SR 99 NB	Elverta Road Slip On	AM	2	65.0	2,290	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,632	2,632
M-1	SR-99 SB	Elverta Road Loop On	PM	2	65.0	2,900	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,064	3,064
M-2	SR 99 SB	Elverta Road Slip On	PM	2	65.0	3,170	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,350	3,350
M-3	SR 99 NB	Elverta Road Loop On	PM	2	65.0	4,410	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	4,842	4,842
M-4	SR 99 NB	Elverta Road Slip On	PM	2	65.0	5,080	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	5,578	5,578

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*On-Ramp Data*							*On-Ramp Volume Adjustment*									
	Freeway/				S_{FR}	V_R	Accel Lane (ft)					Truck/							Flow Rate
	Direction	On-ramp	Type	Lanes	(mph)	(vph)	L_{A1}	L_{A2}	L_{Aeff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P		v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	370	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00		395
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	30	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00		32
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	150	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00		172
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	80	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00		92
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	270	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00		285
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	150	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00		159
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	670	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00		736
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	50	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00		55

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information | *v_{12} Estimation*

	Freeway/ Direction	On-ramp	L_{EQ} 25-2	L_{EQ} 25-3	P_{FM} Equations 1	P_{FM} Equations 2	P_{FM} Equations 3	P_{FM}	v_{12} (pcph)
M-1	SR-99 SB	Elverta Road Loop On			0.585			1.000	4,631
M-2	SR 99 SB	Elverta Road Slip On			0.585			1.000	5,026
M-3	SR 99 NB	Elverta Road Loop On			0.585			1.000	2,460
M-4	SR 99 NB	Elverta Road Slip On			0.585			1.000	2,632
M-1	SR-99 SB	Elverta Road Loop On			0.585			1.000	3,064
M-2	SR 99 SB	Elverta Road Slip On			0.585			1.000	3,350
M-3	SR 99 NB	Elverta Road Loop On			0.585			1.000	4,842
M-4	SR 99 NB	Elverta Road Slip On			0.585			1.000	5,578

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*												
	Freeway/ Direction	On-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	v_{R12a} (pcph)	Max v_{R12a} (pcph)	LOS F?
M-1	SR-99 SB	Elverta Road Loop On	4,631	4,700	No	5,026	4,700	**Yes**	0	No	No	4,631	5,026	4,600	**Yes**
M-2	SR 99 SB	Elverta Road Slip On	5,026	4,700	**Yes**	5,058	4,700	**Yes**	0	No	No	5,026	5,058	4,600	**Yes**
M-3	SR 99 NB	Elverta Road Loop On	2,460	4,800	No	2,632	4,800	No	0	No	No	2,460	2,632	4,600	No
M-4	SR 99 NB	Elverta Road Slip On	2,632	4,800	No	2,724	4,800	No	0	No	No	2,632	2,724	4,600	No
M-1	SR-99 SB	Elverta Road Loop On	3,064	4,800	No	3,350	4,800	No	0	No	No	3,064	3,350	4,600	No
M-2	SR 99 SB	Elverta Road Slip On	3,350	4,800	No	3,508	4,800	No	0	No	No	3,350	3,508	4,600	No
M-3	SR 99 NB	Elverta Road Loop On	4,842	4,800	**Yes**	5,578	4,800	**Yes**	0	No	No	4,842	5,578	4,600	**Yes**
M-4	SR 99 NB	Elverta Road Slip On	5,578	4,800	**Yes**	5,632	4,800	**Yes**	0	No	No	5,578	5,632	4,600	**Yes**

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information						*Results*		*Speed Estimation*			
	Freeway/ Direction	On-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. M_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
M-1	SR-99 SB	Elverta Road Loop On	395	1,900	No	**-**	**F**	-	-	-	-
M-2	SR 99 SB	Elverta Road Slip On	32	2,100	No	**-**	**F**	-	-	-	-
M-3	SR 99 NB	Elverta Road Loop On	172	1,900	No	**24.4**	**C**	0.363	56.7	0.0	56.7
M-4	SR 99 NB	Elverta Road Slip On	92	2,100	No	**25.1**	**C**	0.358	56.8	0.0	56.8
M-1	SR-99 SB	Elverta Road Loop On	285	1,900	No	**29.9**	**D**	0.420	55.3	0.0	55.3
M-2	SR 99 SB	Elverta Road Slip On	159	2,100	No	**31.2**	**D**	0.429	55.1	0.0	55.1
M-3	SR 99 NB	Elverta Road Loop On	736	1,900	No	**-**	**F**	1.340	34.2	0.0	34.2
M-4	SR 99 NB	Elverta Road Slip On	55	2,100	No	**-**	**F**	1.388	33.1	0.0	33.1

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

Jurisdiction Sacramento Co.
Analysis Year Cumulative No Project
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	Off-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	AM	2	65.0	4,990	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	5,324	5,324
D-2	SR 99 NB	Elverta Road Off Ramp	AM	2	65.0	2,800	0.97	Level	23.0%	0.0%	1.5	1.200	0.897	1.00	3,219	3,219
D-3	SR 99 SB	Elverta Road Off Ramp	PM	2	65.0	3,190	0.97	Level	5.0%	0.0%	1.5	1.200	0.976	1.00	3,371	3,371
D-4	SR 99 NB	Elverta Road Off Ramp	PM	2	65.0	4,880	0.97	Level	13.0%	0.0%	1.5	1.200	0.939	1.00	5,358	5,358

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Off-Ramp Data*							*Off-Ramp Volume Adjustment*								
	Freeway/				S_{FR}	V_R	Decel Lane (ft)					Truck/						Flow Rate
	Direction	Off-ramp	Type	Lanes	(mph)	(vph)	L_{D1}	L_{D2}	L_{Deff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P	v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	650	150		150	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	694
D-2	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	660	150		150	0.97	Level	23.0%	0.0%	1.5	1.2	0.897	1.00	759
D-3	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	290	150		150	0.97	Level	5.0%	0.0%	1.5	1.2	0.976	1.00	306
D-4	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	470	150		150	0.97	Level	13.0%	0.0%	1.5	1.2	0.939	1.00	516

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*v_{12} Estimation*						
	Freeway/		L_{EQ}		P_{FD} Equations				v_{12}
	Direction	Off-ramp	25-13	25-14	5	6	7	P_{FD}	(pcph)
D-1	SR 99 SB	Elverta Road Off Ramp			0.595			1.000	5,324
D-2	SR 99 NB	Elverta Road Off Ramp			0.645			1.000	3,219
D-3	SR 99 SB	Elverta Road Off Ramp			0.662			1.000	3,371
D-4	SR 99 NB	Elverta Road Off Ramp			0.602			1.000	5,358

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*											
	Freeway/ Direction	Off-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	Max v_{12} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?
D-1	SR 99 SB	Elverta Road Off Ramp	5,324	4,700	**Yes**	0	No	No	5,324	4,400	**Yes**	4,631	4,700	No
D-2	SR 99 NB	Elverta Road Off Ramp	3,219	4,800	No	0	No	No	3,219	4,400	No	2,460	4,800	No
D-3	SR 99 SB	Elverta Road Off Ramp	3,371	4,800	No	0	No	No	3,371	4,400	No	3,064	4,800	No
D-4	SR 99 NB	Elverta Road Off Ramp	5,358	4,800	**Yes**	0	No	No	5,358	4,400	**Yes**	4,842	4,800	**Yes**

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Results*						*Speed Estimation*			
	Freeway/ Direction	Off-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. D_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
D-1	SR 99 SB	Elverta Road Off Ramp	694	2,100	No	**-**	**F**	-	-	-	-
D-2	SR 99 NB	Elverta Road Off Ramp	759	2,100	No	**30.6**	**D**	0.366	56.6	0.0	56.6
D-3	SR 99 SB	Elverta Road Off Ramp	306	2,100	No	**31.9**	**D**	0.326	57.5	0.0	57.5
D-4	SR 99 NB	Elverta Road Off Ramp	516	2,100	No	**-**	**F**	0.344	57.1	0.0	57.1

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Cumulative Plus Pref. Alt.
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Flow Rate Calculation*													*Speed Calculation*		*Results*	
	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	HOV Lane?	HOV Lane Volume	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	4,630	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,470	65.0	-	**-**	**F**
2	SR 99 SB	Riego Road to Elverta Road	AM	5,010	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,673	65.0	-	**-**	**F**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	4,550	0.97	2	No		Level	7%	0%	1.5	1.2	0.966	1.00	2,427	65.0	-	**-**	**F**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	5,460	0.97	3	Yes	874	Level	7%	0%	1.5	1.2	0.966	1.00	2,447	65.0	-	**-**	**F**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	2,930	0.97	3	Yes	791	Level	23%	0%	1.5	1.2	0.897	1.00	1,229	65.0	60.5	**20.3**	**C**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	2,530	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	1,454	65.0	60.5	**24.0**	**C**
7	SR 99 NB	Elverta Road to Riego Road	AM	2,320	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	1,333	65.0	60.5	**22.0**	**C**
8	SR 99 NB	Riego Road to Sankey Road	AM	1,720	0.97	2	No		Level	23%	0%	1.5	1.2	0.897	1.00	989	65.0	60.5	**16.3**	**B**
1	SR-99 SB	Sankey Road to Riego Road	PM	2,410	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,273	65.0	60.5	**21.0**	**C**
2	SR 99 SB	Riego Road to Elverta Road	PM	3,170	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,675	65.0	60.5	**27.7**	**D**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	3,360	0.97	2	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,775	65.0	60.2	**29.5**	**D**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	3,970	0.97	3	Yes	635	Level	5%	0%	1.5	1.2	0.976	1.00	1,762	65.0	60.3	**29.2**	**D**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	6,100	0.97	3	Yes	1647	Level	13%	0%	1.5	1.2	0.939	1.00	2,445	65.0	-	**-**	**F**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	4,980	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,734	65.0	-	**-**	**F**
7	SR 99 NB	Elverta Road to Riego Road	PM	5,160	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,833	65.0	-	**-**	**F**
8	SR 99 NB	Riego Road to Sankey Road	PM	4,320	0.97	2	No		Level	13%	0%	1.5	1.2	0.939	1.00	2,372	65.0	-	**-**	**F**

HCM 2000
Merge Ramp Junctions
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Cumulative Plus Pref. Alt.
Analyst F&P
Agency or Company Caltrans
Date 40455.00
Project Description Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	On-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	AM	2	65.0	4,150	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	4,428	4,428
M-2	SR 99 SB	Elverta Road Slip On	AM	2	65.0	4,520	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	4,823	4,823
M-3	SR 99 NB	Elverta Road Loop On	AM	2	65.0	1,930	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,219	2,219
M-4	SR 99 NB	Elverta Road Slip On	AM	2	65.0	2,080	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,391	2,391
M-1	SR-99 SB	Elverta Road Loop On	PM	2	65.0	2,890	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,054	3,054
M-2	SR 99 SB	Elverta Road Slip On	PM	2	65.0	3,230	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,413	3,413
M-3	SR 99 NB	Elverta Road Loop On	PM	2	65.0	4,440	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	4,875	4,875
M-4	SR 99 NB	Elverta Road Slip On	PM	2	65.0	5,110	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	5,610	5,610

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*On-Ramp Data*							*On-Ramp Volume Adjustment*								
	Freeway/				S_{FR}	V_R	Accel Lane (ft)					Truck/						Flow Rate
	Direction	On-ramp	Type	Lanes	(mph)	(vph)	L_{A1}	L_{A2}	L_{Aeff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P	v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	370	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	395
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	30	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	32
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	150	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00	172
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	240	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00	276
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	340	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00	359
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	130	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00	137
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	670	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00	736
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	50	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00	55

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*v_{12} Estimation*						
	Freeway/		L_{EQ}		P_{FM} Equations				v_{12}
	Direction	On-ramp	25-2	25-3	1	2	3	P_{FM}	(pcph)
M-1	SR-99 SB	Elverta Road Loop On			0.585			1.000	4,428
M-2	SR 99 SB	Elverta Road Slip On			0.585			1.000	4,823
M-3	SR 99 NB	Elverta Road Loop On			0.585			1.000	2,219
M-4	SR 99 NB	Elverta Road Slip On			0.585			1.000	2,391
M-1	SR-99 SB	Elverta Road Loop On			0.585			1.000	3,054
M-2	SR 99 SB	Elverta Road Slip On			0.585			1.000	3,413
M-3	SR 99 NB	Elverta Road Loop On			0.585			1.000	4,875
M-4	SR 99 NB	Elverta Road Slip On			0.585			1.000	5,610

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*													
	Freeway/ Direction	On-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	v_{R12a} (pcph)	Max v_{R12a} (pcph)	LOS F?
M-1	SR-99 SB	Elverta Road Loop On	4,428	4,700	No	4,823	4,700	**Yes**	0	No	No	4,428	4,823	4,600	**Yes**
M-2	SR 99 SB	Elverta Road Slip On	4,823	4,700	**Yes**	4,855	4,700	**Yes**	0	No	No	4,823	4,855	4,600	**Yes**
M-3	SR 99 NB	Elverta Road Loop On	2,219	4,800	No	2,391	4,800	No	0	No	No	2,219	2,391	4,600	No
M-4	SR 99 NB	Elverta Road Slip On	2,391	4,800	No	2,667	4,800	No	0	No	No	2,391	2,667	4,600	No
M-1	SR-99 SB	Elverta Road Loop On	3,054	4,800	No	3,413	4,800	No	0	No	No	3,054	3,413	4,600	No
M-2	SR 99 SB	Elverta Road Slip On	3,413	4,800	No	3,551	4,800	No	0	No	No	3,413	3,551	4,600	No
M-3	SR 99 NB	Elverta Road Loop On	4,875	4,800	**Yes**	5,610	4,800	**Yes**	0	No	No	4,875	5,610	4,600	**Yes**
M-4	SR 99 NB	Elverta Road Slip On	5,610	4,800	**Yes**	5,665	4,800	**Yes**	0	No	No	5,610	5,665	4,600	**Yes**

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information						*Results*		*Speed Estimation*			
	Freeway/ Direction	On-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. M_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
M-1	SR-99 SB	Elverta Road Loop On	395	1,900	No	**-**	**F**	-	-	-	-
M-2	SR 99 SB	Elverta Road Slip On	32	2,100	No	**-**	**F**	-	-	-	-
M-3	SR 99 NB	Elverta Road Loop On	172	1,900	No	**22.5**	**C**	0.351	56.9	0.0	56.9
M-4	SR 99 NB	Elverta Road Slip On	276	2,100	No	**24.6**	**C**	0.355	56.8	0.0	56.8
M-1	SR-99 SB	Elverta Road Loop On	359	1,900	No	**30.4**	**D**	0.427	55.2	0.0	55.2
M-2	SR 99 SB	Elverta Road Slip On	137	2,100	No	**31.5**	**D**	0.434	55.0	0.0	55.0
M-3	SR 99 NB	Elverta Road Loop On	736	1,900	No	**-**	**F**	1.374	33.4	0.0	33.4
M-4	SR 99 NB	Elverta Road Slip On	55	2,100	No	**-**	**F**	1.424	32.2	0.0	32.2

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Cumulative Plus Pref. Alt.
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	Off-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	AM	2	65.0	5,010	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	5,346	5,346
D-2	SR 99 NB	Elverta Road Off Ramp	AM	2	65.0	2,530	0.97	Level	23.0%	0.0%	1.5	1.200	0.897	1.00	2,908	2,908
D-3	SR 99 SB	Elverta Road Off Ramp	PM	2	65.0	3,170	0.97	Level	5.0%	0.0%	1.5	1.200	0.976	1.00	3,350	3,350
D-4	SR 99 NB	Elverta Road Off Ramp	PM	2	65.0	4,980	0.97	Level	13.0%	0.0%	1.5	1.200	0.939	1.00	5,468	5,468

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Off-Ramp Data*							*Off-Ramp Volume Adjustment*								
	Freeway/				S_{FR}	V_R	Decel Lane (ft)					Truck/						Flow Rate
	Direction	Off-ramp	Type	Lanes	(mph)	(vph)	L_{D1}	L_{D2}	L_{Deff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P	v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	860	150		150	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	918
D-2	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	600	150		150	0.97	Level	23.0%	0.0%	1.5	1.2	0.897	1.00	690
D-3	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	280	150		150	0.97	Level	5.0%	0.0%	1.5	1.2	0.976	1.00	296
D-4	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	540	150		150	0.97	Level	13.0%	0.0%	1.5	1.2	0.939	1.00	593

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information *v_{12} Estimation*

	Freeway/ Direction	Off-ramp	L_{EQ} 25-13	L_{EQ} 25-14	P_{FD} Equations 5	P_{FD} Equations 6	P_{FD} Equations 7	P_{FD}	v_{12} (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp			0.584			1.000	5,346
D-2	SR 99 NB	Elverta Road Off Ramp			0.656			1.000	2,908
D-3	SR 99 SB	Elverta Road Off Ramp			0.663			1.000	3,350
D-4	SR 99 NB	Elverta Road Off Ramp			0.596			1.000	5,468

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*											
	Freeway/ Direction	Off-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	Max v_{12} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?
D-1	SR 99 SB	Elverta Road Off Ramp	5,346	4,700	**Yes**	0	No	No	5,346	4,400	**Yes**	4,428	4,700	No
D-2	SR 99 NB	Elverta Road Off Ramp	2,908	4,800	No	0	No	No	2,908	4,400	No	2,219	4,800	No
D-3	SR 99 SB	Elverta Road Off Ramp	3,350	4,800	No	0	No	No	3,350	4,400	No	3,054	4,800	No
D-4	SR 99 NB	Elverta Road Off Ramp	5,468	4,800	**Yes**	0	No	No	5,468	4,400	**Yes**	4,875	4,800	**Yes**

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information						*Results*		*Speed Estimation*			
	Freeway/ Direction	Off-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. D_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
D-1	SR 99 SB	Elverta Road Off Ramp	918	2,100	No	**-**	**F**	-	-	-	-
D-2	SR 99 NB	Elverta Road Off Ramp	690	2,100	No	**27.9**	**C**	0.360	56.7	0.0	56.7
D-3	SR 99 SB	Elverta Road Off Ramp	296	2,100	No	**31.7**	**D**	0.325	57.5	0.0	57.5
D-4	SR 99 NB	Elverta Road Off Ramp	593	2,100	No	**-**	**F**	0.351	56.9	0.0	56.9

Appendix C-3: Peak Hour Signal Warrant Analysis

Cumulative No Project Conditions

Cumulative Plus Preferred Alternative Conditions

Cumulative Plus Approved Specific Plan Conditions

Cumulative Plus Minimal Impact Conditions

Cumulative Plus No Federal Action Conditions

FEHR & PEERS
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Sheet No	2	of	2	

Major Street	Elverta Road
Minor Street	E. Levee Road

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

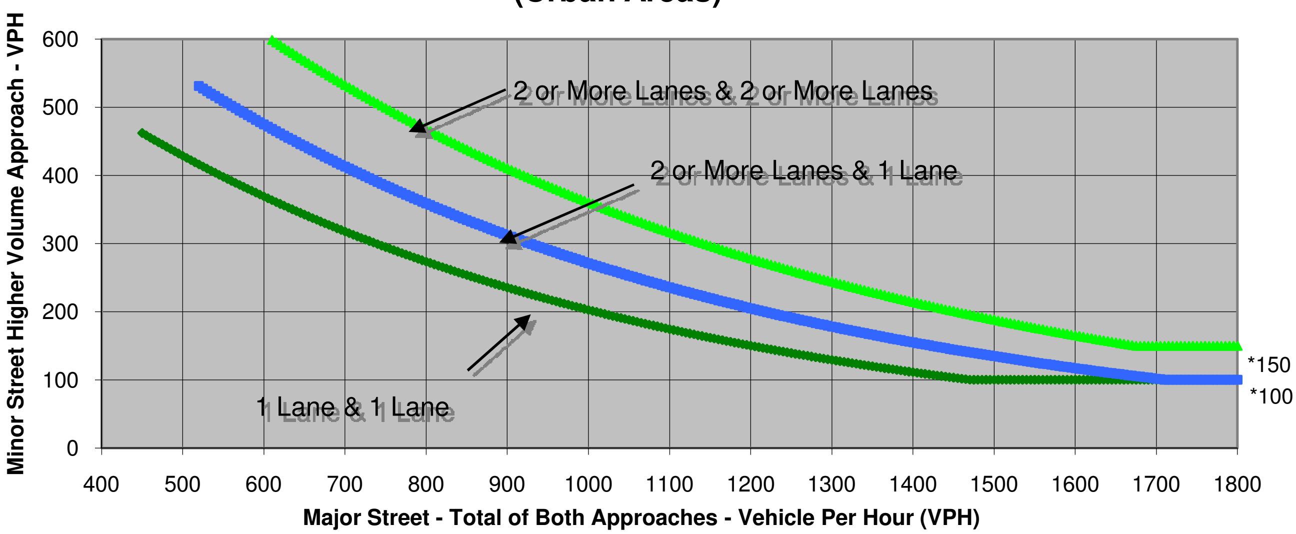
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	50	120
Through	140	40	1,230	580
Right	120	10	20	170
Total	270	60	1,300	870

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** E. Levee Road	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,170	270	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

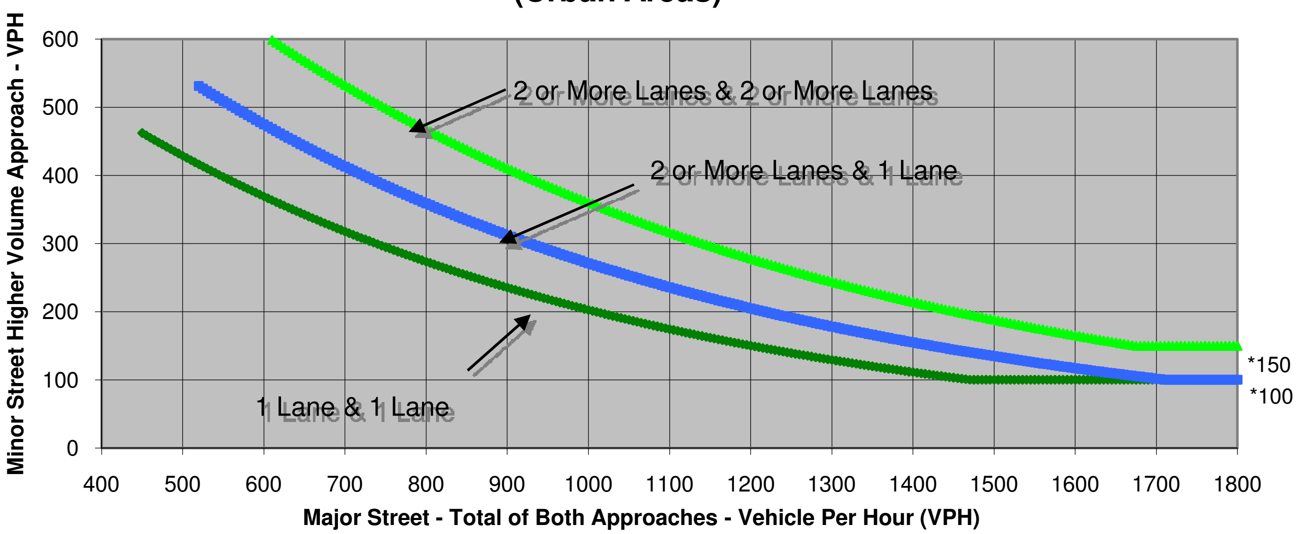
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	60	90	0
Through	0	0	630	1,650
Right	0	260	0	30
Total	0	320	720	1,680

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	**Minor Street** E. Levee Road	**Warrant Met**
Number of Approach Lanes	3	1	YES
Traffic Volume (VPH) *	2,400	320	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

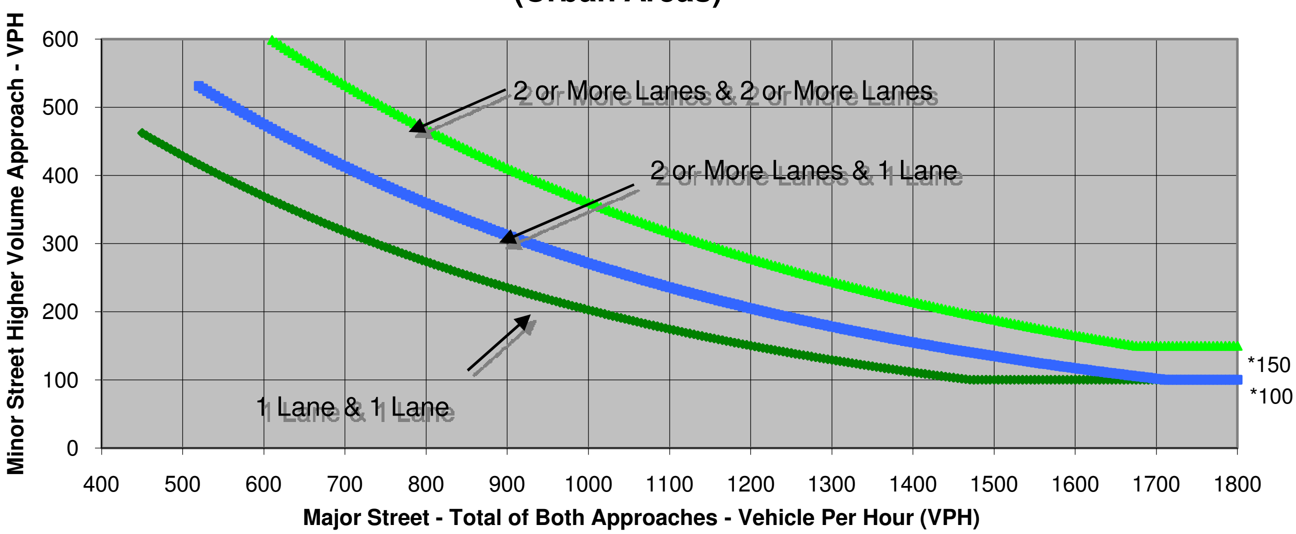
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	40	240	0
Through	0	0	1,860	830
Right	0	140	0	90
Total	0	180	2,100	920

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	3	1	YES
Traffic Volume (VPH) *	3,020	180	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	AM			

Major Street	Elverta Road
Minor Street	Sorento Road

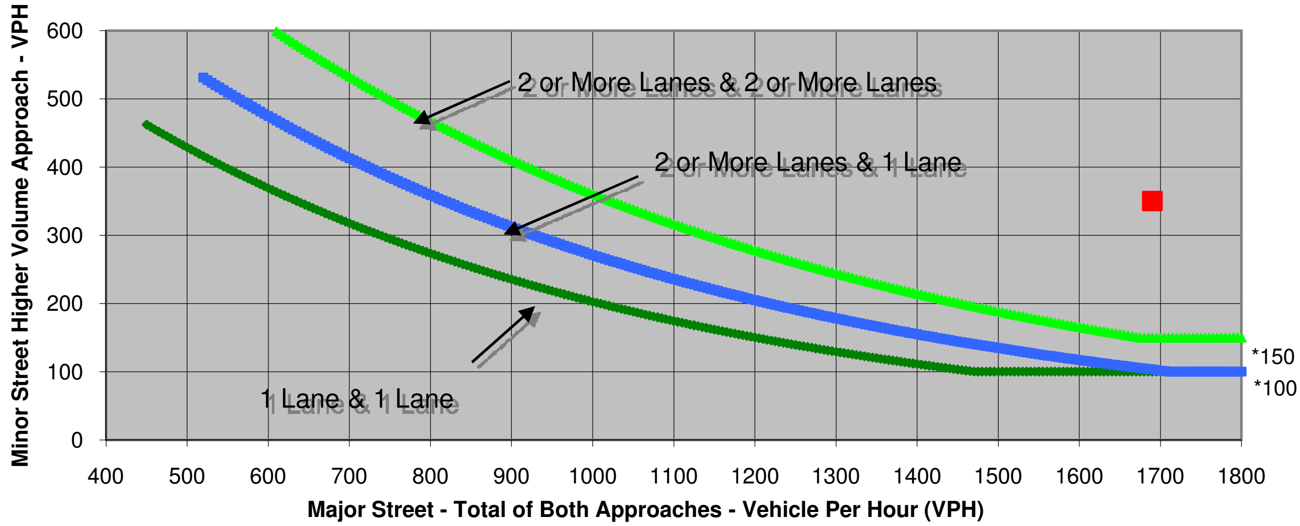
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	170	10
Through	10	10	590	900
Right	10	330	10	10
Total	30	350	770	920

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Sorento Road	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,690	350	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2
Project	Elverta Specific Plan EIS		
Scenario	Cumualtive No Project		
Peak Hour	PM		

Major Street	Elverta Road
Minor Street	Sorento Road

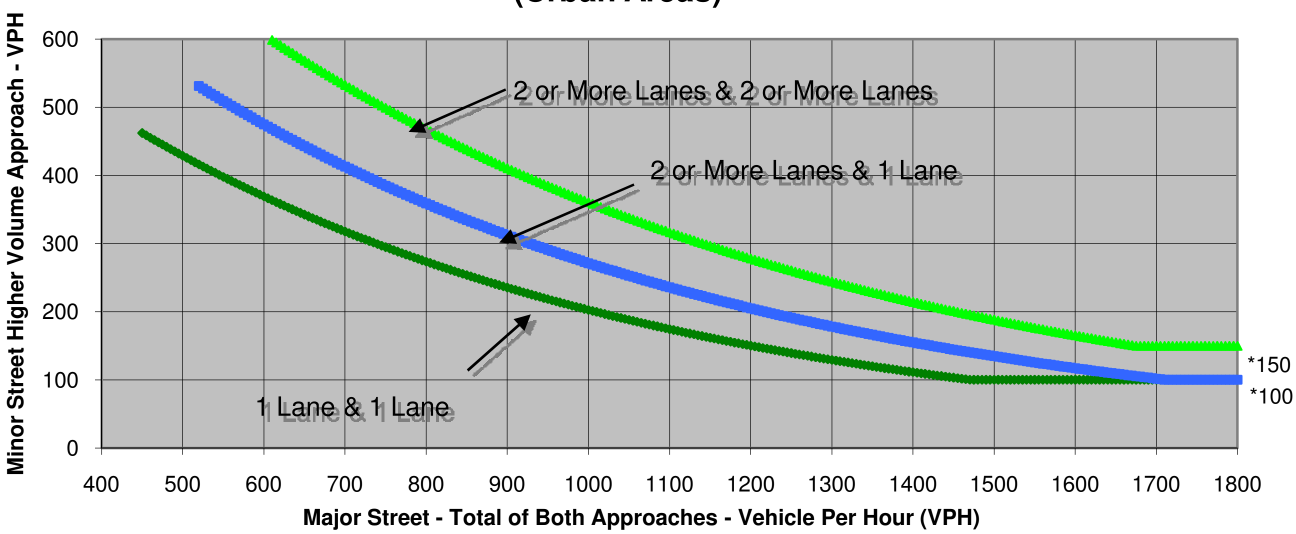
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	310	10
Through	10	10	1,040	900
Right	10	260	10	10
Total	30	280	1,360	920

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Sorento Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,280	280	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Elwyn Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

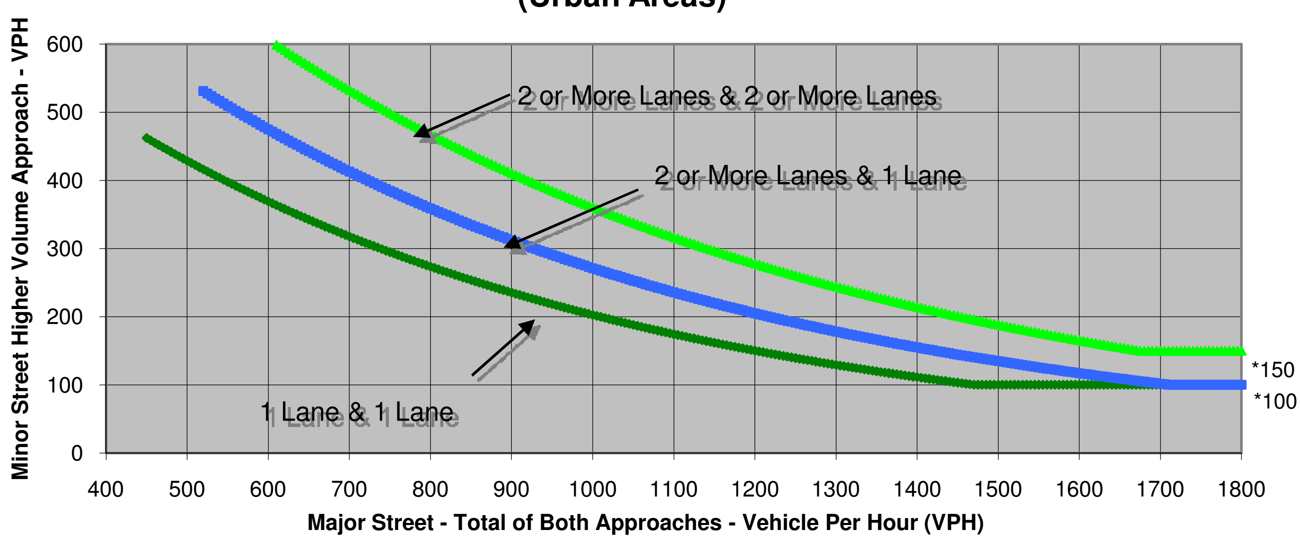
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	360	10	180
Through	70	280	480	910
Right	20	80	60	300
Total	110	720	550	1,390

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Elwyn Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,940	720	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	Elwyn Road

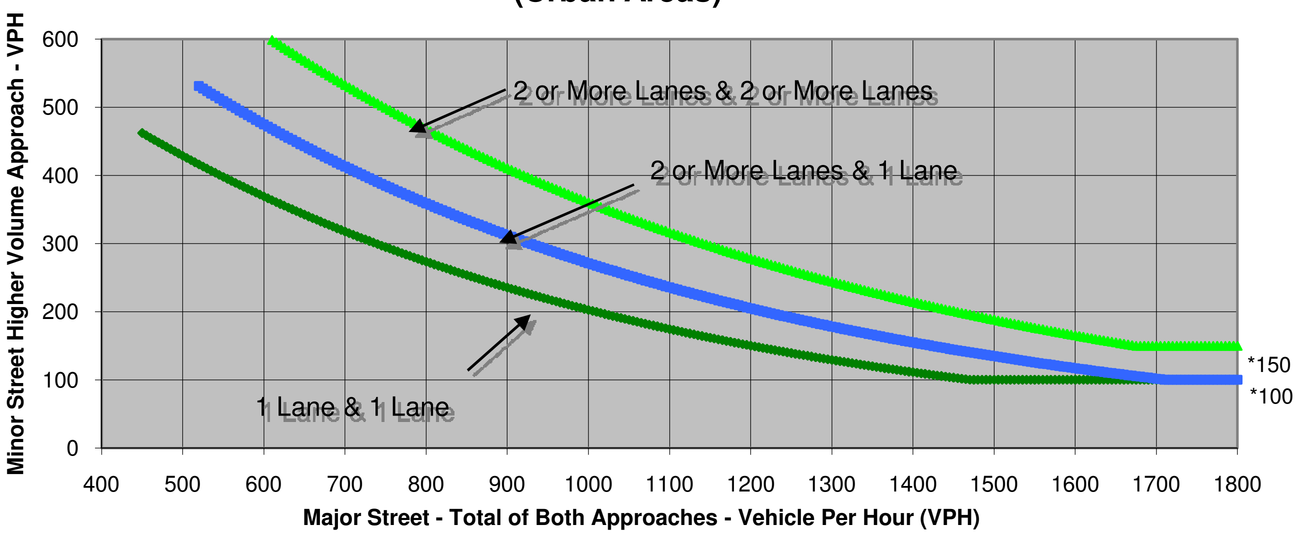
Turn Movement Volumes

	NB	SB	EB	WB
Left	30	340	170	30
Through	180	70	920	530
Right	210	20	20	440
Total	420	430	1,110	1,000

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Elwyn Road	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,110	430	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 1 of 2

Major Street	Elverta Road
Minor Street	Rio Linda Blvd

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

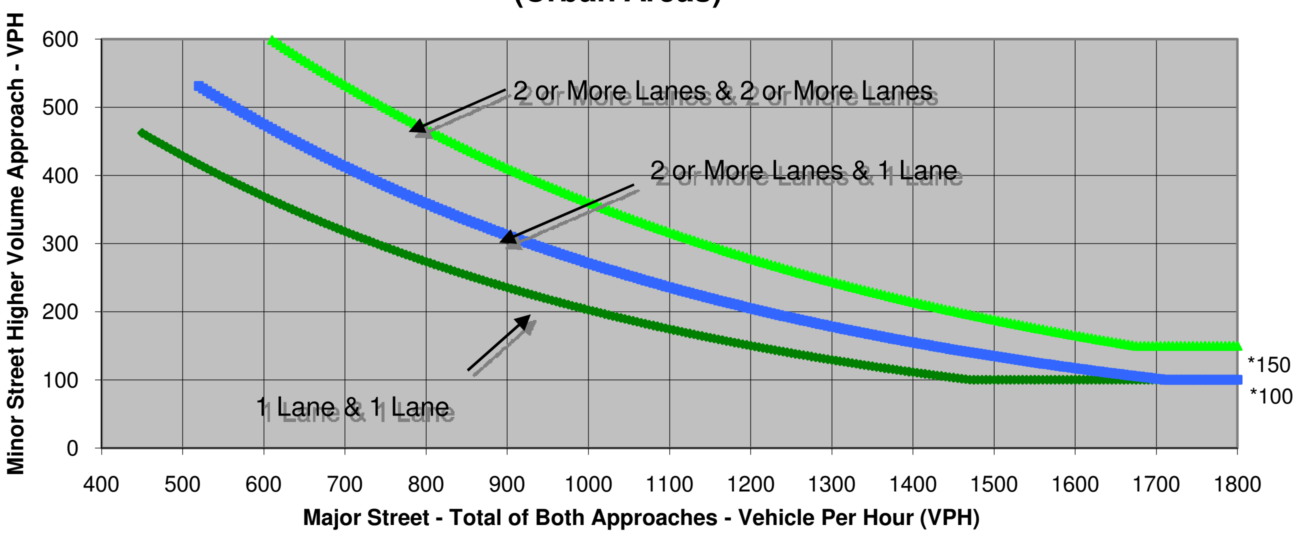
Turn Movement Volumes

	NB	SB	EB	WB
Left	170	0	0	60
Through	0	0	580	1,130
Right	30	0	250	0
Total	200	0	830	1,190

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Rio Linda Blvd	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,020	200	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No | 2 | of | 2

Major Street	Elverta Road
Minor Street	Rio Linda Blvd

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

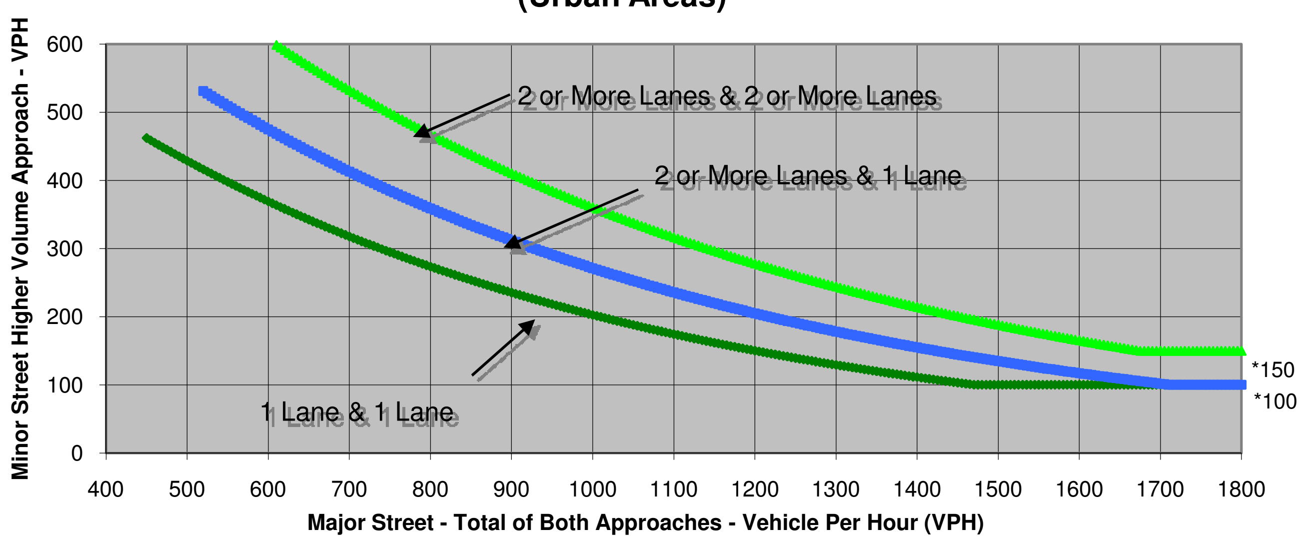
Turn Movement Volumes

	NB	SB	EB	WB
Left	300	0	0	60
Through	0	0	1,170	650
Right	60	0	240	0
Total	360	0	1,410	710

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Rio Linda Blvd	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,120	360	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 1 of 2

Major Street	Elverta Road	Project	Elverta Specific Plan EIS
Minor Street	9th Street	Scenario	Cumualtive No Project
		Peak Hour	AM

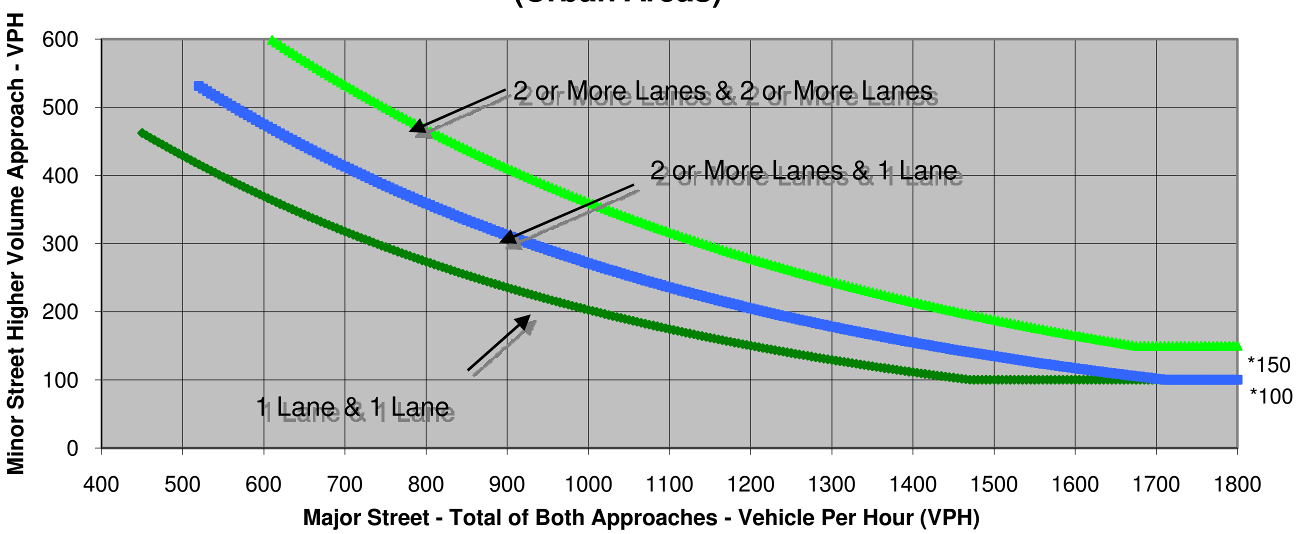
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	270
Through	0	0	660	1,190
Right	80	0	10	0
Total	90	0	670	1,460

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** 9th Street	**Warrant Met**
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	2,130	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	9th Street

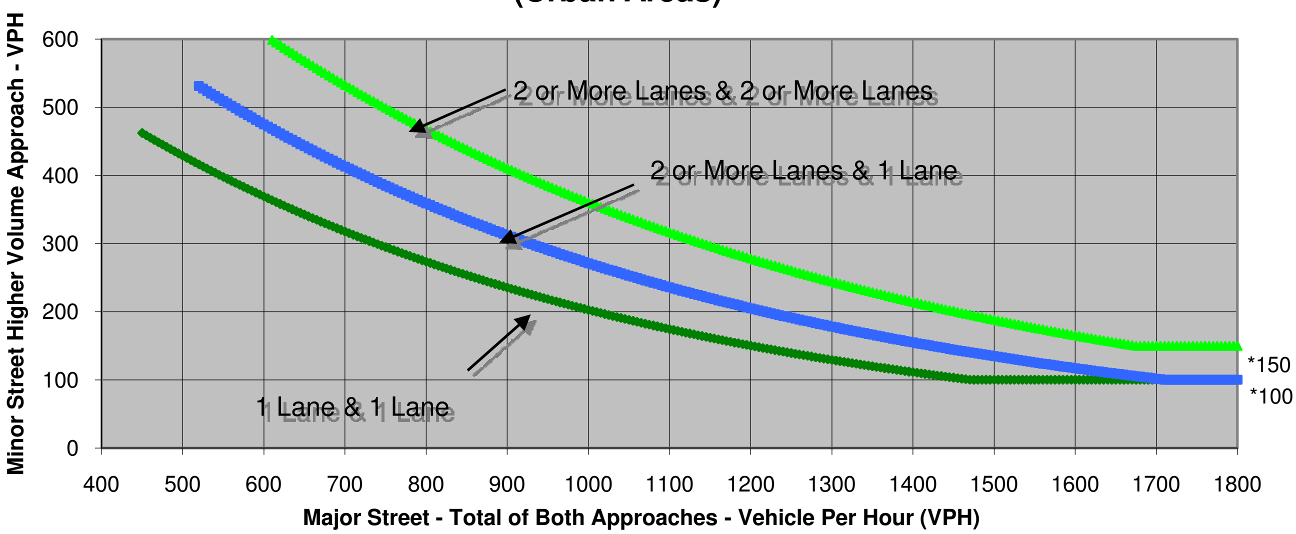
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	110
Through	0	0	1,250	770
Right	230	0	10	0
Total	240	0	1,260	880

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,140	240	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

Major Street	Elverta Road
Minor Street	Palladay Road

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

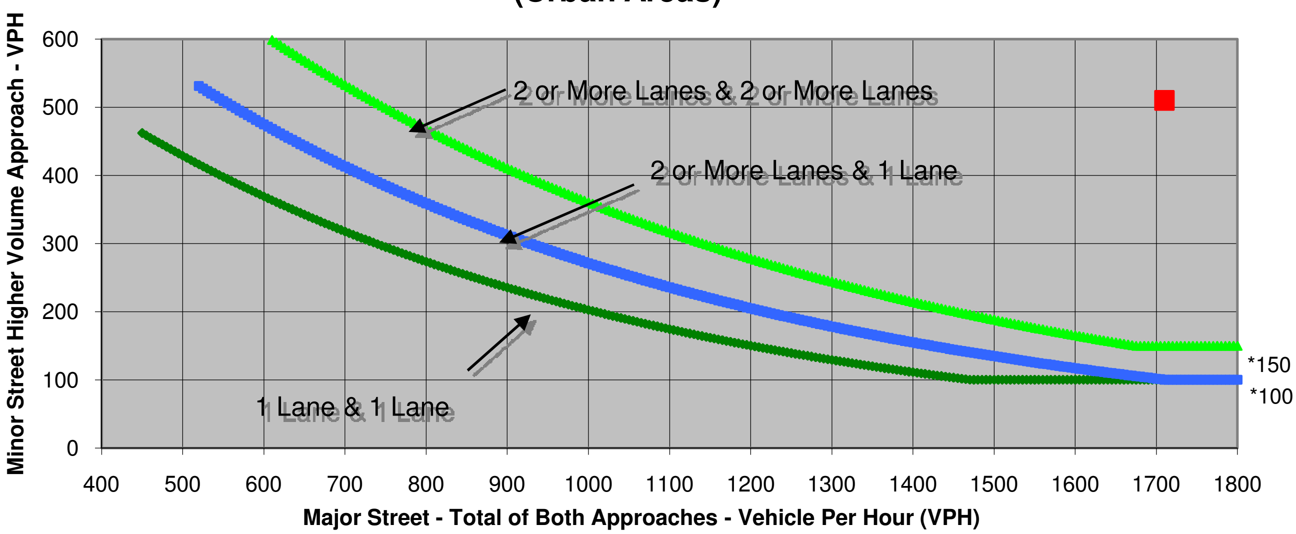
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	10	0	0
Through	0	0	670	960
Right	0	500	70	10
Total	0	510	740	970

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Palladay Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,710	510	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS TRANSPORTATION CONSULTANTS

Sheet No	2	of	2	

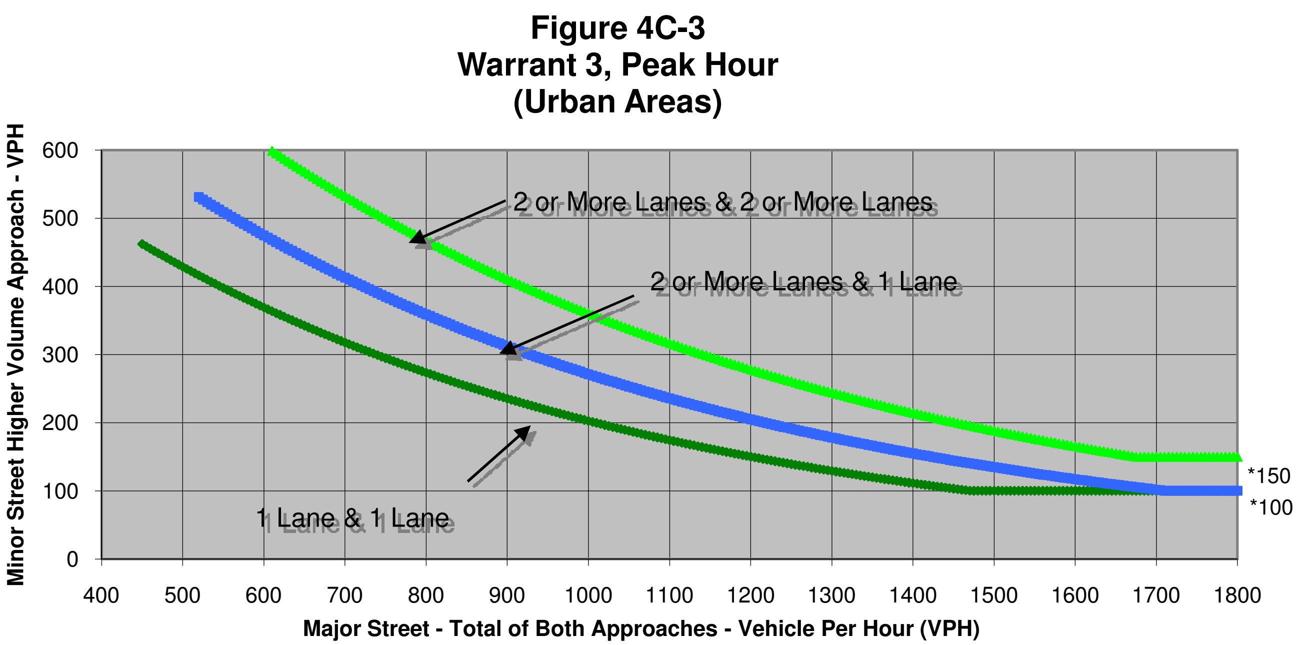
Major Street	Elverta Road
Minor Street	Palladay Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	10	440	0
Through	0	0	1,040	770
Right	0	120	0	10
Total	0	130	1,480	780

Major Street Direction

	North/South
x	East/West



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Palladay Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,260	130	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2		
Major Street	Dry Creek Road		Project	Elverta Specific Plan EIS	
Minor Street	U Street		Scenario	Cumualtive No Project	
			Peak Hour	AM	

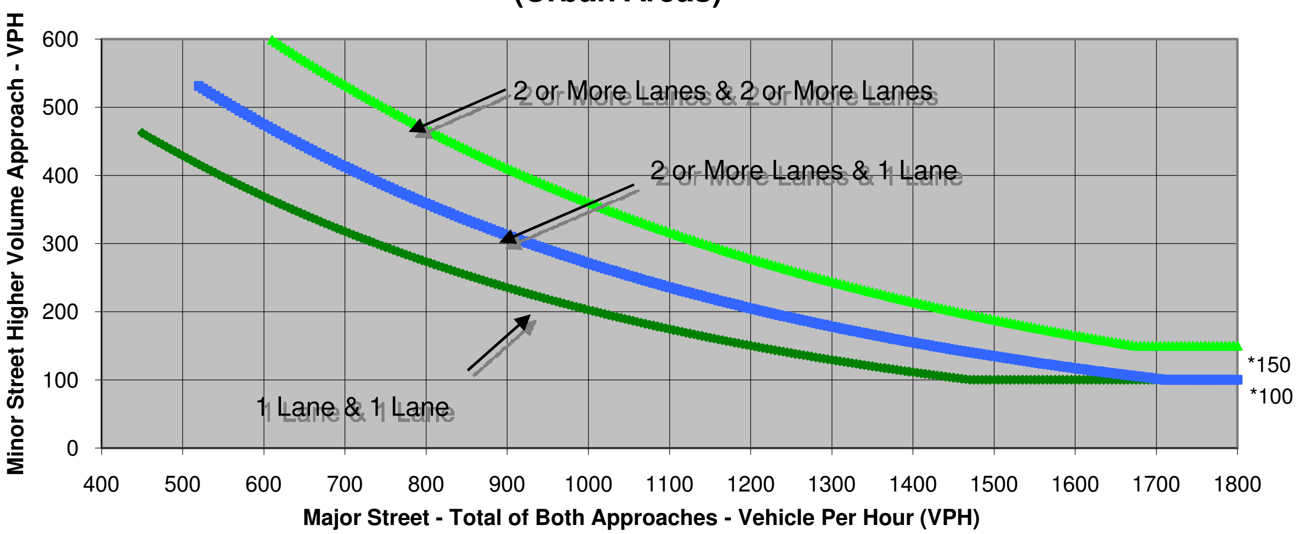
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	10	230
Through	10	10	50	30
Right	190	10	110	10
Total	220	30	170	270

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	250	270	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

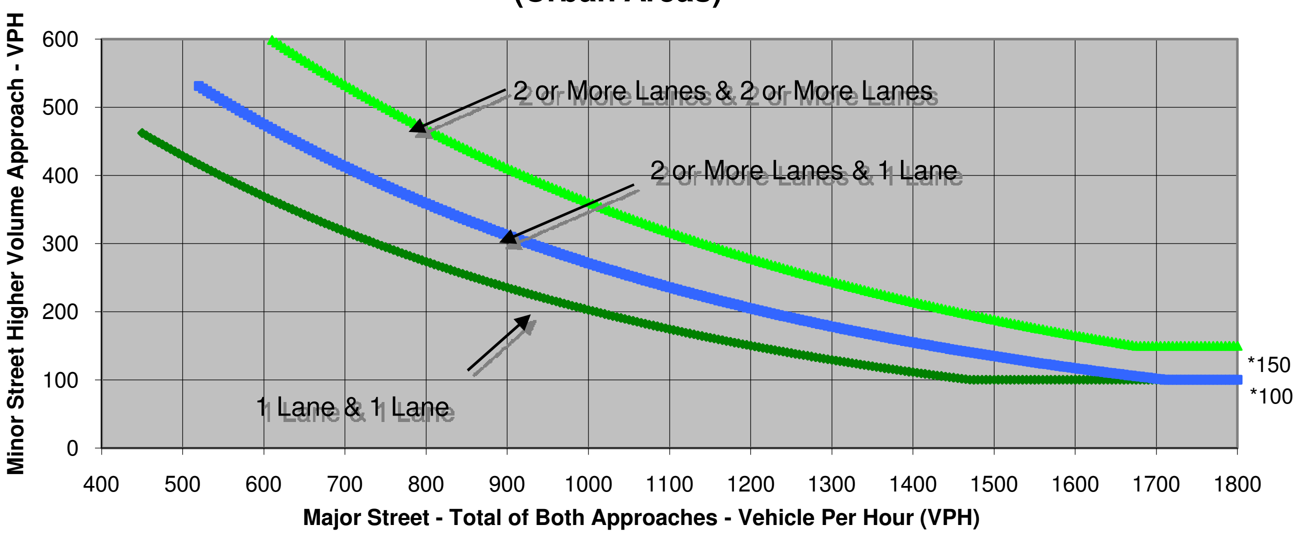
Turn Movement Volumes

	NB	SB	EB	WB
Left	110	10	10	200
Through	10	10	40	50
Right	210	10	50	10
Total	330	30	100	260

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	360	260	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	AM			

Major Street: Dry Creek Road
Minor Street: Q Street

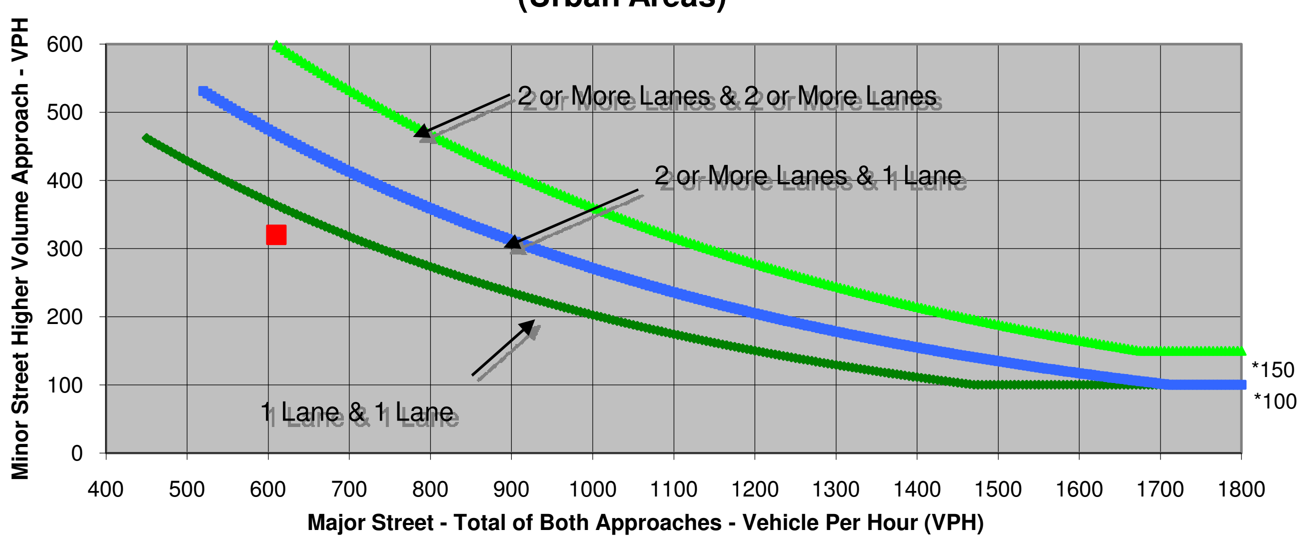
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	20	20	210
Through	180	280	90	100
Right	30	50	60	10
Total	260	350	170	320

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	610	320	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	Q Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

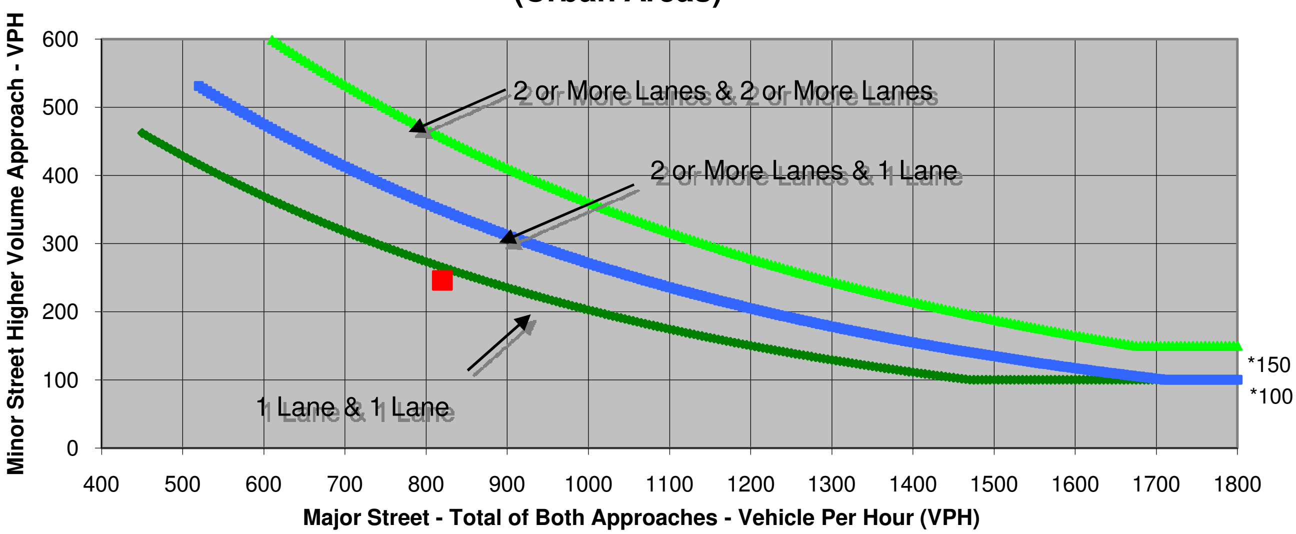
Turn Movement Volumes

	NB	SB	EB	WB
Left	70	10	30	80
Through	280	240	110	120
Right	210	10	50	46
Total	560	260	190	246

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	820	246	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	AM			

Major Street	Elverta Road
Minor Street	16th Street

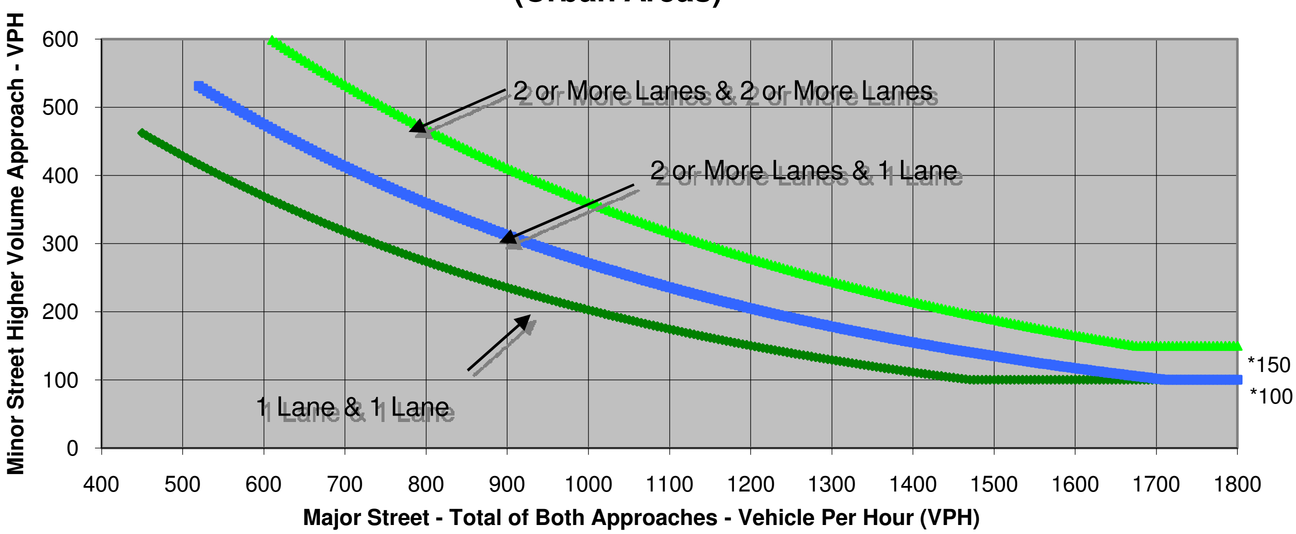
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	330	70	150
Through	210	420	590	840
Right	60	90	30	90
Total	290	840	690	1,080

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 16th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,770	840	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	Elverta Road
Minor Street	16th Street
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

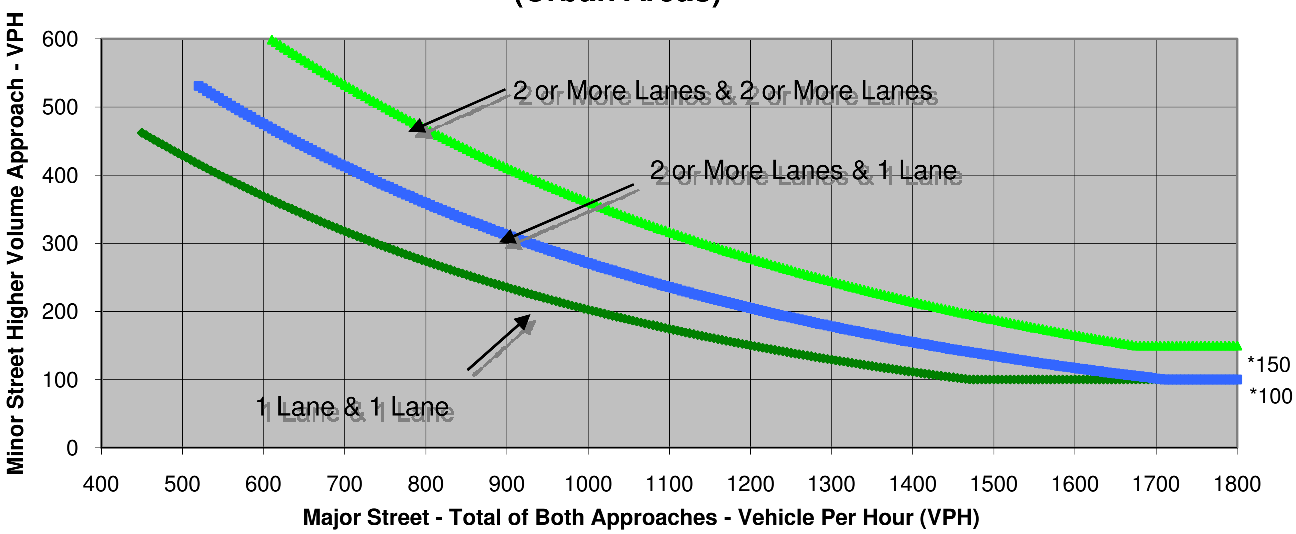
Turn Movement Volumes

	NB	SB	EB	WB
Left	30	280	90	90
Through	380	220	920	670
Right	140	80	30	350
Total	550	580	1,040	1,110

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** 16th Street	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,150	580	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No	1	of	2	

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

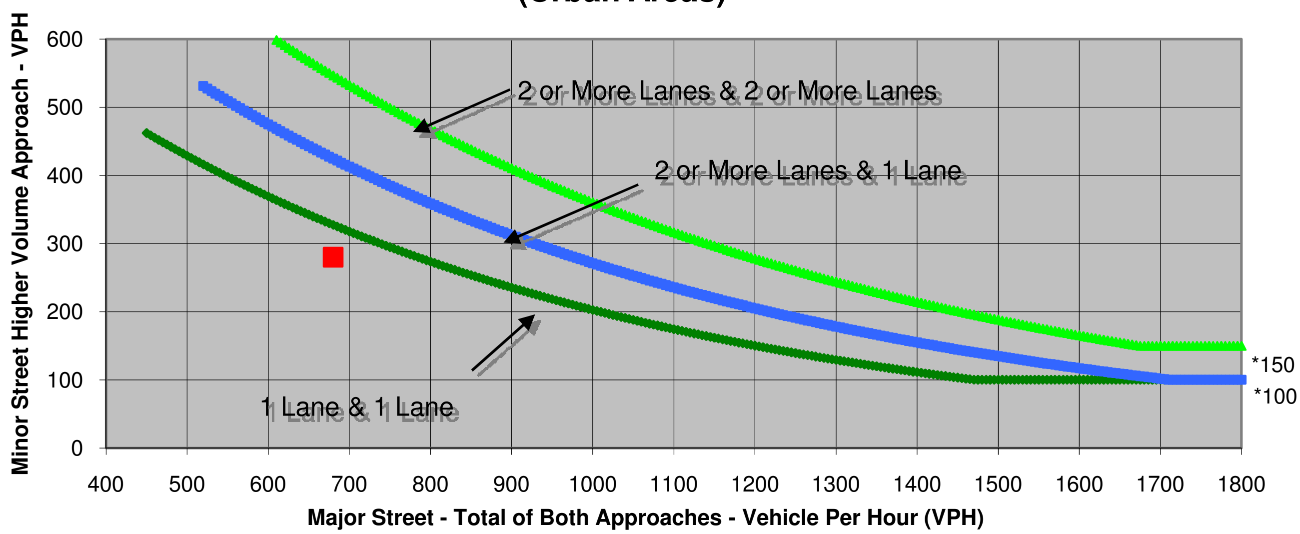
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	230	30
Through	50	290	10	10
Right	10	310	40	10
Total	70	610	280	50

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	680	280	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	16th Street		Sheet No	2	of 2
Minor Street	U Street		Project	Elverta Specific Plan EIS	
			Scenario	Cumualtive No Project	
			Peak Hour	PM	

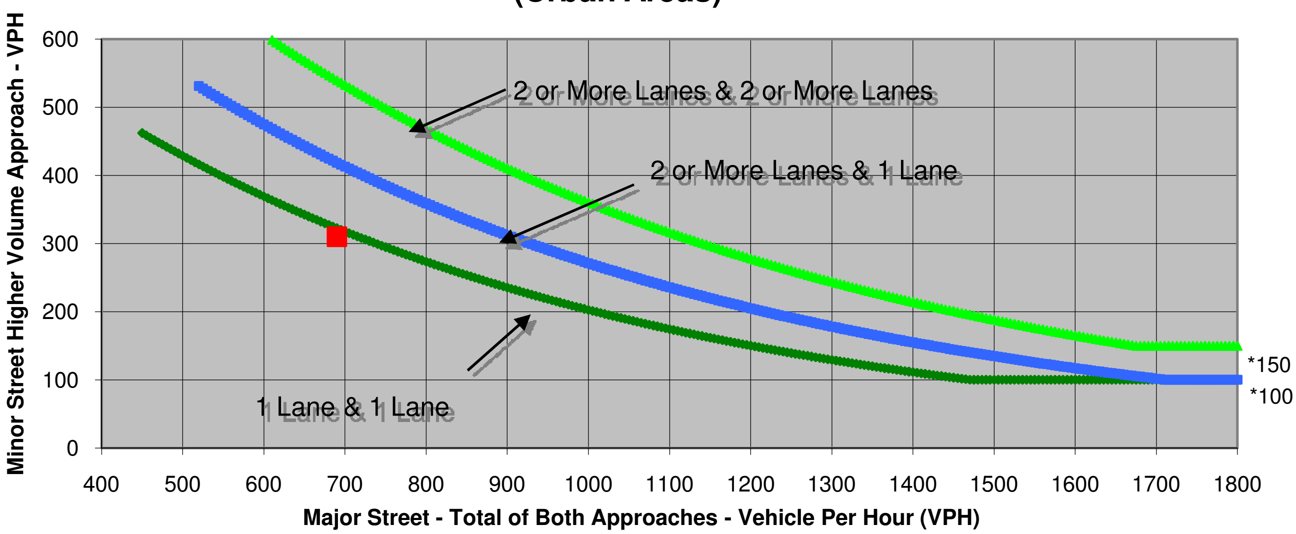
Turn Movement Volumes

	NB	SB	EB	WB
Left	30	10	290	10
Through	270	110	10	10
Right	30	240	10	10
Total	330	360	310	30

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	690	310	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive No Project			
Peak Hour	AM			

Major Street	16th Street
Minor Street	Q Street

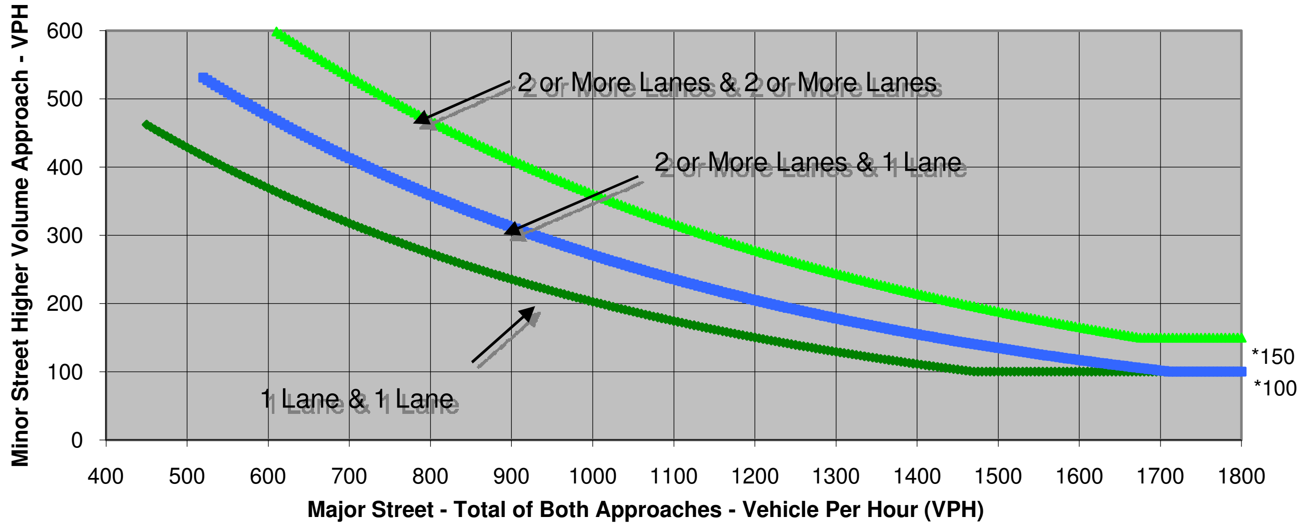
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	100	20	0
Through	0	0	140	70
Right	0	260	0	40
Total	0	360	160	110

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	270	360	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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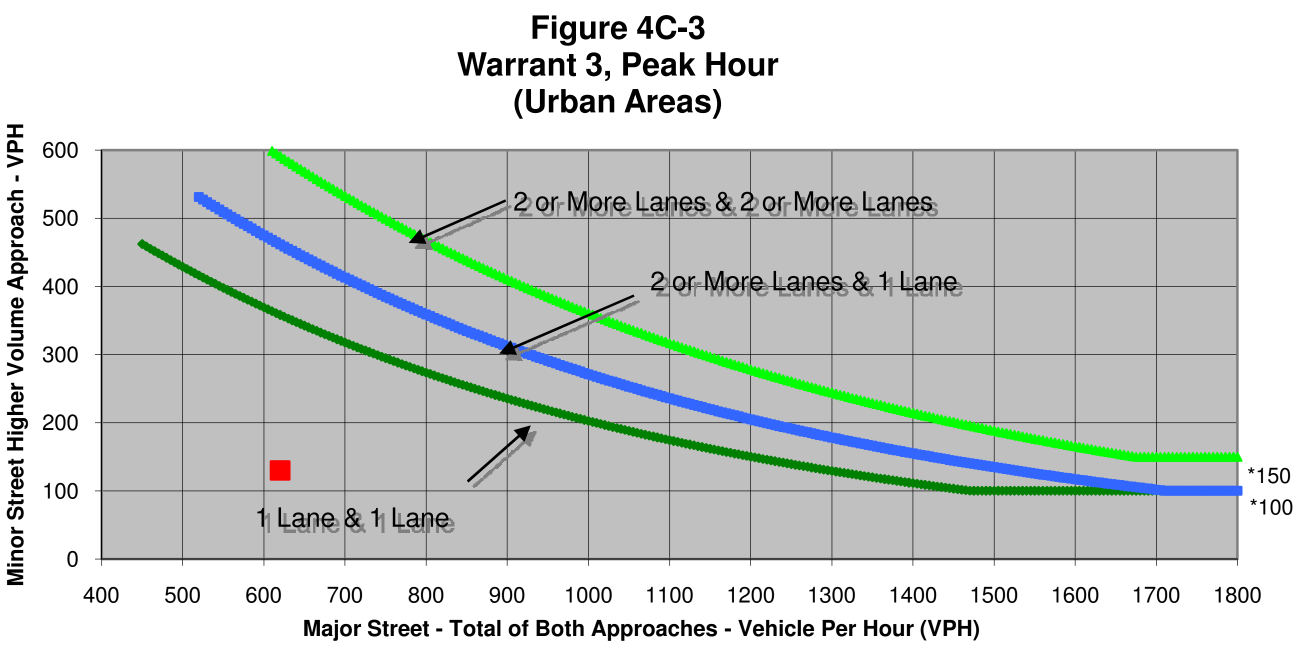
Sheet No	2	of	2		
Major Street	16th Street		Project	Elverta Specific Plan EIS	
Minor Street	Q Street		Scenario	Cumualtive No Project	
			Peak Hour	PM	

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	60	230	0
Through	0	0	130	160
Right	0	70	0	100
Total	0	130	360	260

Major Street Direction

	North/South
x	East/West



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** Q Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	620	130	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive Plus Preferred Alt			
Peak Hour	AM			

Major Street	Elverta Road
Minor Street	E. Levee Road

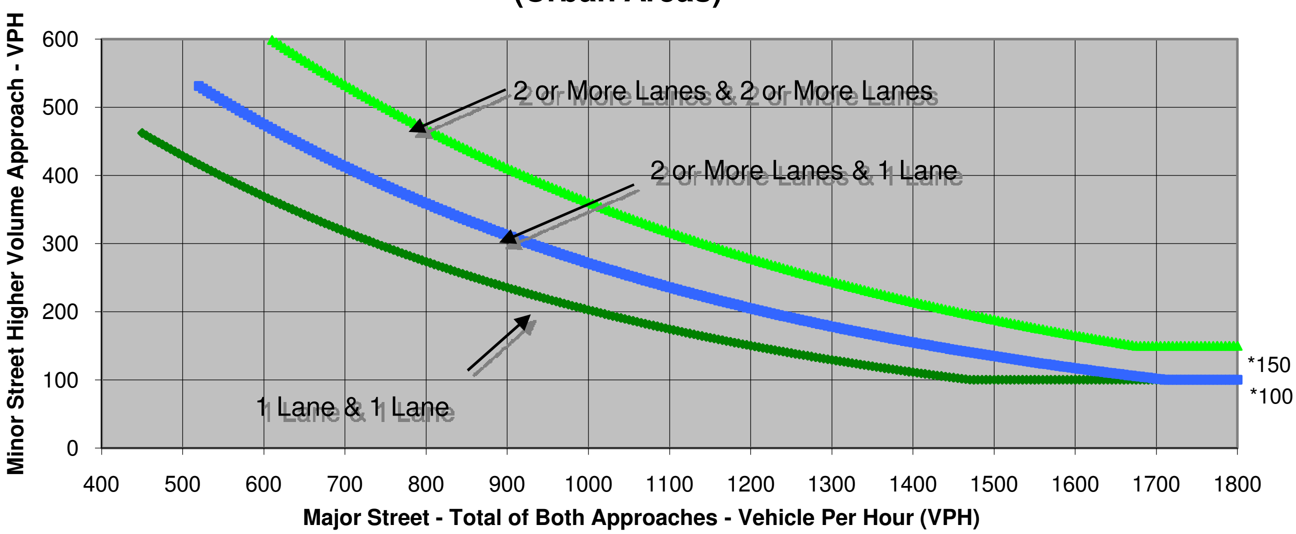
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	140	10	120
Through	20	150	550	1,280
Right	90	40	10	10
Total	130	330	570	1,410

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,980	330	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	PM

Major Street	Elverta Road
Minor Street	E. Levee Road

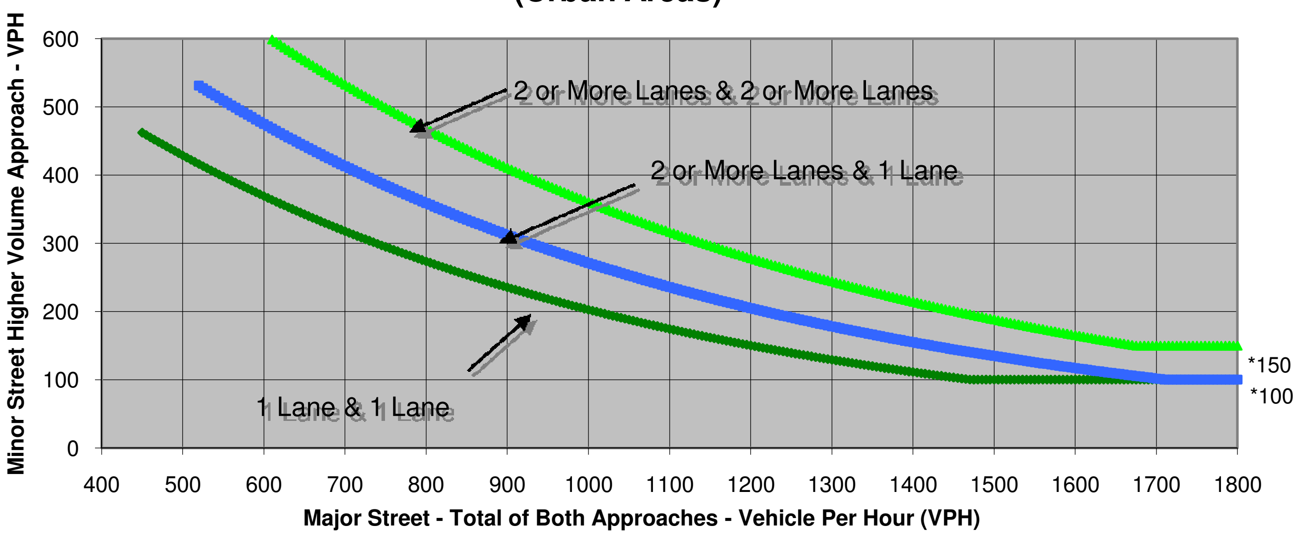
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	60	130
Through	130	40	1,410	690
Right	140	10	20	130
Total	280	60	1,490	950

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Sheet No	1	of	2

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	AM

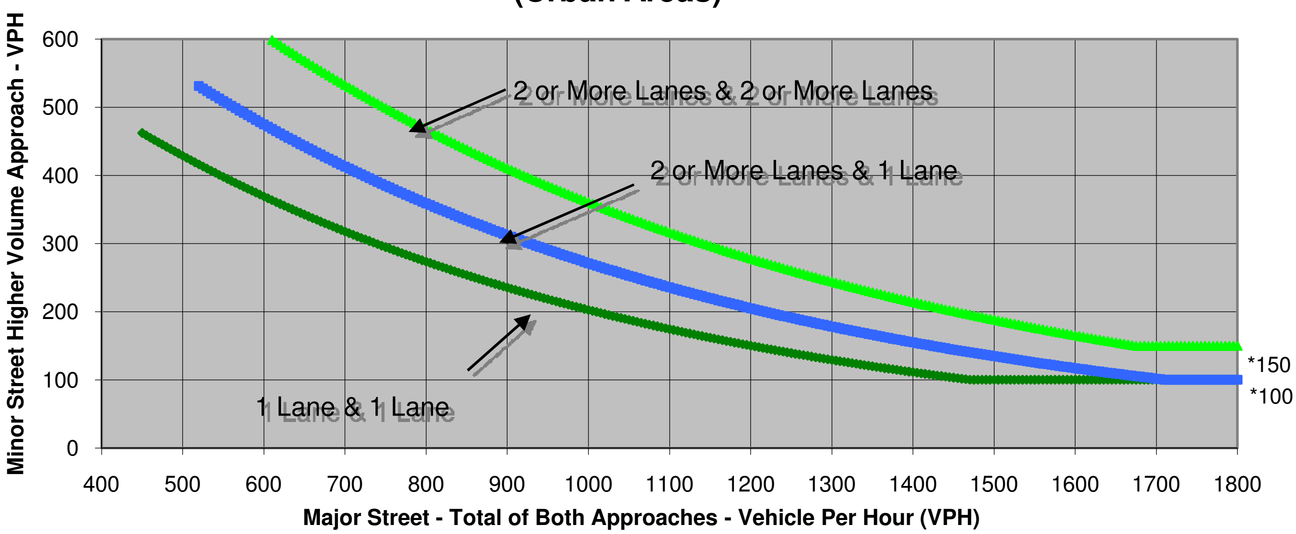
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	70	90	0
Through	0	0	600	1,850
Right	0	260	0	30
Total	0	330	690	1,880

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	3	1	YES
Traffic Volume (VPH) *	2,570	330	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Elkhorn Boulevard
Minor Street	E. Levee Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive No Project
Peak Hour	PM

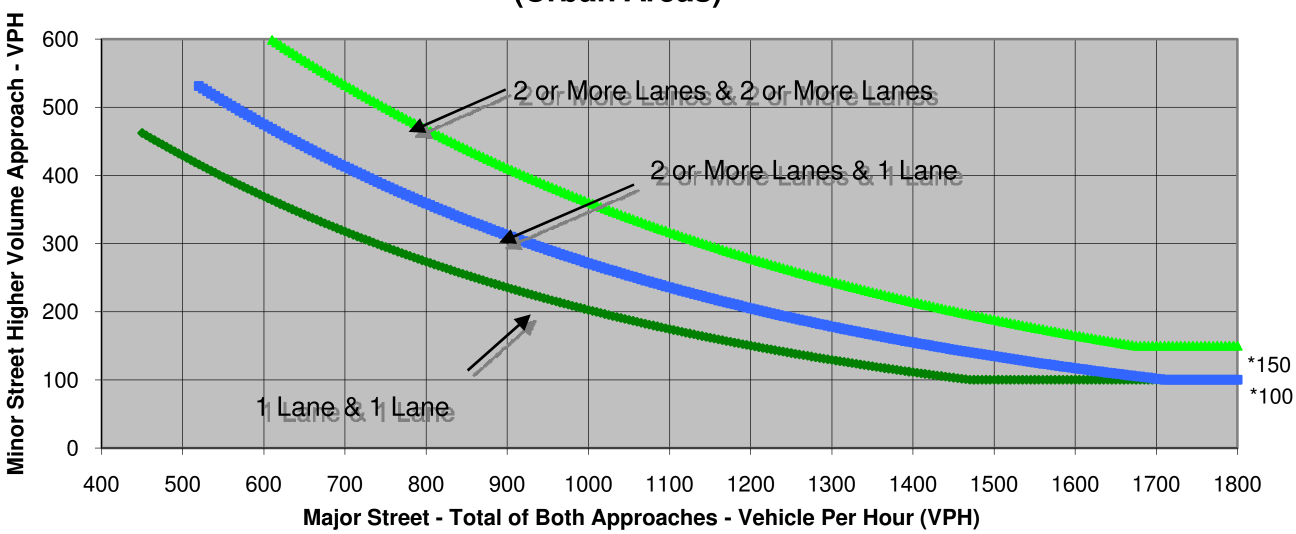
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	40	250	0
Through	0	0	1,990	810
Right	0	150	0	90
Total	0	190	2,240	900

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elkhorn Boulevard	Minor Street E. Levee Road	Warrant Met
Number of Approach Lanes	3	1	YES
Traffic Volume (VPH) *	3,140	190	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2		
Major Street	Elverta Road	Project	Elverta Specific Plan EIS		
Minor Street	Sorento Road	Scenario	Cumualtive Plus Preferred Alt		
		Peak Hour	AM		

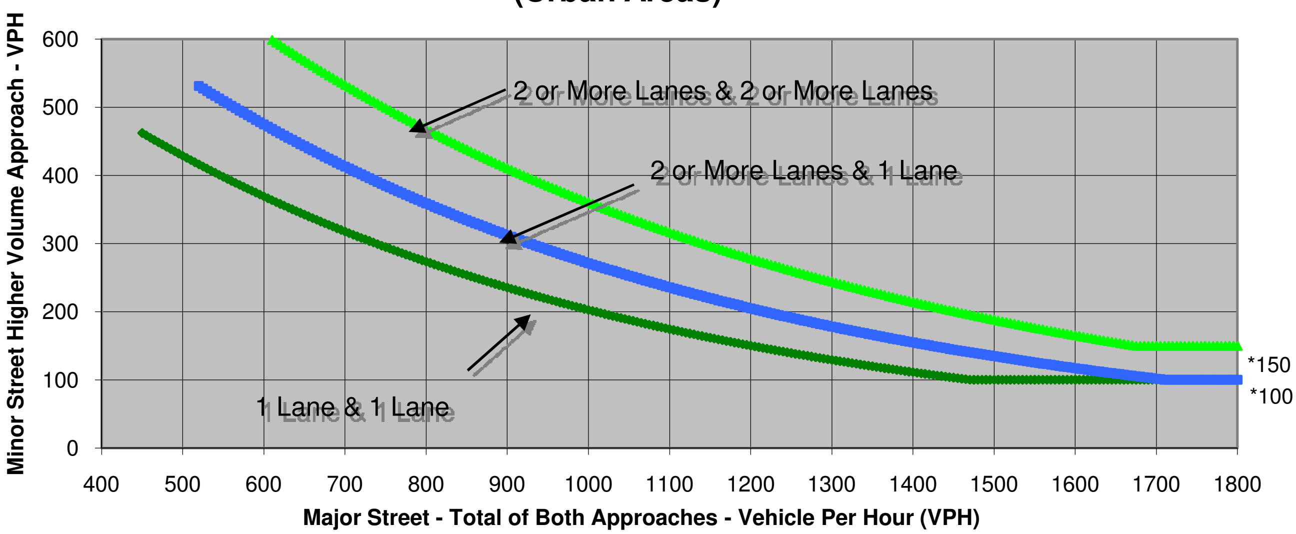
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	20	170	10
Through	10	10	600	1,100
Right	10	300	10	10
Total	30	330	780	1,120

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Sorento Road	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,900	330	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive Plus Preferred Alt			
Peak Hour	PM			

Major Street: Elverta Road
Minor Street: Sorento Road

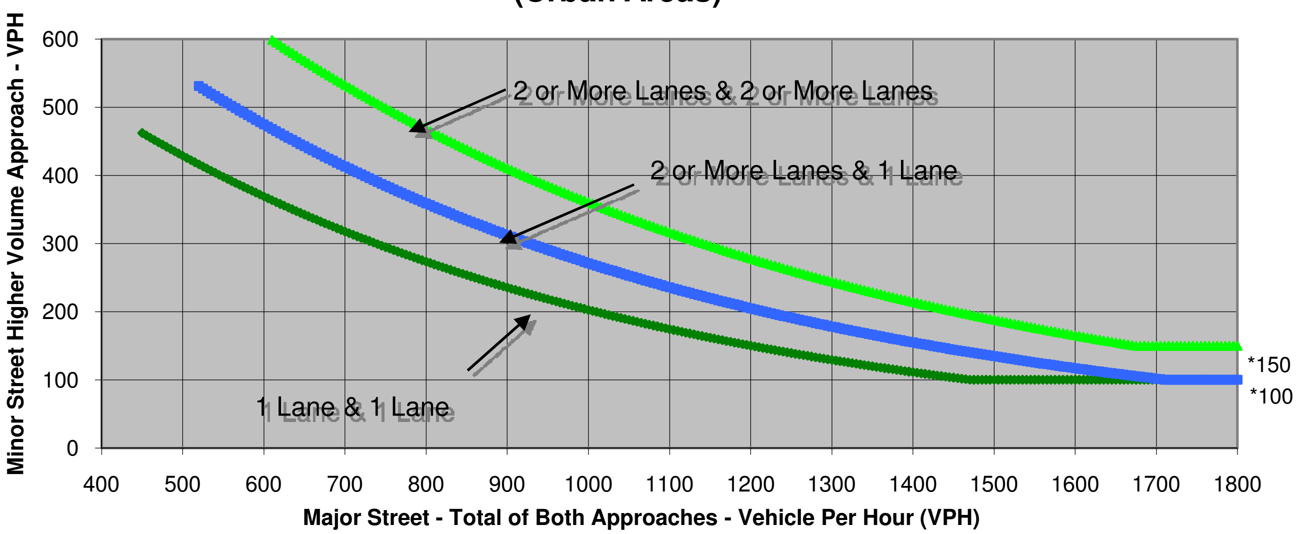
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	330	10
Through	10	10	1,220	690
Right	10	250	10	10
Total	30	270	1,560	710

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Sorento Road	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,270	270	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Elwyn Road
Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	AM

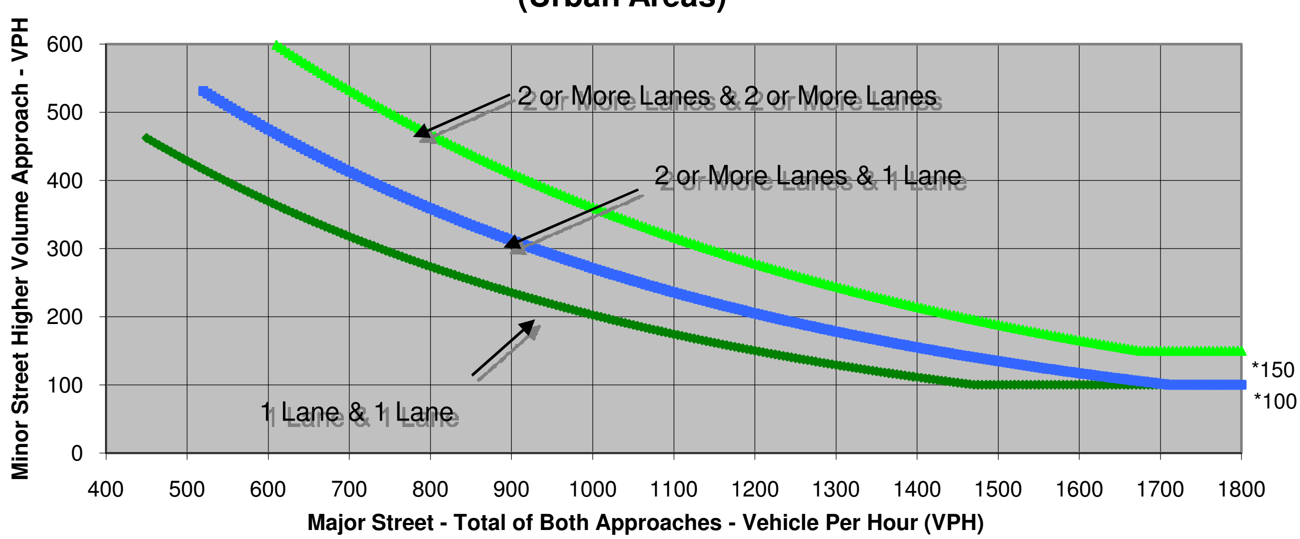
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	330	10	160
Through	70	270	520	1,140
Right	20	70	50	350
Total	110	670	580	1,650

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Elwyn Road	**Warrant Met**
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,230	670	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive Plus Preferred Alt			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	Elwyn Road

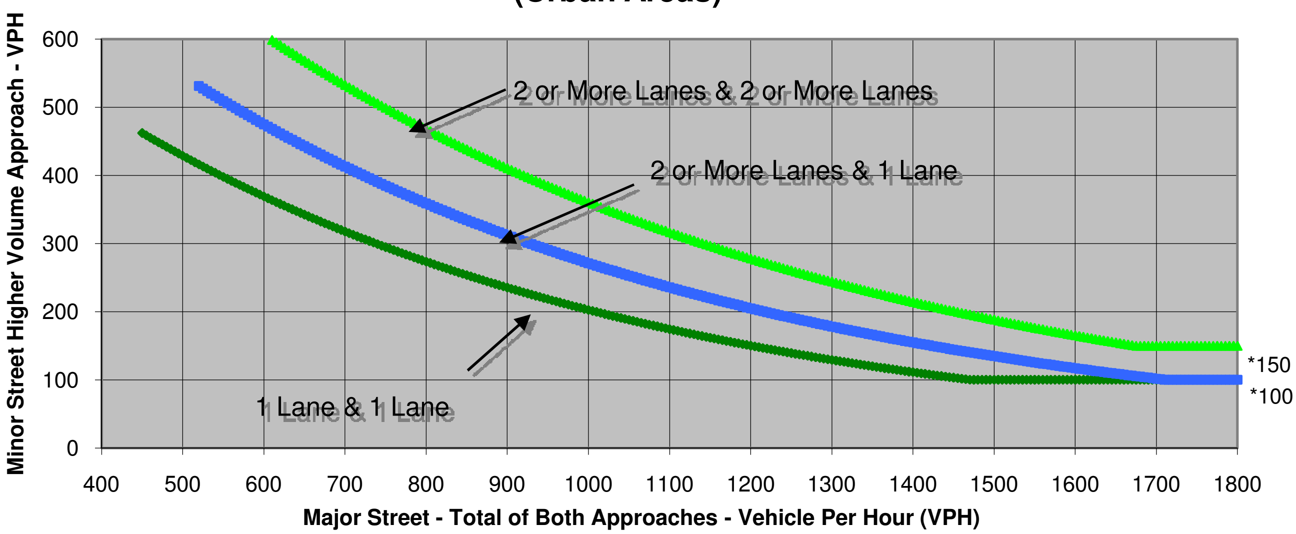
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	380	160	30
Through	230	80	1,150	620
Right	190	20	20	370
Total	470	480	1,330	1,020

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	**Minor Street** Elwyn Road	**Warrant Met**
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	2,350	480	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	Rio Linda Blvd
Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	AM

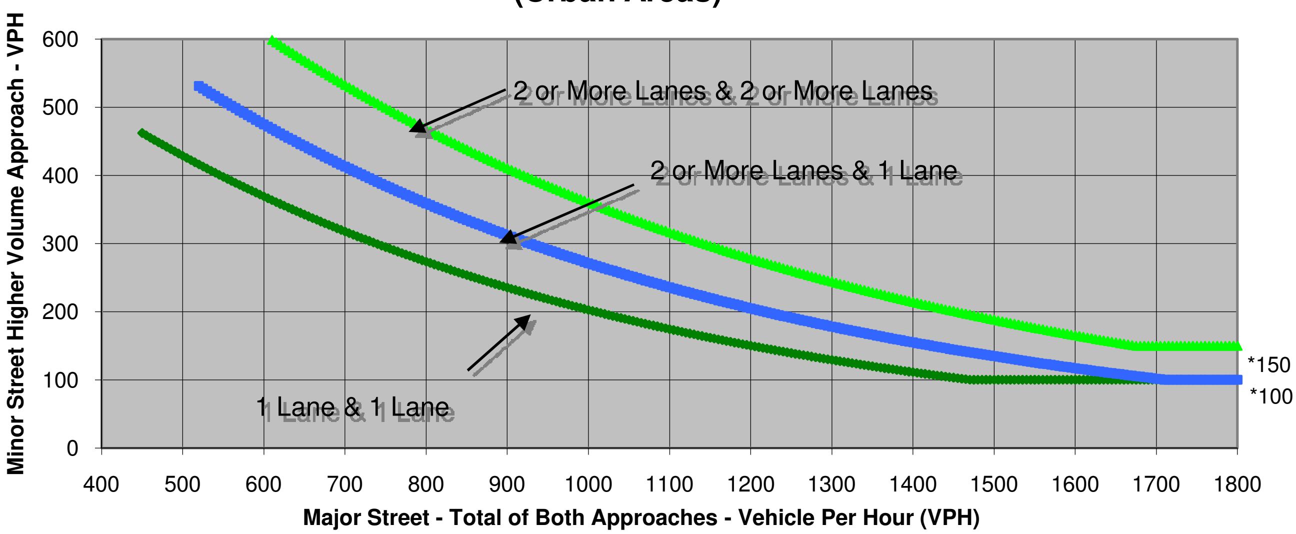
Turn Movement Volumes

	NB	SB	EB	WB
Left	180	0	0	100
Through	0	0	710	1,440
Right	40	0	160	0
Total	220	0	870	1,540

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street	**Minor Street**	**Warrant Met**
	Elverta Road	Rio Linda Blvd	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,410**	**220**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2		
Project	Elverta Specific Plan EIS				
Scenario	Cumualtive Plus Preferred Alt				
Peak Hour	PM				

Major Street	Elverta Road
Minor Street	Rio Linda Blvd

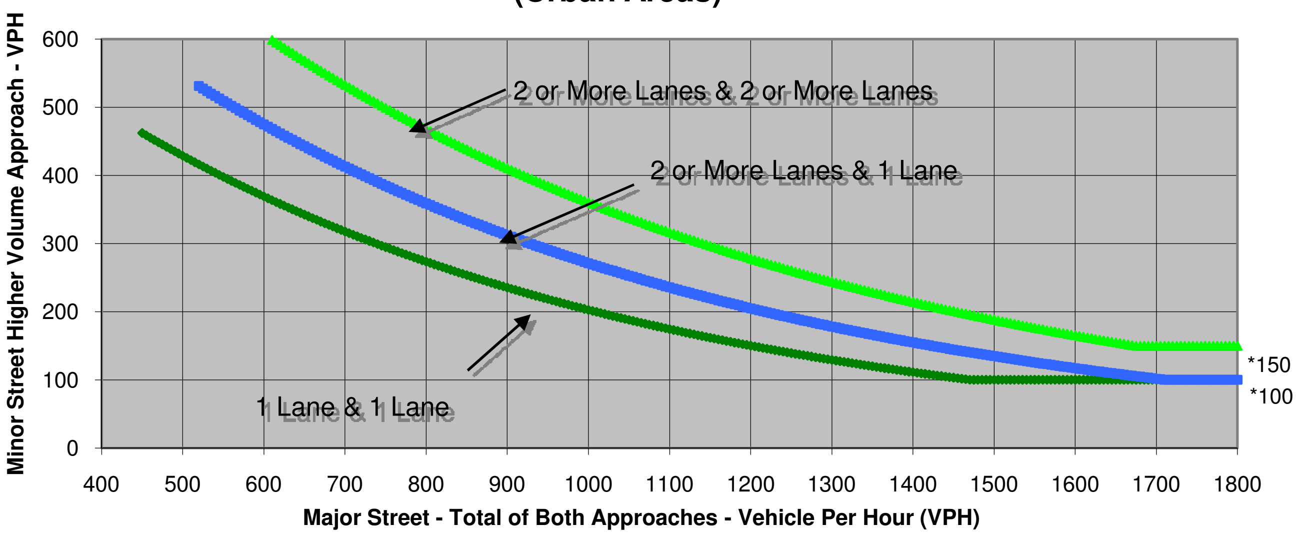
Turn Movement Volumes

	NB	SB	EB	WB
Left	180	0	0	70
Through	0	0	1,440	810
Right	100	0	230	0
Total	280	0	1,670	880

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street Rio Linda Blvd	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,550	280	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	9th Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	AM

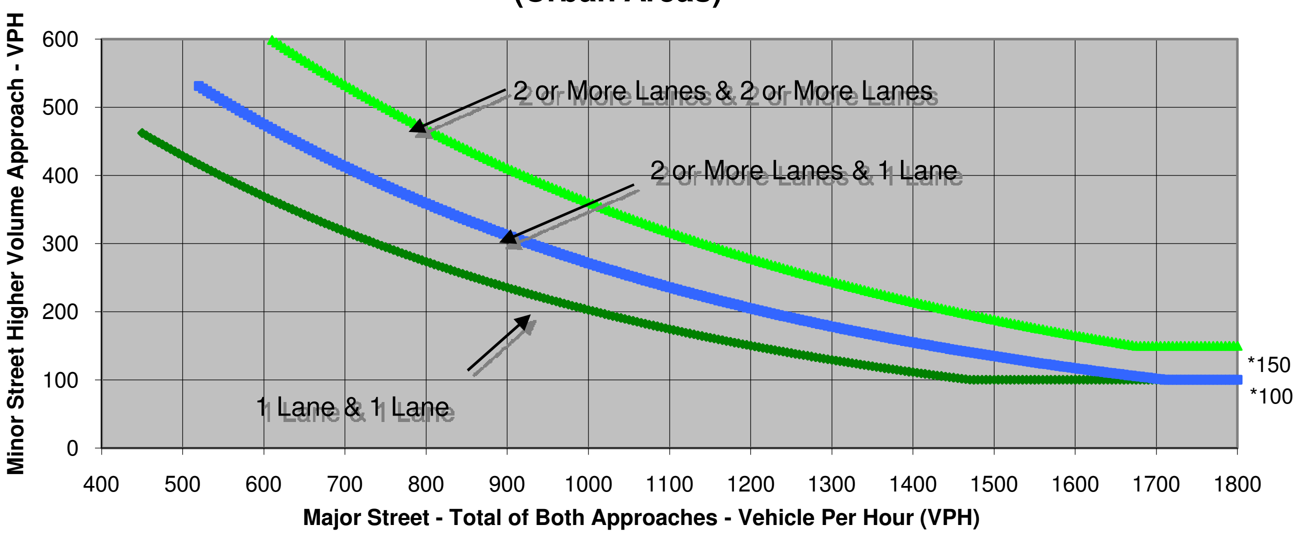
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	330
Through	0	0	680	1,160
Right	90	0	60	0
Total	100	0	740	1,490

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,230	100	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive Plus Preferred Alt			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	9th Street

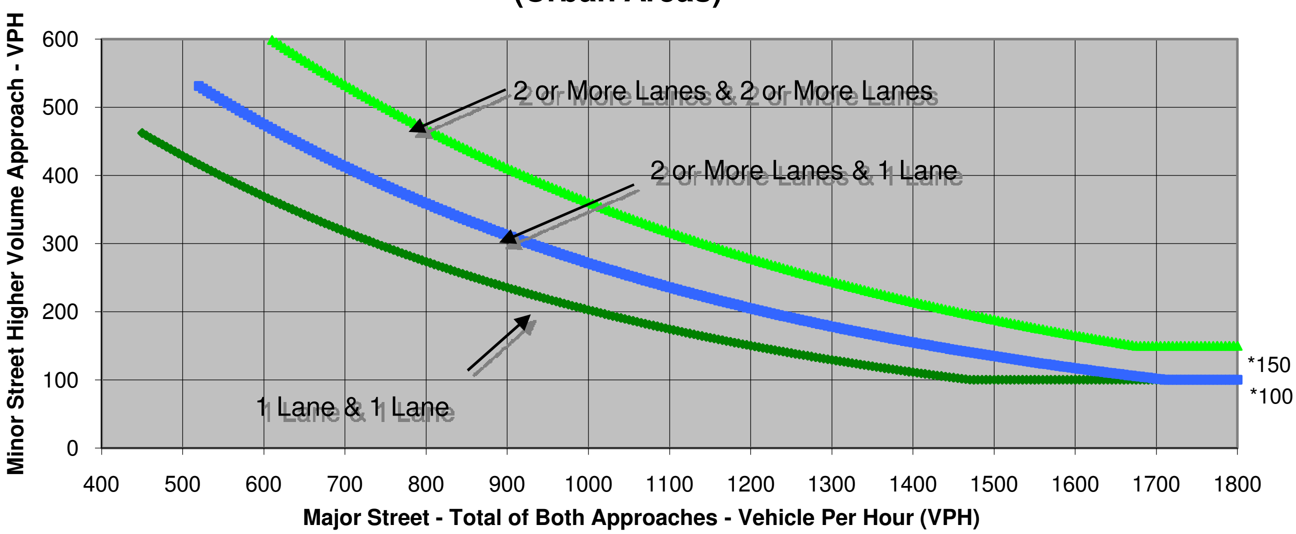
Turn Movement Volumes

	NB	SB	EB	WB
Left	60	0	0	110
Through	0	0	1,280	830
Right	260	0	40	0
Total	320	0	1,320	940

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**2,260**	**320**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	AM

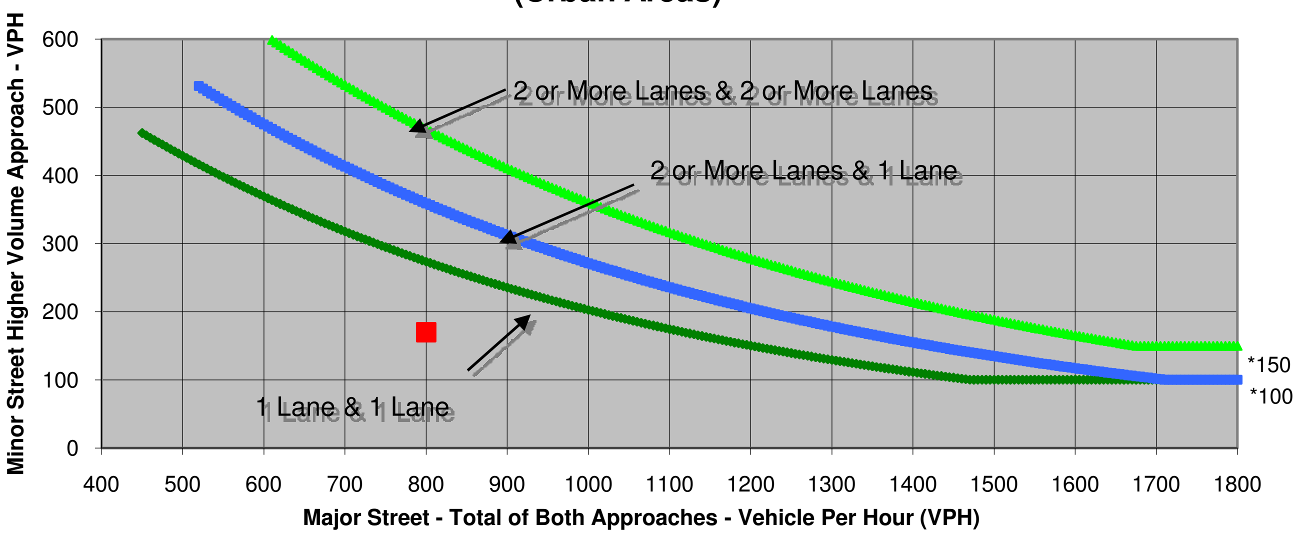
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	10	20
Through	190	410	50	50
Right	110	60	110	10
Total	320	480	170	80

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	800	170	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan EIS			
Scenario	Cumualtive Plus Preferred Alt			
Peak Hour	PM			

Major Street	Dry Creek Road
Minor Street	U Street

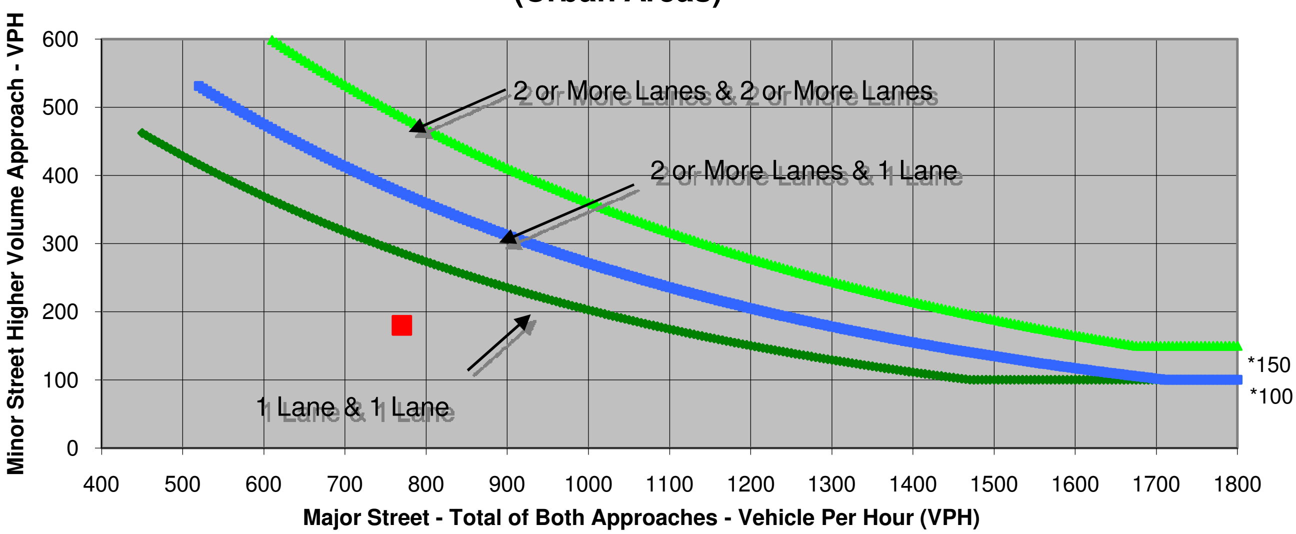
Turn Movement Volumes

	NB	SB	EB	WB
Left	110	10	40	100
Through	390	220	60	70
Right	30	10	50	10
Total	530	240	150	180

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	770	180	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2		
Project	Elverta Specific Plan EIS				
Scenario	Cumualtive Plus Preferred Alt				
Peak Hour	AM				

Major Street: Dry Creek Road
Minor Street: Q Street

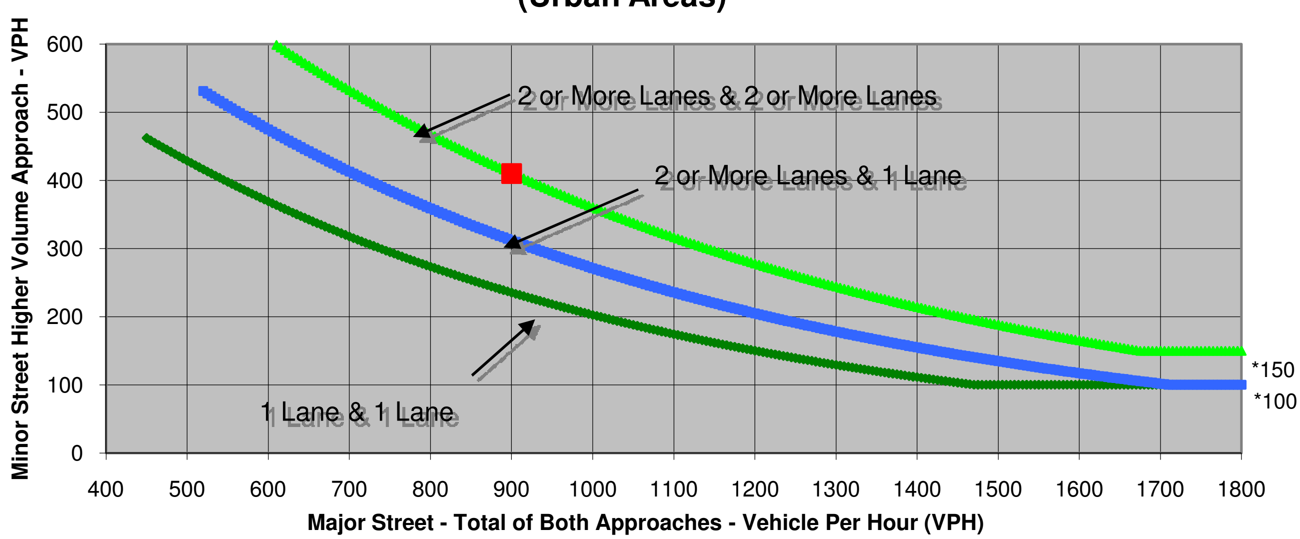
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	20	30	200
Through	270	380	110	200
Right	60	120	60	10
Total	380	520	200	410

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	900	410	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 2

Major Street: Dry Creek Road
Minor Street: Q Street

Project: Elverta Specific Plan EIS
Scenario: Cumualtive Plus Preferred Alt
Peak Hour: PM

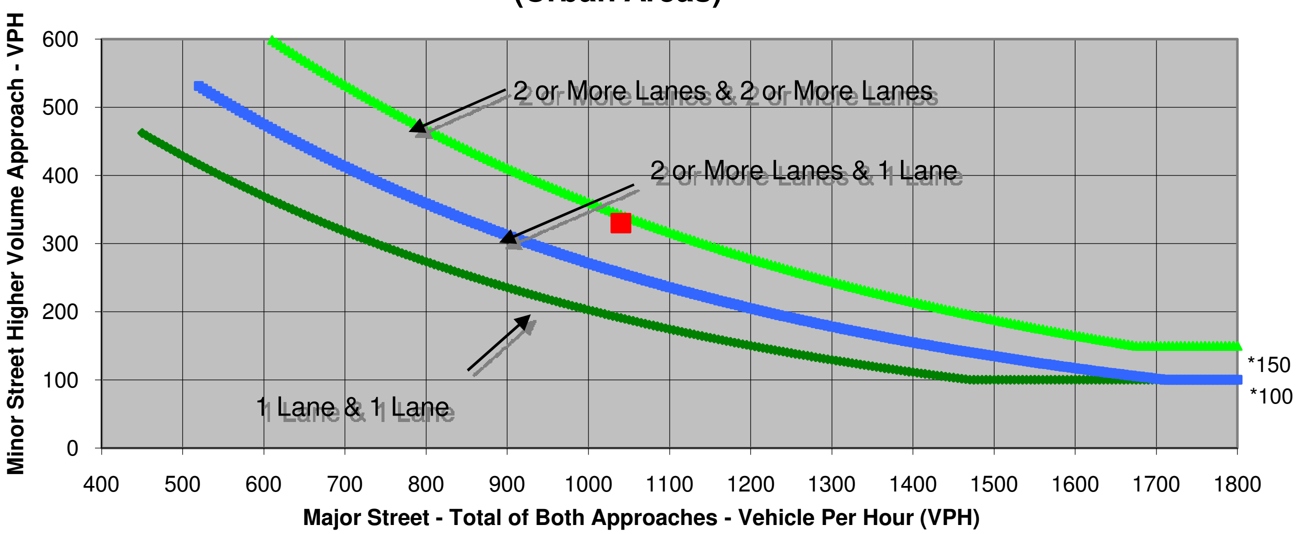
Turn Movement Volumes

	NB	SB	EB	WB
Left	90	10	150	120
Through	350	330	130	140
Right	210	50	50	20
Total	650	390	330	280

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	1,040	330	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	16th Street
Minor Street	U Street

Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	AM

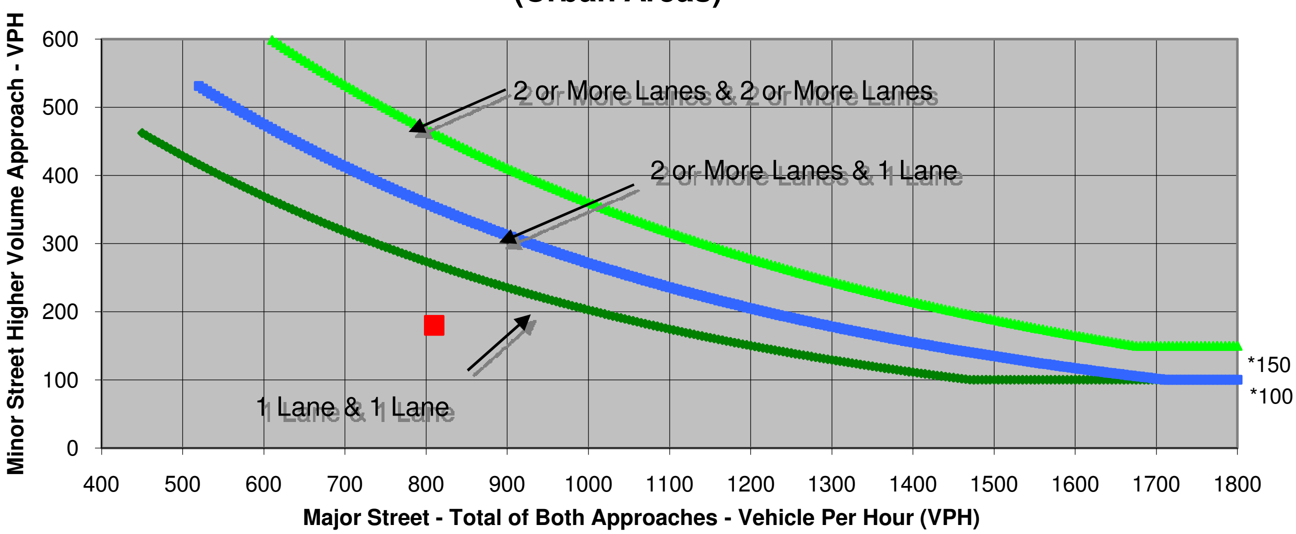
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	140	30
Through	80	600	10	10
Right	10	100	30	20
Total	100	710	180	60

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	810	180	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	PM

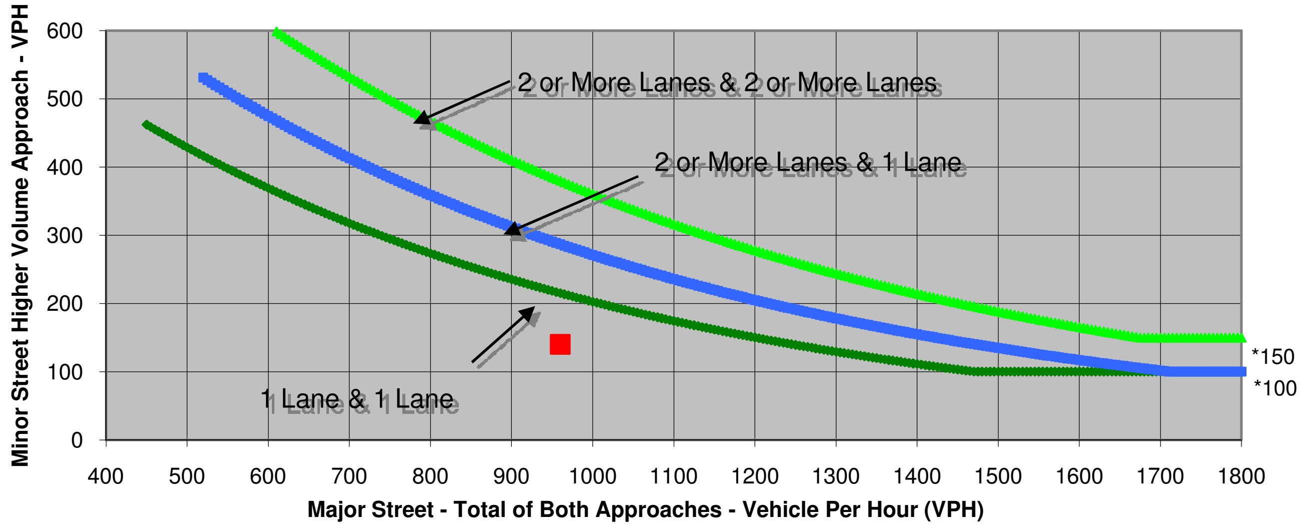
Turn Movement Volumes

	NB	SB	EB	WB
Left	40	30	120	20
Through	500	200	10	10
Right	30	160	10	10
Total	570	390	140	40

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	960	140	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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TRANSPORTATION CONSULTANTS

Sheet No	1	of	2		
Major Street	16th Street	Project	Elverta Specific Plan EIS		
Minor Street	Q Street	Scenario	Cumualtive Plus Preferred Alt		
		Peak Hour	AM		

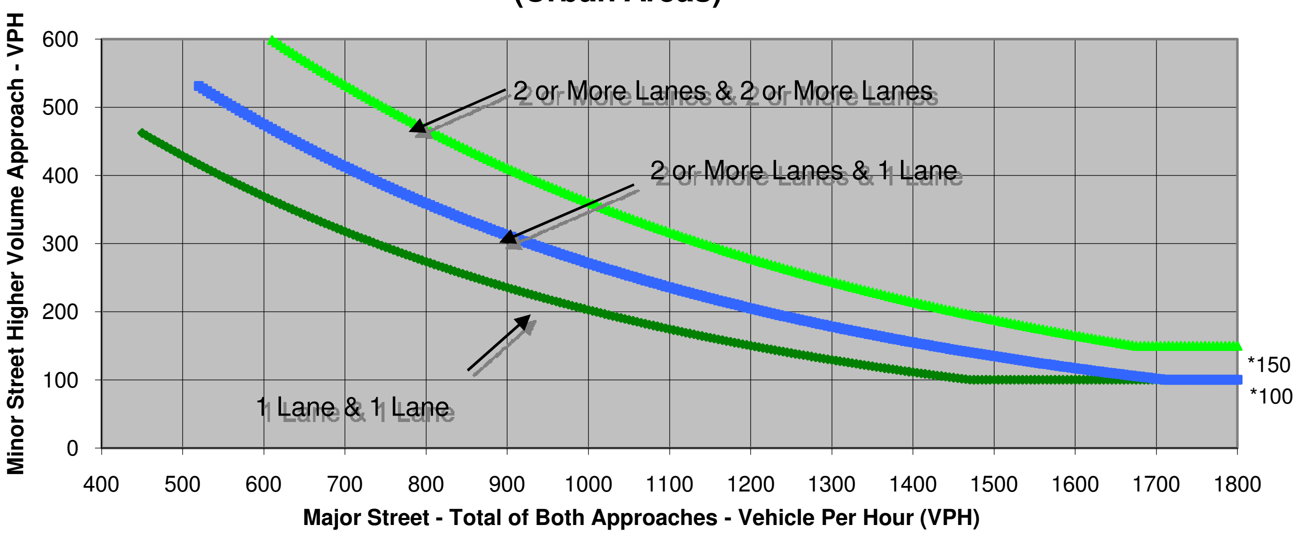
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	300	50	0
Through	0	0	150	70
Right	0	360	0	50
Total	0	660	200	120

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** Q Street	**Warrant Met**
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	320	660	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2

Major Street	16th Street
Minor Street	Q Street
Project	Elverta Specific Plan EIS
Scenario	Cumualtive Plus Preferred Alt
Peak Hour	PM

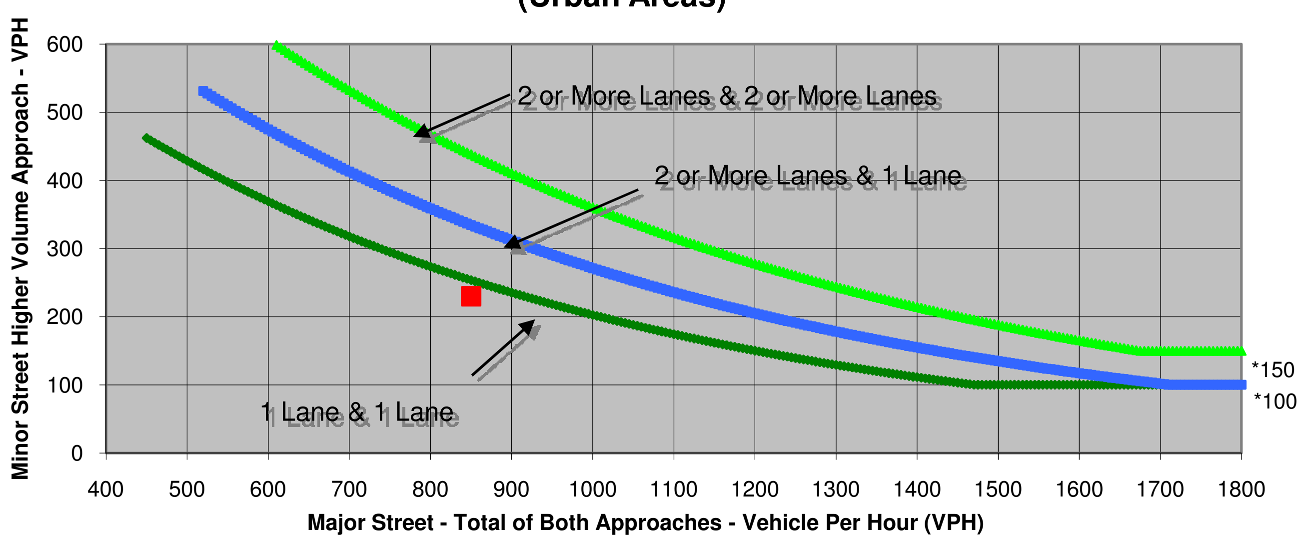
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	90	270	0
Through	0	0	130	150
Right	0	140	0	300
Total	0	230	400	450

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street Q Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	850	230	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Major Street	Elverta Road			
Minor Street	9th Street			

Sheet No	1	of	2	
Project	Elverta Specific Plan			
Scenario	Cumulative Plus Approved SP			
Peak Hour	AM			

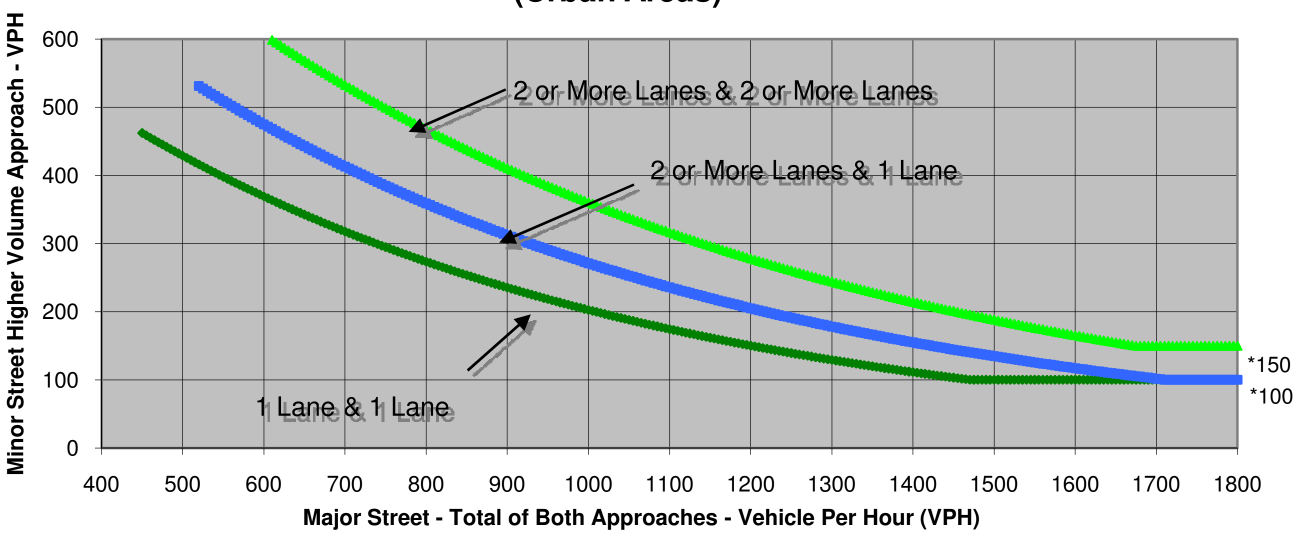
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	320
Through	0	0	680	1,170
Right	80	0	70	0
Total	90	0	750	1,490

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	2,240	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan			
Scenario	Cumulative Plus Approved SP			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	9th Street

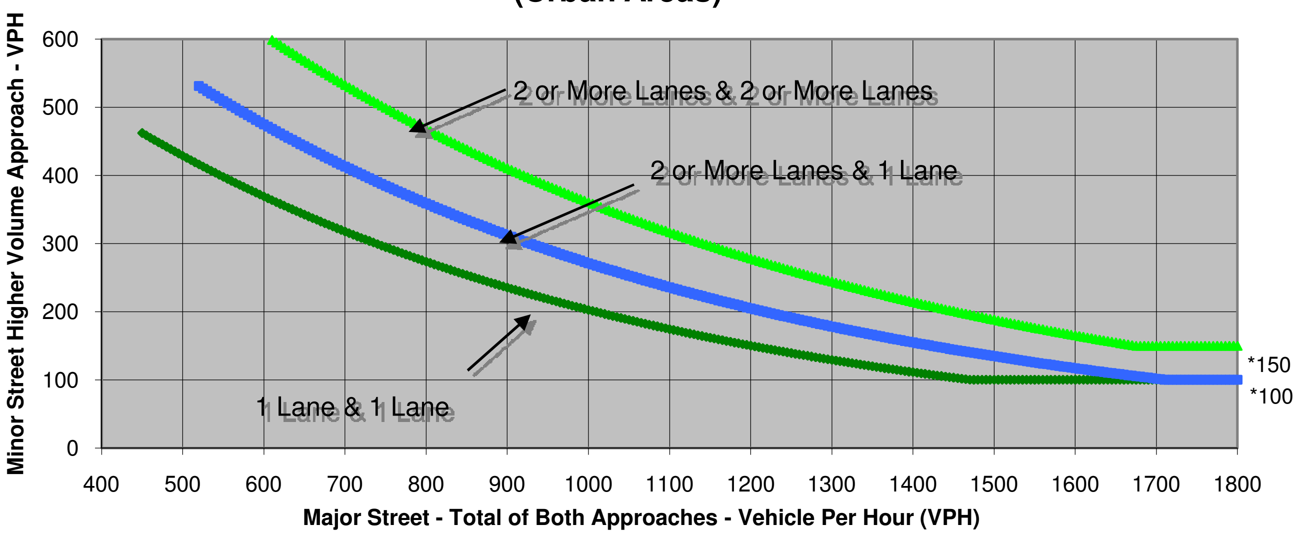
Turn Movement Volumes

	NB	SB	EB	WB
Left	70	0	0	110
Through	0	0	1,290	820
Right	250	0	40	0
Total	320	0	1,330	930

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,260	320	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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TRANSPORTATION CONSULTANTS

Sheet No	1	of	2

Major Street	Dry Creek Road
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus Approved SP
Peak Hour	AM

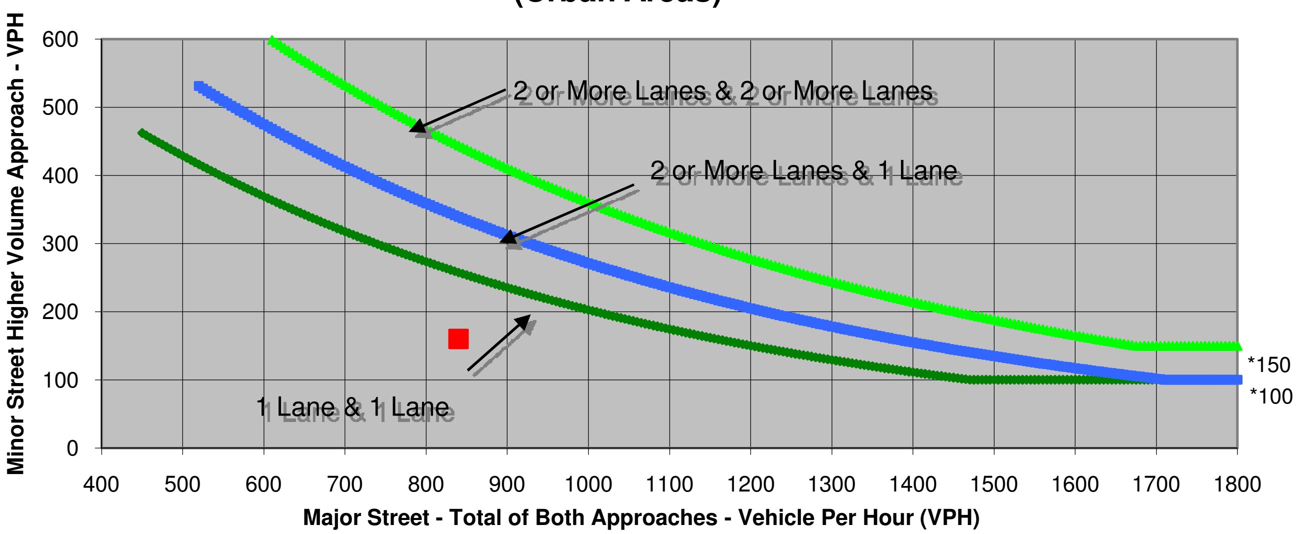
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	10	20
Through	190	460	50	60
Right	110	50	100	10
Total	320	520	160	90

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	840	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No | 2 | of | 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus Approved SP
Peak Hour	PM

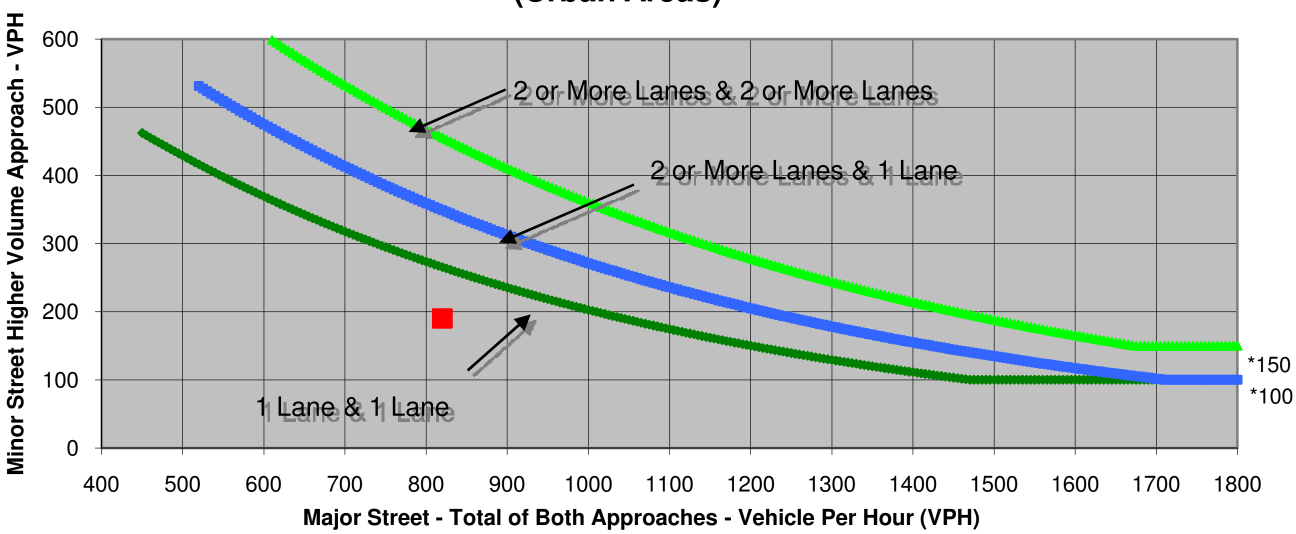
Turn Movement Volumes

	NB	SB	EB	WB
Left	120	10	40	110
Through	410	240	60	70
Right	30	10	60	10
Total	560	260	160	190

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	820	190	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus Approved SP
Peak Hour	AM

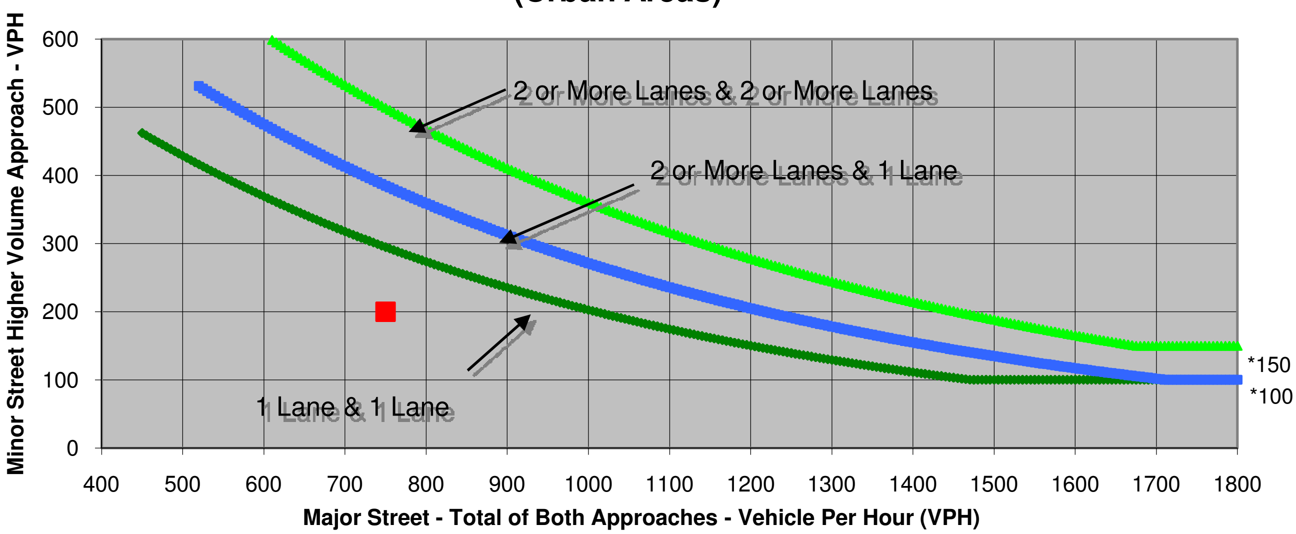
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	150	30
Through	70	560	10	10
Right	10	80	40	10
Total	100	650	200	50

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	750	200	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus Approved SP
Peak Hour	PM

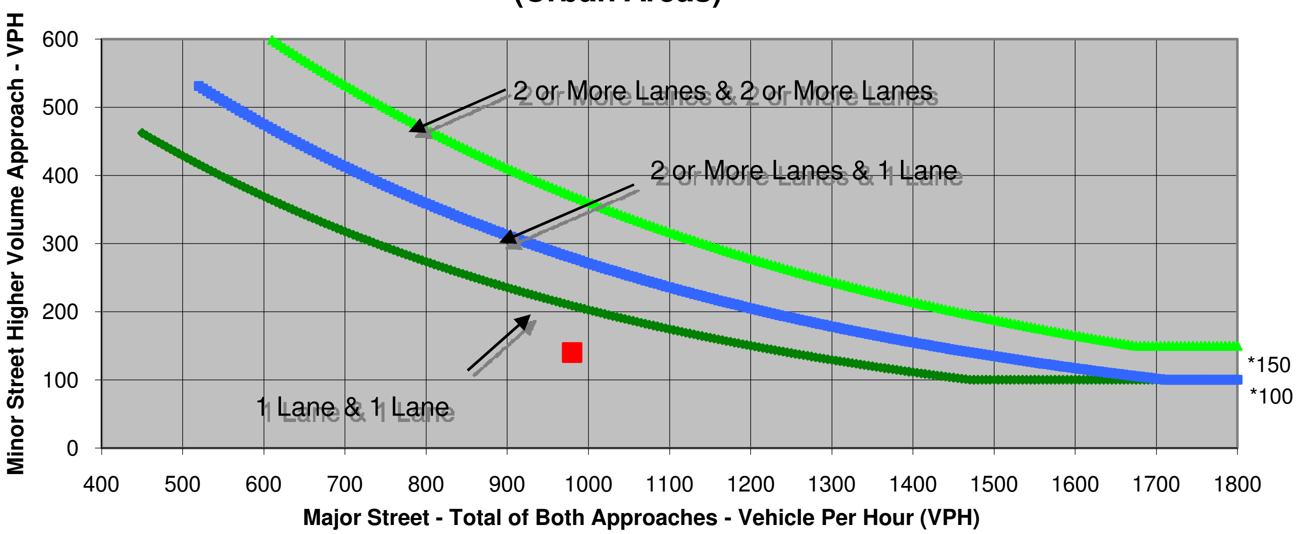
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	30	120	20
Through	520	190	10	10
Right	30	160	10	10
Total	600	380	140	40

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	980	140	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	Elverta Road
Minor Street	9th Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	AM

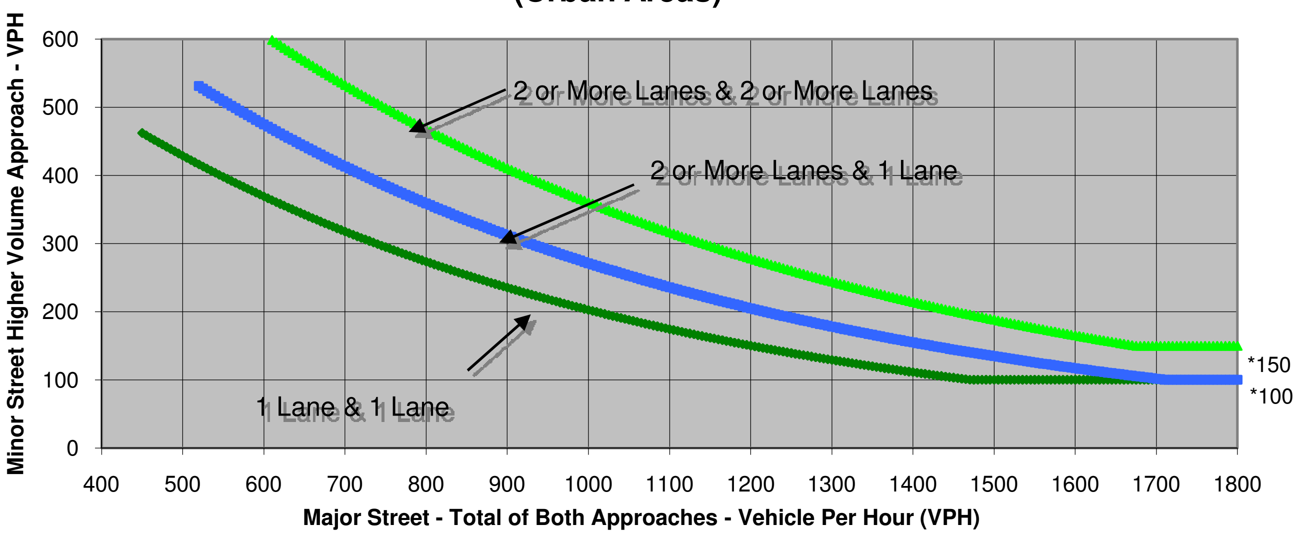
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	340
Through	0	0	670	1,200
Right	90	0	50	0
Total	100	0	720	1,540

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,260	100	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Major Street	Elverta Road
Minor Street	9th Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	PM

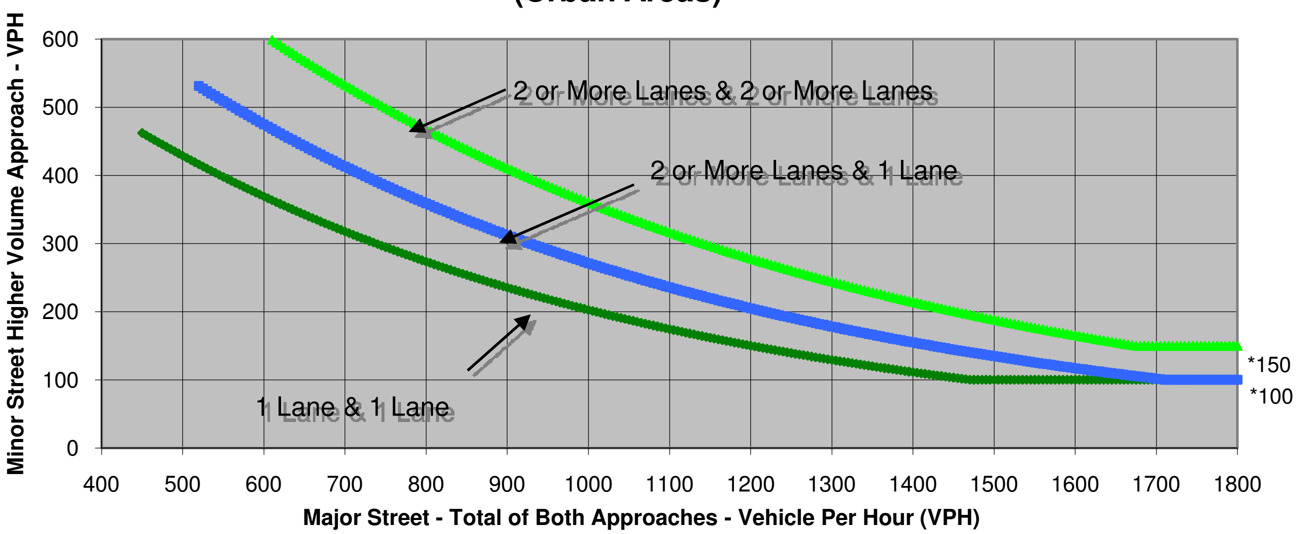
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	0	0	110
Through	0	0	1,320	820
Right	270	0	30	0
Total	320	0	1,350	930

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,280	320	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 1 of 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	AM

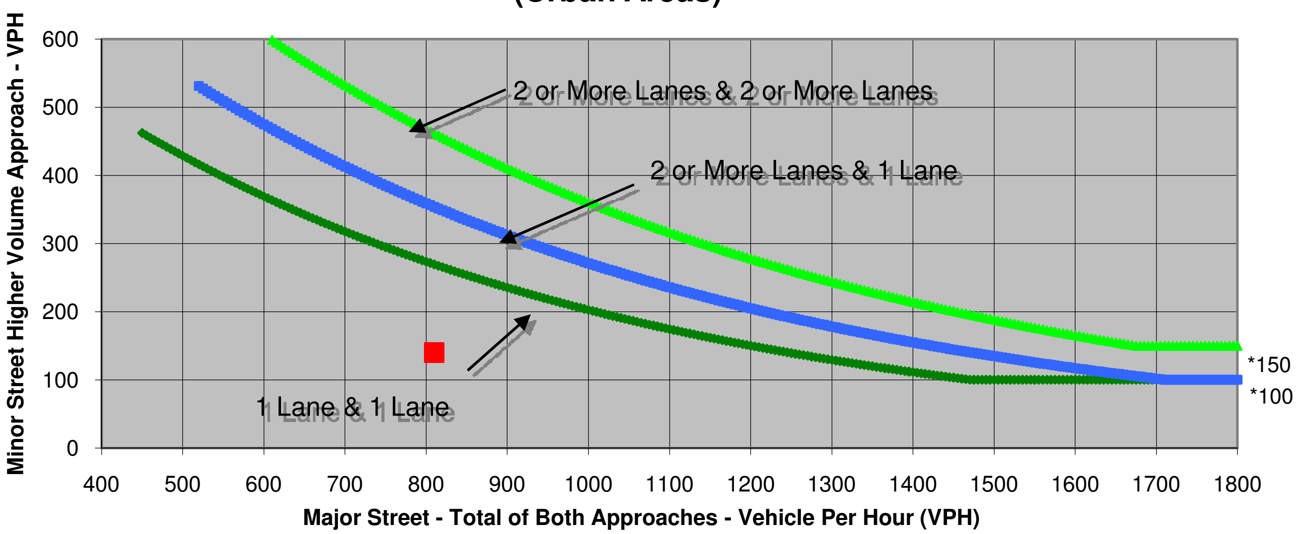
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	10	20
Through	180	440	50	50
Right	120	40	80	10
Total	320	490	140	80

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	810	140	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	PM

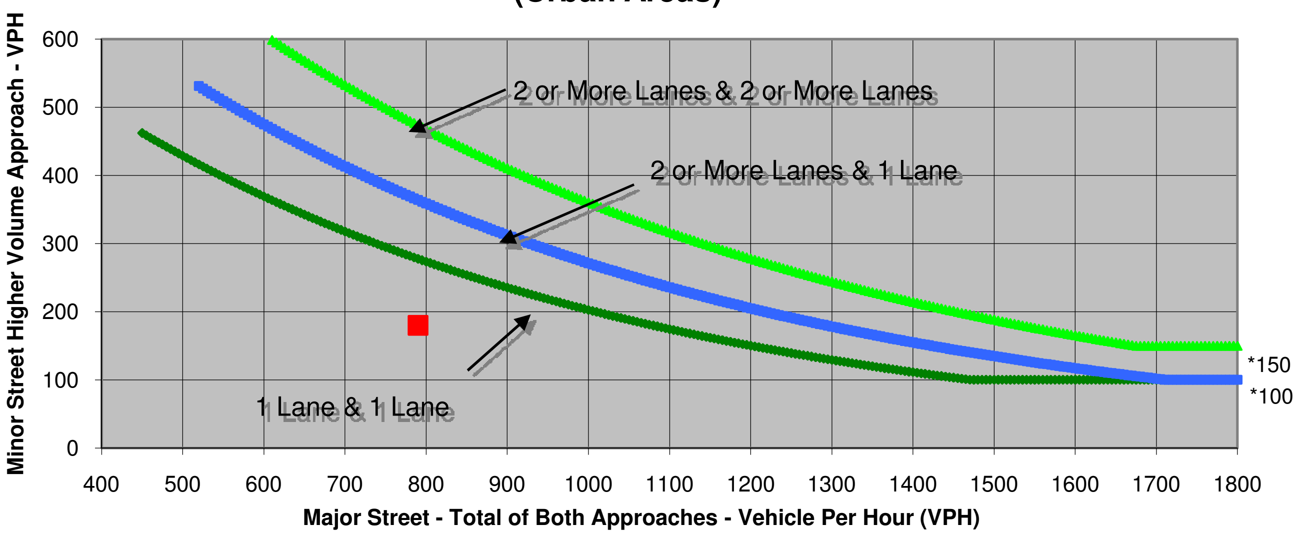
Turn Movement Volumes

	NB	SB	EB	WB
Left	90	10	30	100
Through	400	240	50	70
Right	40	10	40	10
Total	530	260	120	180

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	790	180	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	AM

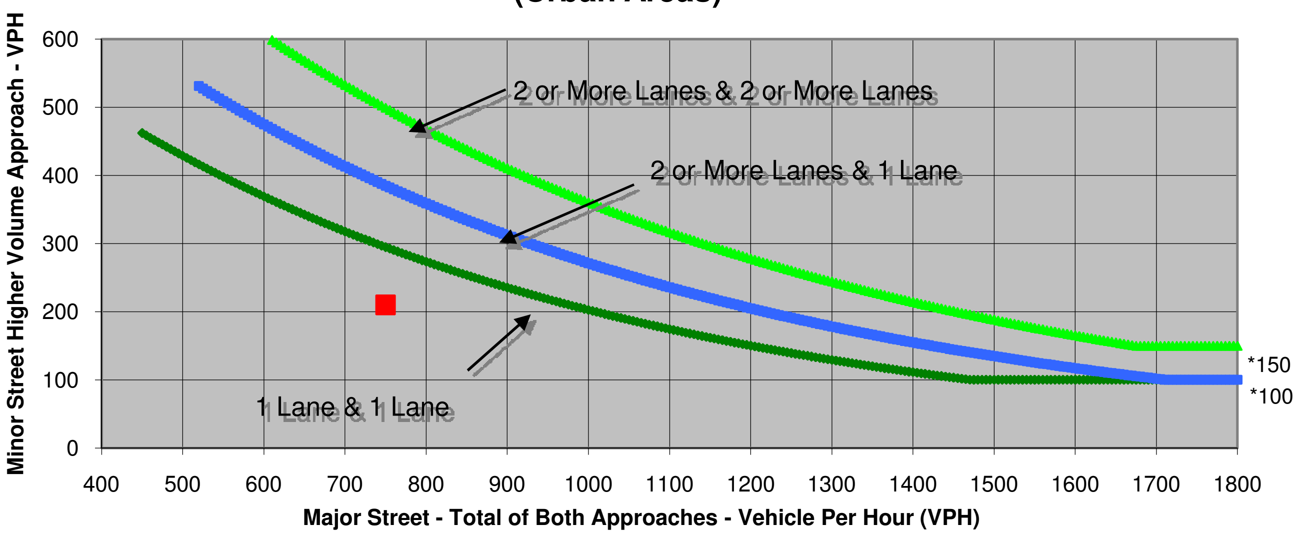
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	160	30
Through	70	560	10	10
Right	10	90	40	10
Total	90	660	210	50

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	750	210	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus Minimal Impact
Peak Hour	PM

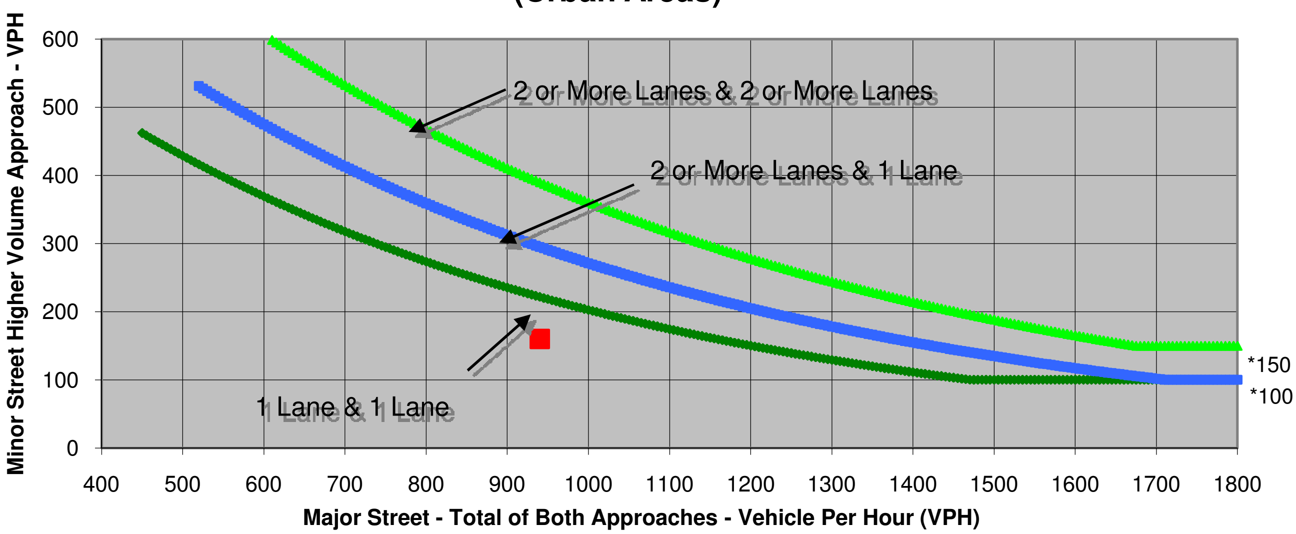
Turn Movement Volumes

	NB	SB	EB	WB
Left	50	30	140	20
Through	480	190	10	10
Right	30	160	10	10
Total	560	380	160	40

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



* Note: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.
Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	940	160	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2

Major Street	Elverta Road
Minor Street	9th Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus No Federal Action
Peak Hour	AM

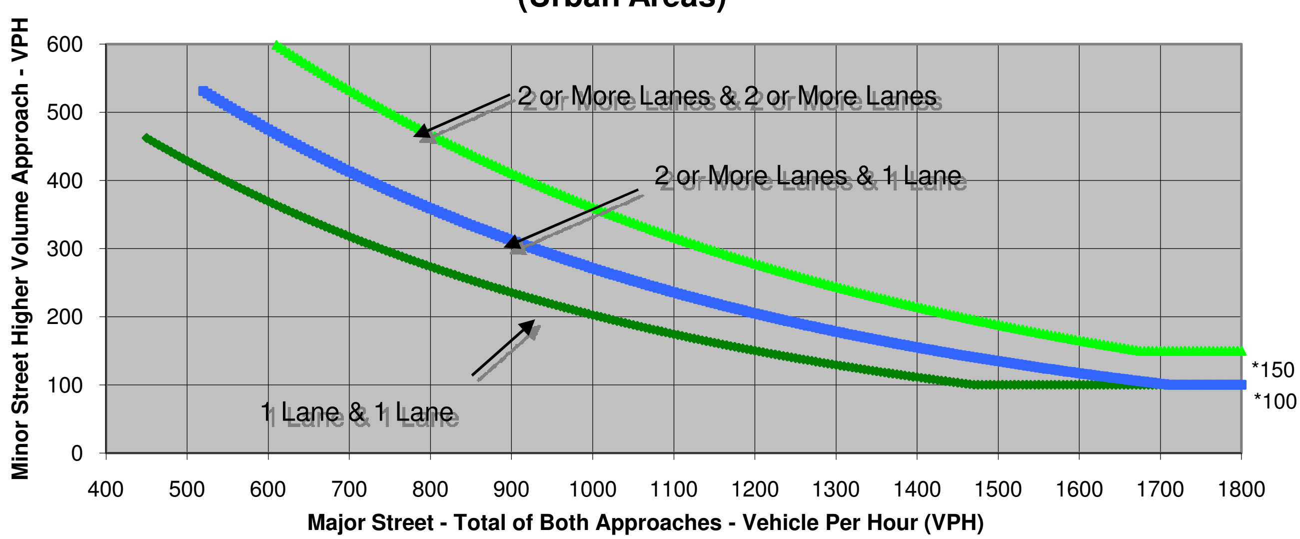
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	240
Through	0	0	690	1,190
Right	70	0	10	0
Total	80	0	700	1,430

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	2,130	80	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	
Project	Elverta Specific Plan			
Scenario	Cumulative Plus No Federal Action			
Peak Hour	PM			

Major Street	Elverta Road
Minor Street	9th Street

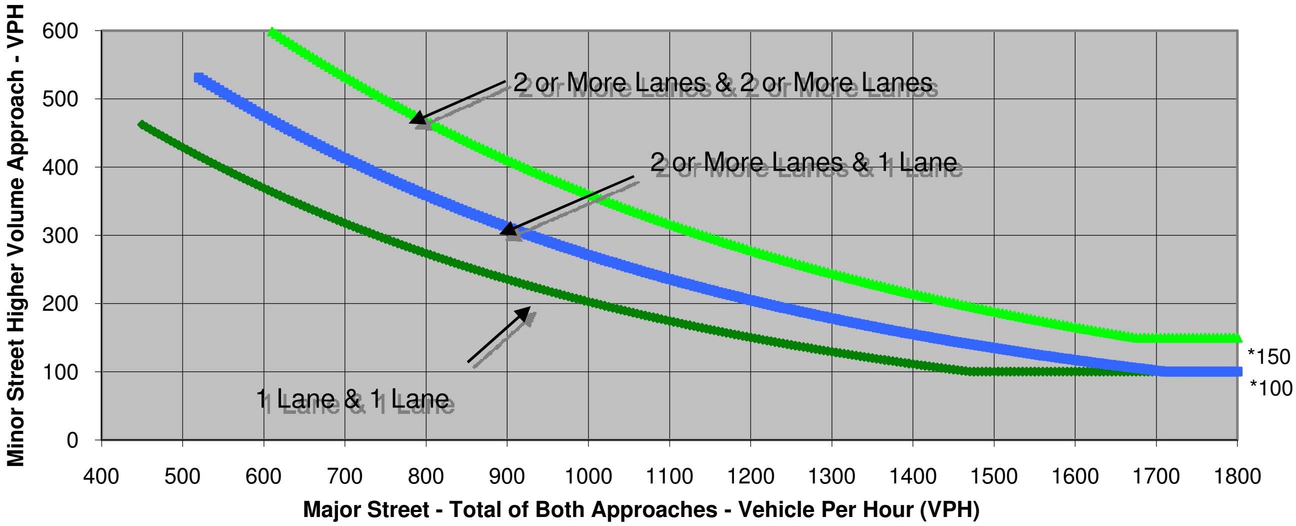
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	0	80
Through	0	0	1,210	830
Right	260	0	10	0
Total	270	0	1,220	910

Major Street Direction

	North/South
x	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Elverta Road	Minor Street 9th Street	Warrant Met
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	2,130	270	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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TRANSPORTATION CONSULTANTS

Sheet No	1	of	2

Major Street	Dry Creek Road
Minor Street	U Street

Project	Elverta Specific Plan
Scenario	Cumulative Plus No Federal Action
Peak Hour	AM

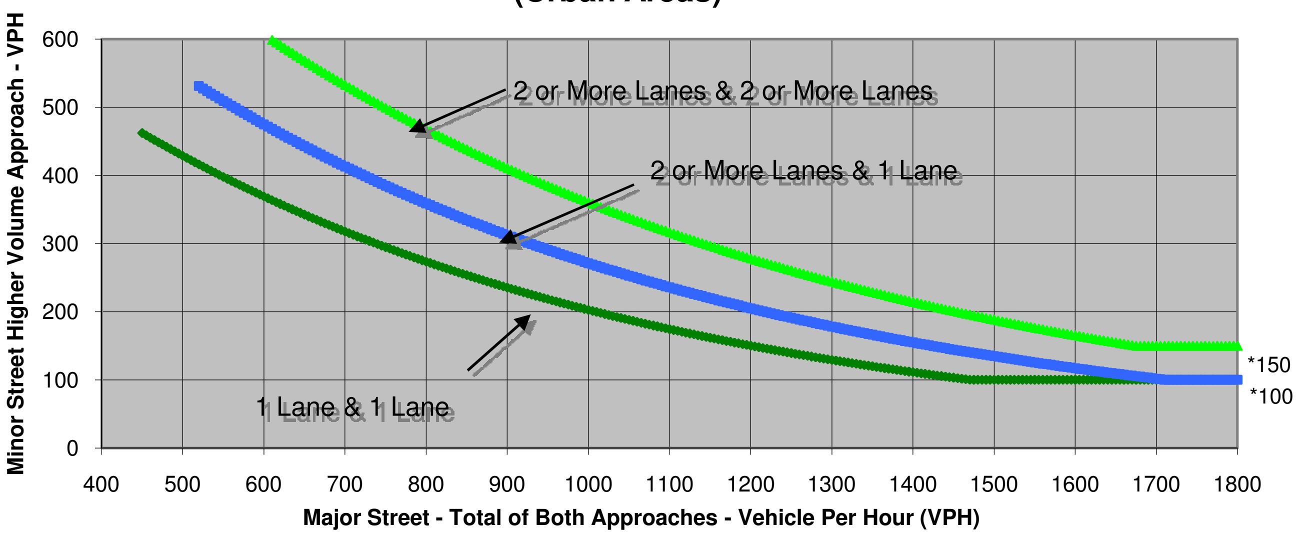
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	10	260
Through	10	10	60	30
Right	180	10	90	10
Total	210	30	160	300

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	240	300	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	2	of	2	

Major Street	Dry Creek Road
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus No Federal Action
Peak Hour	PM

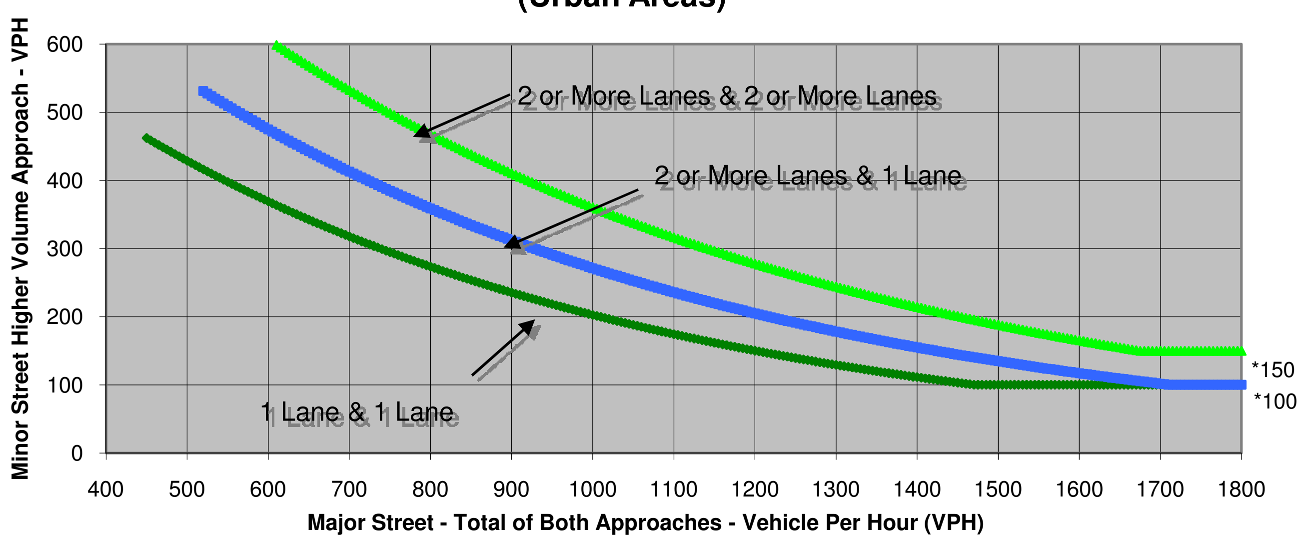
Turn Movement Volumes

	NB	SB	EB	WB
Left	80	10	10	230
Through	10	10	40	60
Right	220	10	40	10
Total	310	30	90	300

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street Dry Creek Road	**Minor Street** U Street	**Warrant Met**
Number of Approach Lanes	1	1	NO
Traffic Volume (VPH) *	340	300	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No	1	of	2	

Major Street	16th Street
Minor Street	U Street
Project	Elverta Specific Plan
Scenario	Cumulative Plus No Federal Action
Peak Hour	AM

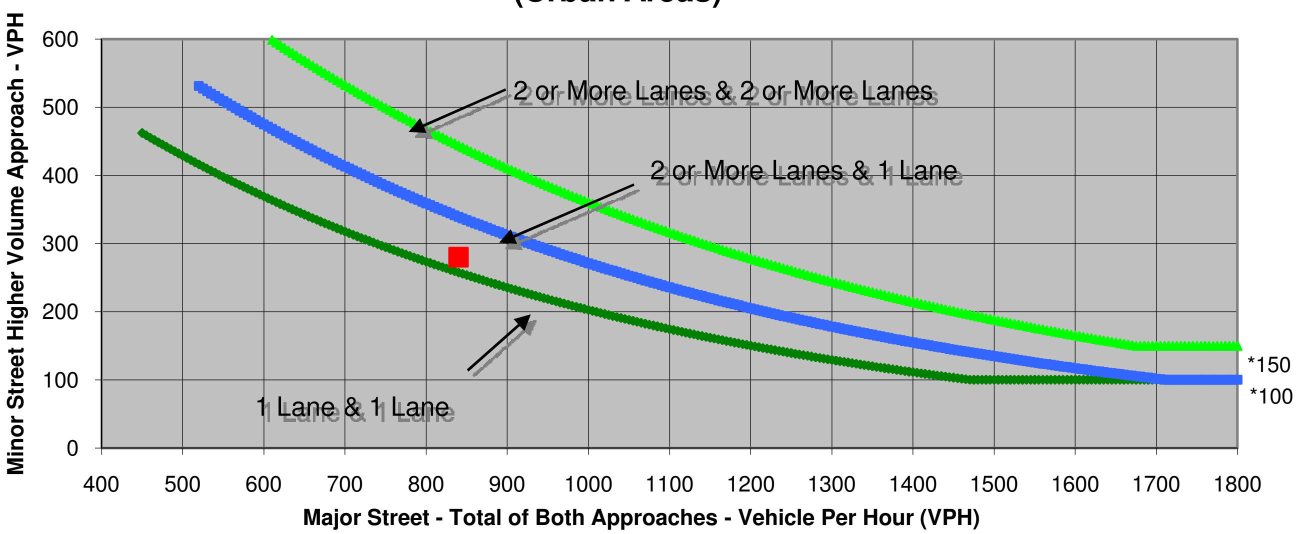
Turn Movement Volumes

	NB	SB	EB	WB
Left	10	10	230	30
Through	70	390	10	10
Right	10	350	40	10
Total	90	750	280	50

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	840	280	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Sheet No 2 of 2

Major Street	16th Street	
Minor Street	U Street	

Project	Elverta Specific Plan
Scenario	Cumulative Plus No Federal Action
Peak Hour	PM

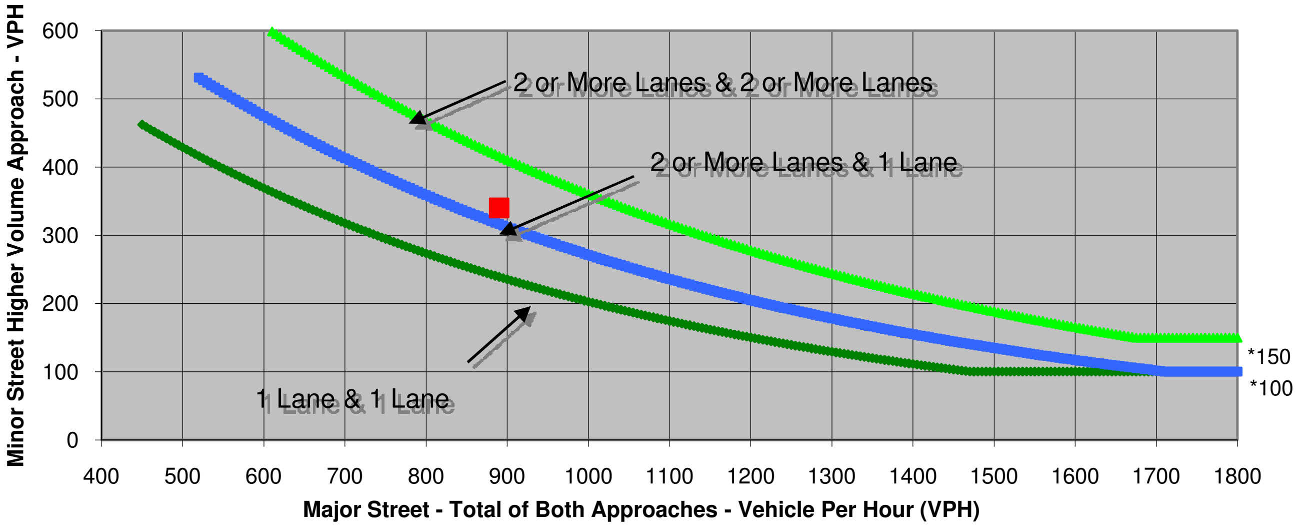
Turn Movement Volumes

	NB	SB	EB	WB
Left	40	10	320	10
Through	350	160	10	10
Right	30	300	10	10
Total	420	470	340	30

Major Street Direction

x	North/South
	East/West

Figure 4C-3
Warrant 3, Peak Hour
(Urban Areas)



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Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

	Major Street 16th Street	Minor Street U Street	Warrant Met
Number of Approach Lanes	1	1	YES
Traffic Volume (VPH) *	890	340	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Appendix D

Existing and Cumulative Mitigations

Appendix D-1: Existing Plus Project Mitigation

Existing Plus Preferred Alternative Conditions

Existing Plus Approved Specific Plan Conditions

Existing Plus Minimal Impact Conditions

Existing Plus No Federal Action Conditions

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1861			1863	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1861			1863	1770	1583
Volume (vph)	116	1	0	952	7	299
Peak-hour factor, PHF	0.79	0.79	0.84	0.84	0.92	0.92
Adj. Flow (vph)	147	1	0	1133	8	325
RTOR Reduction (vph)	0	0	0	0	0	276
Lane Group Flow (vph)	148	0	0	1133	8	49
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	40.7			40.7	8.6	8.6
Effective Green, g (s)	40.7			40.7	8.6	8.6
Actuated g/C Ratio	0.71			0.71	0.15	0.15
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1322			1323	266	238
v/s Ratio Prot	0.08			c0.61	0.00	
v/s Ratio Perm						c0.03
v/c Ratio	0.11			0.86	0.03	0.20
Uniform Delay, d1	2.6			6.1	20.8	21.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.0			5.7	0.0	0.4
Delay (s)	2.6			11.8	20.8	21.8
Level of Service	A			B	C	C
Approach Delay (s)	2.6			11.8	21.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1444	3432		1770	3503		1770	1689		1770	1833	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1444	3432		1770	3503		1770	1689		1770	1833	
Volume (vph)	4	284	4	106	1102	4	1	13	21	3	35	4
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.75	0.75	0.75	0.83	0.83	0.83
Adj. Flow (vph)	5	326	5	114	1185	4	1	17	28	4	42	5
RTOR Reduction (vph)	0	1	0	0	0	0	0	26	0	0	5	0
Lane Group Flow (vph)	5	330	0	114	1189	0	1	19	0	4	42	0
Heavy Vehicles (%)	25%	5%	2%	2%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.5	21.1		2.9	23.5		0.4	2.9		0.5	3.0	
Effective Green, g (s)	0.5	21.1		2.9	23.5		0.4	2.9		0.5	3.0	
Actuated g/C Ratio	0.01	0.49		0.07	0.54		0.01	0.07		0.01	0.07	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	17	1669		118	1897		16	113		20	127	
v/s Ratio Prot	0.00	0.10		c0.06	c0.34		0.00	0.01		c0.00	c0.02	
v/s Ratio Perm												
v/c Ratio	0.29	0.20		0.97	0.63		0.06	0.17		0.20	0.33	
Uniform Delay, d1	21.3	6.3		20.2	6.9		21.3	19.1		21.3	19.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.4	0.1		71.5	0.7		1.6	0.7		4.9	1.6	
Delay (s)	30.7	6.4		91.7	7.6		23.0	19.8		26.1	20.8	
Level of Service	C	A		F	A		C	B		C	C	
Approach Delay (s)		6.8			14.9			19.9			21.2	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00			0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3470		1444	3524			1389		1770	1582	
Flt Permitted	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (perm)	1770	3470		1444	3524			1389		1770	1582	
Volume (vph)	4	303	1	3	1162	34	0	1	5	9	1	50
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.63	0.63	0.63	0.85	0.85	0.85
Adj. Flow (vph)	4	333	1	3	1249	37	0	2	8	11	1	59
RTOR Reduction (vph)	0	0	0	0	2	0	0	8	0	0	50	0
Lane Group Flow (vph)	4	334	0	3	1284	0	0	2	0	11	10	0
Heavy Vehicles (%)	2%	4%	2%	25%	2%	2%	2%	2%	25%	2%	25%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.3	22.8		0.3	22.8			1.7		0.3	6.0	
Effective Green, g (s)	0.3	22.8		0.3	22.8			1.7		0.3	6.0	
Actuated g/C Ratio	0.01	0.55		0.01	0.55			0.04		0.01	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	13	1925		11	1955			57		13	231	
v/s Ratio Prot	c0.00	0.10		0.00	c0.36			0.00		c0.01	c0.01	
v/s Ratio Perm												
v/c Ratio	0.31	0.17		0.27	0.66			0.04		0.85	0.04	
Uniform Delay, d1	20.3	4.5		20.3	6.4			18.9		20.4	15.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	13.0	0.0		13.0	0.8			0.3		166.4	0.1	
Delay (s)	33.3	4.6		33.3	7.2			19.2		186.8	15.2	
Level of Service	C	A		C	A			B		F	B	
Approach Delay (s)		4.9			7.3			19.2			41.7	
Approach LOS		A			A			B			D	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	41.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.96		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1480	3420		1770	3483		1770	1685		1752	1628	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1480	3420		1770	3483		1770	1685		1752	1628	
Volume (vph)	9	299	7	5	1117	102	16	27	9	109	25	64
Peak-hour factor, PHF	0.87	0.87	0.87	0.93	0.93	0.93	0.81	0.81	0.81	0.86	0.86	0.86
Adj. Flow (vph)	10	344	8	5	1201	110	20	33	11	127	29	74
RTOR Reduction (vph)	0	1	0	0	4	0	0	10	0	0	60	0
Lane Group Flow (vph)	10	351	0	5	1307	0	20	34	0	127	43	0
Heavy Vehicles (%)	22%	5%	14%	2%	2%	6%	2%	4%	22%	3%	2%	5%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.9	37.8		0.8	37.7		1.0	5.4		8.1	12.5	
Effective Green, g (s)	0.9	37.8		0.8	37.7		1.0	5.4		8.1	12.5	
Actuated g/C Ratio	0.01	0.56		0.01	0.55		0.01	0.08		0.12	0.18	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	20	1898		21	1928		26	134		208	299	
v/s Ratio Prot	c0.01	0.10		0.00	c0.38		0.01	c0.02		c0.07	0.03	
v/s Ratio Perm												
v/c Ratio	0.50	0.18		0.24	0.68		0.77	0.25		0.61	0.14	
Uniform Delay, d1	33.4	7.5		33.3	10.9		33.4	29.5		28.5	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.3	0.0		5.8	1.0		80.9	1.0		5.2	0.2	
Delay (s)	51.7	7.6		39.1	11.8		114.4	30.5		33.7	23.5	
Level of Service	D	A		D	B		F	C		C	C	
Approach Delay (s)		8.8			11.9			56.7			29.2	
Approach LOS		A			B			E			C	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3322		1687	3539	1736	1509
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3322		1687	3539	1736	1509
Volume (vph)	355	82	59	1164	49	28
Peak-hour factor, PHF	0.89	0.89	0.93	0.93	0.71	0.71
Adj. Flow (vph)	399	92	63	1252	69	39
RTOR Reduction (vph)	25	0	0	0	0	33
Lane Group Flow (vph)	466	0	63	1252	69	6
Heavy Vehicles (%)	6%	4%	7%	2%	4%	7%
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	15.0		2.3	21.3	4.9	4.9
Effective Green, g (s)	15.0		2.3	21.3	4.9	4.9
Actuated g/C Ratio	0.44		0.07	0.62	0.14	0.14
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1457		113	2204	249	216
v/s Ratio Prot	0.14		0.04	c0.35	c0.04	
v/s Ratio Perm						0.00
v/c Ratio	0.32		0.56	0.57	0.28	0.03
Uniform Delay, d1	6.3		15.5	3.8	13.1	12.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		5.8	0.3	0.6	0.0
Delay (s)	6.4		21.3	4.1	13.7	12.6
Level of Service	A		C	A	B	B
Approach Delay (s)	6.4			4.9	13.3	
Approach LOS	A			A	B	

Intersection Summary			
HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	34.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.91			1.00		1.00	0.98			1.00	
Flt Protected		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (prot)		1689			1760		1626	1823			1859	
Flt Permitted		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (perm)		1689			1760		1626	1823			1859	
Volume (vph)	2	19	45	80	18	1	18	173	29	0	607	7
Peak-hour factor, PHF	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	3	26	62	93	21	1	21	199	33	0	660	8
RTOR Reduction (vph)	0	57	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	34	0	0	115	0	21	228	0	0	668	0
Heavy Vehicles (%)	2%	2%	2%	2%	11%	2%	11%	2%	2%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		5.4			6.7		1.3	48.3			43.0	
Effective Green, g (s)		5.4			6.7		1.3	48.3			43.0	
Actuated g/C Ratio		0.07			0.09		0.02	0.67			0.59	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		126			163		29	1216			1104	
v/s Ratio Prot		c0.02			c0.07		c0.01	0.13			c0.36	
v/s Ratio Perm												
v/c Ratio		0.27			0.71		0.72	0.19			0.60	
Uniform Delay, d1		31.6			31.9		35.4	4.6			9.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.1			13.0		61.8	0.1			0.9	
Delay (s)		32.8			44.9		97.2	4.7			10.3	
Level of Service		C			D		F	A			B	
Approach Delay (s)		32.8			44.9			12.3			10.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1678		1770	1803		1736	1778		1770	1856	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1678		1770	1803		1736	1778		1770	1856	
Volume (vph)	6	56	53	132	77	15	47	208	54	36	696	17
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	7	66	62	150	88	17	54	239	62	39	757	18
RTOR Reduction (vph)	0	41	0	0	8	0	0	9	0	0	1	0
Lane Group Flow (vph)	7	87	0	150	97	0	54	292	0	39	774	0
Heavy Vehicles (%)	2%	6%	4%	2%	3%	2%	4%	4%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	9.7		9.5	18.5		3.2	45.1		3.4	45.3	
Effective Green, g (s)	0.7	9.7		9.5	18.5		3.2	45.1		3.4	45.3	
Actuated g/C Ratio	0.01	0.12		0.11	0.22		0.04	0.54		0.04	0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	15	194		201	399		66	958		72	1005	
v/s Ratio Prot	0.00	c0.05		c0.08	0.05		c0.03	0.16		0.02	c0.42	
v/s Ratio Perm												
v/c Ratio	0.47	0.45		0.75	0.24		0.82	0.31		0.54	0.77	
Uniform Delay, d1	41.3	34.5		35.9	26.8		40.0	10.7		39.4	15.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.2	1.7		14.0	0.3		52.2	0.2		8.1	3.7	
Delay (s)	62.5	36.2		49.9	27.2		92.1	10.8		47.5	18.8	
Level of Service	E	D		D	C		F	B		D	B	
Approach Delay (s)		37.5			40.5			23.2			20.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1709	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1709	
Volume (vph)	55	814	118	224	731	84	176	49	281	322	156	190
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	59	875	127	241	786	90	189	53	302	350	170	207
RTOR Reduction (vph)	0	0	86	0	0	55	0	0	238	0	41	0
Lane Group Flow (vph)	59	875	41	241	786	35	189	53	64	350	336	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.2	31.0	31.0	17.1	40.9	40.9	14.6	13.1	13.1	29.1	27.6	
Effective Green, g (s)	7.2	31.0	31.0	17.1	40.9	40.9	14.6	13.1	13.1	29.1	27.6	
Actuated g/C Ratio	0.07	0.29	0.29	0.16	0.38	0.38	0.14	0.12	0.12	0.27	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	108	1012	462	266	1349	609	243	215	193	395	444	
v/s Ratio Prot	0.04	c0.25		c0.15	0.22		0.11	0.03		c0.24	c0.20	
v/s Ratio Perm			0.03			0.02			0.04			
v/c Ratio	0.55	0.86	0.09	0.91	0.58	0.06	0.78	0.25	0.33	0.89	0.76	
Uniform Delay, d1	48.0	35.7	27.4	43.8	25.9	20.6	44.3	42.1	42.6	37.0	36.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.5	7.8	0.1	31.4	0.6	0.0	14.5	0.6	1.0	20.5	7.2	
Delay (s)	53.5	43.5	27.5	75.2	26.6	20.6	58.7	42.7	43.6	57.5	43.5	
Level of Service	D	D	C	E	C	C	E	D	D	E	D	
Approach Delay (s)		42.1			36.6			48.8			50.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	43.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3471	1583	1770	3539	1770	1524
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3471	1583	1770	3539	1770	1524
Volume (vph)	1539	236	170	837	66	51
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.76	0.76
Adj. Flow (vph)	1655	254	183	900	87	67
RTOR Reduction (vph)	0	97	0	0	0	63
Lane Group Flow (vph)	1655	157	183	900	87	4
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	3	
Permitted Phases		2				3
Actuated Green, G (s)	51.1	51.1	12.3	68.4	5.8	5.8
Effective Green, g (s)	52.1	52.1	13.1	69.2	5.3	5.3
Actuated g/C Ratio	0.59	0.59	0.15	0.78	0.06	0.06
Clearance Time (s)	5.0	5.0	4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8	6.8	6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	2050	935	263	2777	106	92
v/s Ratio Prot	c0.48		c0.10	0.25	c0.05	
v/s Ratio Perm		0.10				0.00
v/c Ratio	0.81	0.17	0.70	0.32	0.82	0.04
Uniform Delay, d1	14.1	8.2	35.7	2.7	41.0	39.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.3	11.9	0.2	36.3	0.1
Delay (s)	17.2	8.5	47.5	3.0	77.2	39.1
Level of Service	B	A	D	A	E	D
Approach Delay (s)	16.0			10.5	60.7	
Approach LOS	B			B	E	

Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	17.7
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	189	39	454	730	35	348
Peak-hour factor, PHF	0.93	0.93	0.97	0.97	0.87	0.87
Adj. Flow (vph)	203	42	468	753	40	400
RTOR Reduction (vph)	0	22	0	0	0	260
Lane Group Flow (vph)	203	20	468	753	40	140
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	34.0	34.0	21.5	59.1	4.5	26.0
Effective Green, g (s)	36.0	36.0	21.1	61.1	4.8	25.9
Actuated g/C Ratio	0.49	0.49	0.29	0.83	0.06	0.35
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	908	771	505	1540	115	640
v/s Ratio Prot	0.11		c0.26	c0.40	c0.02	0.06
v/s Ratio Perm		0.01				0.03
v/c Ratio	0.22	0.03	0.93	0.49	0.35	0.22
Uniform Delay, d1	10.9	9.8	25.6	1.9	33.1	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	22.8	1.1	0.7	0.1
Delay (s)	11.5	9.9	48.5	3.0	33.7	16.9
Level of Service	B	A	D	A	C	B
Approach Delay (s)	11.2			20.4	18.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	2787	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	2787	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	442	198	964	429	409	348	403	463	84	110	991	350
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	475	213	1037	452	431	366	433	498	90	116	1043	368
RTOR Reduction (vph)	0	0	352	0	0	162	0	0	55	0	0	164
Lane Group Flow (vph)	475	213	685	452	431	204	433	498	35	116	1043	204
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	27.7	51.8	51.8	26.5	50.5	50.5	25.5	66.2	66.2	9.1	49.4	49.4
Effective Green, g (s)	29.2	53.4	53.4	28.0	52.2	52.2	27.0	67.7	67.7	10.6	51.3	51.3
Actuated g/C Ratio	0.17	0.30	0.30	0.16	0.30	0.30	0.15	0.39	0.39	0.06	0.29	0.29
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	571	1076	847	547	1051	470	528	1959	610	207	1485	462
v/s Ratio Prot	c0.14	0.06		0.13	0.12		c0.13	0.10		0.03	c0.21	
v/s Ratio Perm			c0.25			0.13			0.02			0.13
v/c Ratio	0.83	0.20	0.81	0.83	0.41	0.43	0.82	0.25	0.06	0.56	0.70	0.44
Uniform Delay, d1	70.9	45.3	56.4	71.5	49.4	49.8	72.0	36.8	33.9	80.3	55.4	50.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.2	6.5	9.4	0.7	1.8	9.4	0.2	0.1	2.1	2.1	1.6
Delay (s)	80.5	45.5	62.9	80.9	50.1	51.6	81.4	37.0	34.0	82.3	57.5	52.1
Level of Service	F	D	E	F	D	D	F	D	C	F	E	D
Approach Delay (s)		65.6			61.7			55.6			58.1	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	175.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1854			1863	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1854			1863	1770	1583
Volume (vph)	94	3	0	410	19	1166
Peak-hour factor, PHF	0.84	0.84	0.88	0.88	0.90	0.90
Adj. Flow (vph)	112	4	0	466	21	1296
RTOR Reduction (vph)	1	0	0	0	0	277
Lane Group Flow (vph)	115	0	0	466	21	1019
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	30.8			30.8	66.4	66.4
Effective Green, g (s)	30.8			30.8	66.4	66.4
Actuated g/C Ratio	0.29			0.29	0.63	0.63
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	543			545	1117	999
v/s Ratio Prot	0.06			c0.25	0.01	
v/s Ratio Perm						c0.64
v/c Ratio	0.21			0.86	0.02	1.02
Uniform Delay, d1	28.0			35.1	7.2	19.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.2			12.4	0.0	33.5
Delay (s)	28.2			47.5	7.2	52.9
Level of Service	C			D	A	D
Approach Delay (s)	28.2			47.5	52.2	
Approach LOS	C			D	D	

Intersection Summary			
HCM Average Control Delay	49.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	105.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539		1752	3438		1770	1691		1770	1841	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539		1752	3438		1770	1691		1770	1841	
Volume (vph)	22	1397	0	34	562	0	4	60	96	4	25	2
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.97	0.97	0.97	0.70	0.70	0.70
Adj. Flow (vph)	24	1502	0	37	611	0	4	62	99	6	36	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	55	0	0	3	0
Lane Group Flow (vph)	24	1502	0	37	611	0	4	106	0	6	36	0
Heavy Vehicles (%)	2%	2%	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.6	46.6		4.2	48.2		0.9	9.0		1.0	9.1	
Effective Green, g (s)	2.6	46.6		4.2	48.2		0.9	9.0		1.0	9.1	
Actuated g/C Ratio	0.03	0.61		0.05	0.63		0.01	0.12		0.01	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	60	2147		96	2158		21	198		23	218	
v/s Ratio Prot	0.01	c0.42		c0.02	0.18		0.00	c0.06		c0.00	0.02	
v/s Ratio Perm												
v/c Ratio	0.40	0.70		0.39	0.28		0.19	0.54		0.26	0.17	
Uniform Delay, d1	36.3	10.3		35.1	6.5		37.6	31.9		37.5	30.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	1.0		2.6	0.1		4.4	2.8		6.0	0.4	
Delay (s)	40.7	11.3		37.6	6.5		42.0	34.7		43.5	30.8	
Level of Service	D	B		D	A		D	C		D	C	
Approach Delay (s)		11.8			8.3			34.9			32.5	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3537		1770	3486		1770	1572		1770	1489	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1703	3537		1770	3486		1770	1572		1770	1489	
Volume (vph)	33	1461	3	2	584	24	1	1	5	39	2	11
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.45	0.45	0.45	0.71	0.71	0.71
Adj. Flow (vph)	35	1571	3	2	635	26	2	2	11	55	3	15
RTOR Reduction (vph)	0	0	0	0	3	0	0	11	0	0	14	0
Lane Group Flow (vph)	35	1574	0	2	658	0	2	2	0	55	4	0
Heavy Vehicles (%)	6%	2%	25%	2%	3%	2%	2%	25%	2%	2%	25%	9%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.6	28.8		0.4	28.6		0.4	2.1		2.0	3.7	
Effective Green, g (s)	0.6	28.8		0.4	28.6		0.4	2.1		2.0	3.7	
Actuated g/C Ratio	0.01	0.58		0.01	0.58		0.01	0.04		0.04	0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	21	2066		14	2022		14	67		72	112	
v/s Ratio Prot	c0.02	c0.45		0.00	0.19		0.00	0.00		c0.03	c0.00	
v/s Ratio Perm												
v/c Ratio	1.67	0.76		0.14	0.33		0.14	0.04		0.76	0.04	
Uniform Delay, d1	24.3	7.7		24.3	5.4		24.3	22.6		23.4	21.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	444.6	1.7		4.7	0.1		4.7	0.2		37.3	0.1	
Delay (s)	468.9	9.4		28.9	5.5		28.9	22.9		60.8	21.3	
Level of Service	F	A		C	A		C	C		E	C	
Approach Delay (s)		19.4			5.5			23.7			51.0	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.97		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3531		1770	3357		1770	1775		1770	1678	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3531		1770	3357		1770	1775		1770	1678	
Volume (vph)	157	1326	15	9	593	143	6	18	8	124	26	10
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.80	0.80	0.80	0.63	0.63	0.63
Adj. Flow (vph)	169	1426	16	10	645	155	8	22	10	197	41	16
RTOR Reduction (vph)	0	0	0	0	16	0	0	9	0	0	13	0
Lane Group Flow (vph)	169	1442	0	10	784	0	8	23	0	197	44	0
Heavy Vehicles (%)	2%	2%	7%	2%	5%	2%	2%	2%	2%	2%	4%	20%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.0	44.6		1.0	35.6		0.9	4.2		12.7	16.0	
Effective Green, g (s)	10.0	44.6		1.0	35.6		0.9	4.2		12.7	16.0	
Actuated g/C Ratio	0.13	0.57		0.01	0.45		0.01	0.05		0.16	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	225	2006		23	1522		20	95		286	342	
v/s Ratio Prot	c0.10	c0.41		0.01	0.23		0.00	c0.01		c0.11	0.03	
v/s Ratio Perm												
v/c Ratio	0.75	0.72		0.43	0.52		0.40	0.24		0.69	0.13	
Uniform Delay, d1	33.0	12.4		38.5	15.3		38.5	35.6		31.0	25.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.2	1.3		12.6	0.3		12.6	1.3		6.8	0.2	
Delay (s)	46.2	13.6		51.1	15.6		51.1	36.9		37.8	25.7	
Level of Service	D	B		D	B		D	D		D	C	
Approach Delay (s)		17.0			16.0			39.8			35.1	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3508		1736	3505	1770	1509
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3508		1736	3505	1770	1509
Volume (vph)	1385	87	55	656	105	55
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.91	0.91
Adj. Flow (vph)	1428	90	60	713	115	60
RTOR Reduction (vph)	5	0	0	0	0	50
Lane Group Flow (vph)	1513	0	60	713	115	10
Heavy Vehicles (%)	2%	2%	4%	3%	2%	7%
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	28.6		1.9	34.5	8.0	8.0
Effective Green, g (s)	28.6		1.9	34.5	8.0	8.0
Actuated g/C Ratio	0.57		0.04	0.68	0.16	0.16
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1987		65	2395	280	239
v/s Ratio Prot	c0.43		c0.03	0.20	c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.76		0.92	0.30	0.41	0.04
Uniform Delay, d1	8.3		24.2	3.2	19.1	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8		84.3	0.1	1.0	0.1
Delay (s)	10.1		108.6	3.3	20.1	18.1
Level of Service	B		F	A	C	B
Approach Delay (s)	10.1			11.4	19.4	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			1.00		1.00	0.98		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1742			1797		1770	1827		1770	1858	
Flt Permitted		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1742			1797		1770	1827		1770	1858	
Volume (vph)	8	31	31	64	26	1	53	688	99	1	392	6
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	10	37	37	71	29	1	58	748	108	1	451	7
RTOR Reduction (vph)	0	33	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	51	0	0	101	0	58	852	0	1	458	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.2			9.5		4.7	52.1		0.7	48.1	
Effective Green, g (s)		8.2			9.5		4.7	52.1		0.7	48.1	
Actuated g/C Ratio		0.09			0.11		0.05	0.60		0.01	0.56	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		165			197		96	1100		14	1033	
v/s Ratio Prot		c0.03			c0.06		c0.03	c0.47		0.00	0.25	
v/s Ratio Perm												
v/c Ratio		0.31			0.51		0.60	0.77		0.07	0.44	
Uniform Delay, d1		36.5			36.3		40.0	12.8		42.6	11.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1			2.2		10.3	3.5		2.2	0.3	
Delay (s)		37.6			38.6		50.3	16.3		44.7	11.6	
Level of Service		D			D		D	B		D	B	
Approach Delay (s)		37.6			38.6			18.4			11.7	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1772		1770	1744		1752	1800		1770	1822	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1772		1770	1744		1752	1800		1770	1822	
Volume (vph)	18	90	44	105	89	46	63	786	164	21	463	10
Peak-hour factor, PHF	0.95	0.95	0.95	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	19	95	46	121	102	53	68	854	178	24	532	11
RTOR Reduction (vph)	0	20	0	0	21	0	0	8	0	0	1	0
Lane Group Flow (vph)	19	121	0	121	134	0	68	1024	0	24	542	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%	3%	3%	2%	2%	4%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.5	13.3		6.0	17.8		6.7	50.4		1.5	45.2	
Effective Green, g (s)	1.5	13.3		6.0	17.8		6.7	50.4		1.5	45.2	
Actuated g/C Ratio	0.02	0.15		0.07	0.20		0.08	0.58		0.02	0.52	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	30	270		122	356		135	1040		30	944	
v/s Ratio Prot	0.01	0.07		c0.07	c0.08		c0.04	c0.57		0.01	0.30	
v/s Ratio Perm												
v/c Ratio	0.63	0.45		0.99	0.38		0.50	0.99		0.80	0.57	
Uniform Delay, d1	42.6	33.6		40.6	29.9		38.7	18.0		42.7	14.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.3	1.2		78.7	0.7		2.9	24.1		84.3	0.8	
Delay (s)	78.9	34.8		119.2	30.6		41.6	42.1		127.0	15.3	
Level of Service	E	C		F	C		D	D		F	B	
Approach Delay (s)		40.0			69.5			42.1			20.0	
Approach LOS		D			E			D			B	

Intersection Summary			
HCM Average Control Delay	39.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1603	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1603	
Volume (vph)	222	1091	214	371	1001	376	172	182	332	213	114	135
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	236	1161	228	382	1032	388	187	198	361	245	131	155
RTOR Reduction (vph)	0	0	123	0	0	232	0	0	253	0	35	0
Lane Group Flow (vph)	236	1161	105	382	1032	156	187	198	108	245	251	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	18.6	37.0	37.0	24.0	42.4	42.4	13.0	28.0	28.0	15.0	30.0	
Effective Green, g (s)	18.6	37.0	37.0	24.0	42.4	42.4	13.0	28.0	28.0	15.0	30.0	
Actuated g/C Ratio	0.16	0.31	0.31	0.20	0.35	0.35	0.11	0.23	0.23	0.12	0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	274	1091	488	354	1250	476	192	435	356	221	401	
v/s Ratio Prot	0.13	c0.33		c0.22	0.29		0.11	0.11		c0.14	c0.16	
v/s Ratio Perm			0.07			0.12			0.07			
v/c Ratio	0.86	1.06	0.21	1.08	0.83	0.33	0.97	0.46	0.30	1.11	0.63	
Uniform Delay, d1	49.4	41.5	30.7	48.0	35.4	28.4	53.3	39.5	38.0	52.5	40.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.1	46.0	0.2	70.6	4.6	0.4	57.0	3.4	2.2	92.7	7.2	
Delay (s)	72.5	87.5	31.0	118.6	40.0	28.8	110.3	42.9	40.1	145.2	47.2	
Level of Service	E	F	C	F	D	C	F	D	D	F	D	
Approach Delay (s)		77.4			54.3			58.4			92.4	
Approach LOS		E			D			E			F	

Intersection Summary			
HCM Average Control Delay	67.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	1770	3539	1770	1583
Volume (vph)	1430	144	84	1863	283	171
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.87	0.87
Adj. Flow (vph)	1538	155	90	2003	325	197
RTOR Reduction (vph)	0	65	0	0	0	156
Lane Group Flow (vph)	1538	90	90	2003	325	41
Turn Type		Perm	Prot			Perm
Protected Phases	2		1	6	3	
Permitted Phases		2				3
Actuated Green, G (s)	46.4	46.4	5.6	57.0	19.2	19.2
Effective Green, g (s)	47.4	47.4	6.4	57.8	18.7	18.7
Actuated g/C Ratio	0.53	0.53	0.07	0.64	0.21	0.21
Clearance Time (s)	5.0	5.0	4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8	6.8	6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1860	832	126	2268	367	328
v/s Ratio Prot	0.43		0.05	c0.57	c0.18	
v/s Ratio Perm		0.06				0.03
v/c Ratio	0.83	0.11	0.71	0.88	0.89	0.12
Uniform Delay, d1	18.0	10.8	41.0	13.4	34.7	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.2	25.0	5.1	21.1	0.1
Delay (s)	21.8	11.0	66.0	18.5	55.8	29.2
Level of Service	C	B	E	B	E	C
Approach Delay (s)	20.8			20.5	45.8	
Approach LOS	C			C	D	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	13.7
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	1770	1583
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1770	1863	1770	1583
Volume (vph)	922	46	384	241	40	453
Peak-hour factor, PHF	0.96	0.96	0.92	0.92	0.87	0.87
Adj. Flow (vph)	960	48	417	262	46	521
RTOR Reduction (vph)	0	11	0	0	0	75
Lane Group Flow (vph)	960	37	417	262	46	446
Turn Type		Perm	Prot			pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Actuated Green, G (s)	87.2	87.2	35.2	126.0	7.6	42.8
Effective Green, g (s)	89.2	89.2	34.8	128.0	7.9	42.7
Actuated g/C Ratio	0.62	0.62	0.24	0.89	0.05	0.30
Clearance Time (s)	6.0	6.0	3.6	6.0	4.3	3.6
Vehicle Extension (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lane Grp Cap (vph)	1155	981	428	1657	97	514
v/s Ratio Prot	c0.52		c0.24	0.14	0.03	c0.21
v/s Ratio Perm		0.02				0.07
v/c Ratio	0.83	0.04	0.97	0.16	0.47	0.87
Uniform Delay, d1	21.4	10.6	54.1	1.0	66.0	47.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	0.1	36.4	0.2	1.3	13.9
Delay (s)	28.5	10.7	90.5	1.2	67.3	61.8
Level of Service	C	B	F	A	E	E
Approach Delay (s)	27.6			56.0	62.2	
Approach LOS	C			E	E	

Intersection Summary			
HCM Average Control Delay	44.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	143.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.88	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	2787	3433	3539	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	2787	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	421	530	736	260	355	81	1341	500	272	136	404	367
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	453	570	791	283	386	88	1412	526	286	148	439	399
RTOR Reduction (vph)	0	0	468	0	0	73	0	0	131	0	0	166
Lane Group Flow (vph)	453	570	323	283	386	15	1412	526	155	148	439	233
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	27.7	41.8	41.8	18.1	32.1	32.1	85.1	107.8	107.8	11.5	33.8	33.8
Effective Green, g (s)	29.2	43.4	43.4	19.6	33.8	33.8	86.6	109.3	109.3	13.0	35.7	35.7
Actuated g/C Ratio	0.15	0.22	0.22	0.10	0.17	0.17	0.43	0.54	0.54	0.06	0.18	0.18
Clearance Time (s)	5.5	5.6	5.6	5.5	5.7	5.7	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	5.0	1.0	5.9	5.9	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	498	763	601	334	594	266	1477	2761	860	222	902	281
v/s Ratio Prot	c0.13	c0.16		0.08	0.11		c0.41	0.10		0.04	0.09	
v/s Ratio Perm			0.12			0.01			0.10			c0.15
v/c Ratio	0.91	0.75	0.54	0.85	0.65	0.06	0.96	0.19	0.18	0.67	0.49	0.83
Uniform Delay, d1	84.8	73.8	70.1	89.4	78.2	70.3	55.5	23.4	23.3	92.0	74.6	79.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.0	4.8	1.7	17.1	3.9	0.2	14.1	0.1	0.2	5.7	1.0	20.1
Delay (s)	104.8	78.6	71.8	106.4	82.2	70.6	69.6	23.5	23.6	97.8	75.5	100.0
Level of Service	F	E	E	F	F	E	E	C	C	F	E	F
Approach Delay (s)		82.2			89.9			52.8			88.8	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM Average Control Delay	73.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	201.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.91			1.00		1.00	0.98			1.00	
Flt Protected		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (prot)		1689			1759		1626	1824			1859	
Flt Permitted		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (perm)		1689			1759		1626	1824			1859	
Volume (vph)	2	19	45	76	18	1	18	175	28	0	611	7
Peak-hour factor, PHF	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	3	26	62	88	21	1	21	201	32	0	664	8
RTOR Reduction (vph)	0	57	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	34	0	0	110	0	21	229	0	0	672	0
Heavy Vehicles (%)	2%	2%	2%	2%	11%	2%	11%	2%	2%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		5.9			7.2		1.4	52.7			47.3	
Effective Green, g (s)		5.9			7.2		1.4	52.7			47.3	
Actuated g/C Ratio		0.08			0.09		0.02	0.68			0.61	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		128			163		29	1236			1130	
v/s Ratio Prot		c0.02			c0.06		c0.01	0.13			c0.36	
v/s Ratio Perm												
v/c Ratio		0.26			0.67		0.72	0.19			0.59	
Uniform Delay, d1		33.9			34.2		38.0	4.6			9.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.1			10.5		61.8	0.1			0.8	
Delay (s)		35.0			44.7		99.8	4.7			10.2	
Level of Service		D			D		F	A			B	
Approach Delay (s)		35.0			44.7			12.6			10.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1705	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1705	
Volume (vph)	56	837	118	212	724	87	169	47	268	331	148	192
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	60	900	127	228	778	94	182	51	288	360	161	209
RTOR Reduction (vph)	0	0	83	0	0	58	0	0	222	0	44	0
Lane Group Flow (vph)	60	900	44	228	778	36	182	51	66	360	326	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.2	32.0	32.0	16.1	40.9	40.9	14.3	12.8	12.8	29.1	27.6	
Effective Green, g (s)	7.2	32.0	32.0	16.1	40.9	40.9	14.3	12.8	12.8	29.1	27.6	
Actuated g/C Ratio	0.07	0.30	0.30	0.15	0.39	0.39	0.13	0.12	0.12	0.27	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	108	1048	478	252	1352	611	239	210	189	396	444	
v/s Ratio Prot	0.04	c0.26		c0.14	0.22		0.10	0.03		c0.25	c0.19	
v/s Ratio Perm			0.03			0.02			0.04			
v/c Ratio	0.56	0.86	0.09	0.90	0.58	0.06	0.76	0.24	0.35	0.91	0.74	
Uniform Delay, d1	47.9	34.9	26.6	44.2	25.7	20.5	44.2	42.2	42.8	37.2	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.1	7.1	0.1	32.4	0.6	0.0	13.3	0.6	1.1	24.0	6.2	
Delay (s)	53.9	42.0	26.7	76.6	26.3	20.5	57.6	42.8	43.9	61.2	42.1	
Level of Service	D	D	C	E	C	C	E	D	D	E	D	
Approach Delay (s)		40.9			36.2			48.5			51.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			1.00		1.00	0.98		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1741			1798		1770	1829		1770	1859	
Flt Permitted		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1741			1798		1770	1829		1770	1859	
Volume (vph)	7	31	31	61	26	1	53	692	94	1	396	6
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	8	37	37	68	29	1	58	752	102	1	455	7
RTOR Reduction (vph)	0	34	0	0	1	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	48	0	0	97	0	58	850	0	1	462	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		7.3			9.0		4.8	52.0		0.8	48.0	
Effective Green, g (s)		7.3			9.0		4.8	52.0		0.8	48.0	
Actuated g/C Ratio		0.09			0.11		0.06	0.61		0.01	0.56	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		149			190		100	1118		17	1049	
v/s Ratio Prot		c0.03			c0.05		c0.03	c0.46		0.00	0.25	
v/s Ratio Perm												
v/c Ratio		0.32			0.51		0.58	0.76		0.06	0.44	
Uniform Delay, d1		36.6			36.0		39.2	12.0		41.8	10.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			2.3		7.9	3.1		1.5	0.3	
Delay (s)		37.8			38.3		47.1	15.1		43.2	11.1	
Level of Service		D			D		D	B		D	B	
Approach Delay (s)		37.8			38.3			17.2			11.1	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1603	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1603	
Volume (vph)	224	1094	207	354	1023	386	170	173	315	219	109	136
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	238	1164	220	365	1055	398	185	188	342	252	125	156
RTOR Reduction (vph)	0	0	118	0	0	233	0	0	246	0	37	0
Lane Group Flow (vph)	238	1164	102	365	1055	165	185	188	96	252	244	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	18.7	37.0	37.0	23.0	41.3	41.3	15.2	28.0	28.0	16.0	28.8	
Effective Green, g (s)	18.7	37.0	37.0	23.0	41.3	41.3	15.2	28.0	28.0	16.0	28.8	
Actuated g/C Ratio	0.16	0.31	0.31	0.19	0.34	0.34	0.13	0.23	0.23	0.13	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	276	1091	488	339	1218	463	224	435	356	236	385	
v/s Ratio Prot	0.13	c0.33		c0.21	0.30		0.10	0.10		c0.14	c0.15	
v/s Ratio Perm			0.06			0.12			0.06			
v/c Ratio	0.86	1.07	0.21	1.08	0.87	0.36	0.83	0.43	0.27	1.07	0.63	
Uniform Delay, d1	49.4	41.5	30.7	48.5	36.8	29.4	51.1	39.2	37.6	52.0	40.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.1	47.0	0.2	70.8	6.7	0.5	21.3	3.1	1.9	77.7	7.7	
Delay (s)	72.5	88.5	30.9	119.3	43.4	29.9	72.4	42.3	39.5	129.7	48.6	
Level of Service	E	F	C	F	D	C	E	D	D	F	D	
Approach Delay (s)		78.3			55.7			48.8			86.9	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	66.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.91			1.00		1.00	0.98			1.00	
Flt Protected		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (prot)		1689			1759		1626	1826			1861	
Flt Permitted		1.00			0.96		0.95	1.00			1.00	
Satd. Flow (perm)		1689			1759		1626	1826			1861	
Volume (vph)	2	19	45	75	18	1	18	172	26	0	583	5
Peak-hour factor, PHF	0.73	0.73	0.73	0.86	0.86	0.86	0.87	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	3	26	62	87	21	1	21	198	30	0	634	5
RTOR Reduction (vph)	0	57	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	34	0	0	109	0	21	225	0	0	639	0
Heavy Vehicles (%)	2%	2%	2%	2%	11%	2%	11%	2%	2%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		5.8			7.0		1.4	50.1			44.7	
Effective Green, g (s)		5.8			7.0		1.4	50.1			44.7	
Actuated g/C Ratio		0.08			0.09		0.02	0.67			0.60	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		131			164		30	1221			1111	
v/s Ratio Prot		c0.02			c0.06		c0.01	0.12			c0.34	
v/s Ratio Perm												
v/c Ratio		0.26			0.66		0.70	0.18			0.57	
Uniform Delay, d1		32.5			32.8		36.5	4.7			9.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.0			9.7		52.7	0.1			0.7	
Delay (s)		33.6			42.5		89.3	4.8			10.0	
Level of Service		C			D		F	A			A	
Approach Delay (s)		33.6			42.5			11.9			10.0	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	74.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1704	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1597	3471	1583	1656	3505	1583	1770	1743	1568	1444	1704	
Volume (vph)	59	784	103	211	742	96	159	43	252	346	151	199
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	63	843	111	227	798	103	171	46	271	376	164	216
RTOR Reduction (vph)	0	0	78	0	0	63	0	0	229	0	43	0
Lane Group Flow (vph)	63	843	33	227	798	40	171	46	42	376	337	0
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.5	30.0	30.0	16.1	40.6	40.6	14.7	12.4	12.4	31.2	28.9	
Effective Green, g (s)	5.5	30.0	30.0	16.1	40.6	40.6	14.7	12.4	12.4	31.2	28.9	
Actuated g/C Ratio	0.05	0.28	0.28	0.15	0.38	0.38	0.14	0.12	0.12	0.30	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	83	985	449	252	1346	608	246	204	184	426	466	
v/s Ratio Prot	0.04	c0.24		c0.14	0.23		0.10	0.03		c0.26	c0.20	
v/s Ratio Perm			0.02			0.02			0.03			
v/c Ratio	0.76	0.86	0.07	0.90	0.59	0.07	0.70	0.23	0.23	0.88	0.72	
Uniform Delay, d1	49.4	35.8	27.7	44.0	26.0	20.6	43.4	42.3	42.3	35.5	34.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	32.1	7.4	0.1	31.8	0.7	0.0	8.2	0.6	0.6	18.9	5.5	
Delay (s)	81.6	43.2	27.8	75.8	26.7	20.6	51.6	42.9	42.9	54.4	40.3	
Level of Service	F	D	C	E	C	C	D	D	D	D	D	
Approach Delay (s)		43.9			36.0			46.0			47.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.94			1.00		1.00	0.98		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740			1799		1770	1828		1770	1859	
Flt Permitted		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1740			1799		1770	1828		1770	1859	
Volume (vph)	6	31	31	56	26	1	53	641	90	1	365	5
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	7	37	37	62	29	1	58	697	98	1	420	6
RTOR Reduction (vph)	0	34	0	0	1	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	47	0	0	91	0	58	791	0	1	426	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.2			9.3		4.7	52.5		0.7	48.5	
Effective Green, g (s)		8.2			9.3		4.7	52.5		0.7	48.5	
Actuated g/C Ratio		0.09			0.11		0.05	0.61		0.01	0.56	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		165			193		96	1107		14	1040	
v/s Ratio Prot		c0.03			c0.05		c0.03	c0.43		0.00	0.23	
v/s Ratio Perm												
v/c Ratio		0.29			0.47		0.60	0.71		0.07	0.41	
Uniform Delay, d1		36.5			36.4		40.1	11.9		42.7	10.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			1.8		10.3	2.2		2.2	0.3	
Delay (s)		37.5			38.2		50.4	14.1		44.8	11.2	
Level of Service		D			D		D	B		D	B	
Approach Delay (s)		37.5			38.2			16.6			11.3	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1602	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1346	1770	1863	1524	1770	1602	
Volume (vph)	220	1072	190	329	949	382	149	164	301	214	96	130
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	234	1140	202	339	978	394	162	178	327	246	110	149
RTOR Reduction (vph)	0	0	111	0	0	248	0	0	252	0	41	0
Lane Group Flow (vph)	234	1140	91	339	978	146	162	178	75	246	218	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	18.6	38.0	38.0	23.0	42.4	42.4	13.4	27.0	27.0	16.0	29.6	
Effective Green, g (s)	18.6	38.0	38.0	23.0	42.4	42.4	13.4	27.0	27.0	16.0	29.6	
Actuated g/C Ratio	0.16	0.32	0.32	0.19	0.35	0.35	0.11	0.22	0.22	0.13	0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	274	1121	501	339	1250	476	198	419	343	236	395	
v/s Ratio Prot	0.13	c0.32		c0.19	0.28		0.09	0.10		c0.14	c0.14	
v/s Ratio Perm			0.06			0.11			0.05			
v/c Ratio	0.85	1.02	0.18	1.00	0.78	0.31	0.82	0.42	0.22	1.04	0.55	
Uniform Delay, d1	49.4	41.0	29.7	48.5	34.7	28.1	52.1	39.8	37.9	52.0	39.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.9	31.2	0.2	48.9	3.3	0.4	22.4	3.1	1.5	70.1	5.5	
Delay (s)	71.3	72.2	29.9	97.4	37.9	28.5	74.5	43.0	39.4	122.1	44.9	
Level of Service	E	E	C	F	D	C	E	D	D	F	D	
Approach Delay (s)		66.6			47.5			48.9			82.5	
Approach LOS		E			D			D			F	

Intersection Summary			
HCM Average Control Delay	58.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4505	3471	1583	1656	3505	2787	1770	1743	1568	2801	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4505	3471	1583	1656	3505	2787	1770	1743	1568	2801	1863	1583
Volume (vph)	182	331	105	71	424	254	76	160	111	1005	605	697
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	196	356	113	76	456	273	82	172	119	1092	658	758
RTOR Reduction (vph)	0	0	93	0	0	224	0	0	98	0	0	114
Lane Group Flow (vph)	196	356	20	76	456	49	82	172	21	1092	658	644
Heavy Vehicles (%)	13%	4%	2%	9%	3%	2%	2%	9%	3%	25%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.1	17.5	17.5	5.1	17.5	17.5	6.2	16.8	16.8	41.5	52.1	52.1
Effective Green, g (s)	5.1	17.5	17.5	5.1	17.5	17.5	6.2	16.8	16.8	41.5	52.1	52.1
Actuated g/C Ratio	0.05	0.18	0.18	0.05	0.18	0.18	0.06	0.17	0.17	0.43	0.54	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	237	627	286	87	633	503	113	302	272	1200	1002	851
v/s Ratio Prot	0.04	0.10		c0.05	c0.13		0.05	0.10		c0.39	0.35	
v/s Ratio Perm			0.01			0.02			0.01			c0.41
v/c Ratio	0.83	0.57	0.07	0.87	0.72	0.10	0.73	0.57	0.08	0.91	0.66	0.76
Uniform Delay, d1	45.5	36.2	33.0	45.6	37.4	33.1	44.5	36.7	33.5	26.0	16.0	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.5	1.2	0.1	56.7	4.0	0.1	20.5	2.5	0.1	10.3	1.6	3.9
Delay (s)	65.9	37.4	33.1	102.3	41.4	33.2	65.0	39.2	33.7	36.3	17.6	21.3
Level of Service	E	D	C	F	D	C	E	D	C	D	B	C
Approach Delay (s)		45.1			44.4			43.1			26.9	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	96.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.90		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1695		1770	1685		1770	1701		1770	1863	1482
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	1695		1770	1685		1770	1701		1770	1863	1482
Volume (vph)	148	2	3	6	3	5	1	77	7	5	289	499
Peak-hour factor, PHF	0.88	0.88	0.88	0.67	0.67	0.67	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	168	2	3	9	4	7	1	84	8	6	332	574
RTOR Reduction (vph)	0	2	0	0	7	0	0	6	0	0	0	256
Lane Group Flow (vph)	168	3	0	9	4	0	1	86	0	6	332	318
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	11%	2%	2%	2%	9%
Turn Type	Prot			Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	10.5	11.7		0.4	1.6		0.4	11.8		0.4	11.8	22.3
Effective Green, g (s)	10.5	11.7		0.4	1.6		0.4	11.8		0.4	11.8	22.3
Actuated g/C Ratio	0.26	0.29		0.01	0.04		0.01	0.29		0.01	0.29	0.55
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	456	492		18	67		18	498		18	545	967
v/s Ratio Prot	c0.10	0.00		0.01	c0.00		0.00	0.05		c0.00	c0.18	c0.09
v/s Ratio Perm												0.13
v/c Ratio	0.37	0.01		0.50	0.06		0.06	0.17		0.33	0.61	0.33
Uniform Delay, d1	12.2	10.2		19.9	18.6		19.8	10.6		19.8	12.3	4.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0		20.2	0.4		1.3	0.2		10.6	1.9	0.2
Delay (s)	12.7	10.2		40.0	19.0		21.1	10.8		30.4	14.2	5.1
Level of Service	B	B		D	B		C	B		C	B	A
Approach Delay (s)		12.6			28.5			10.9			8.6	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	3539	1583	1770	3539	2369	1770	1863	1524	3433	1624	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	3539	1583	1770	3539	2369	1770	1863	1524	3433	1624	1583
Volume (vph)	728	601	107	142	383	1050	119	627	114	567	347	401
Peak-hour factor, PHF	0.94	0.94	0.94	0.97	0.97	0.97	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	774	639	114	146	395	1082	129	682	124	652	399	461
RTOR Reduction (vph)	0	0	88	0	0	64	0	0	53	0	0	77
Lane Group Flow (vph)	774	639	26	146	395	1018	129	682	71	652	399	384
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	6%	2%	17%	2%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	24.0	24.0	10.0	18.0	37.0	12.2	37.0	37.0	19.0	43.8	59.8
Effective Green, g (s)	16.0	24.0	24.0	10.0	18.0	37.0	12.2	37.0	37.0	19.0	43.8	59.8
Actuated g/C Ratio	0.15	0.23	0.23	0.09	0.17	0.35	0.12	0.35	0.35	0.18	0.41	0.56
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	753	801	358	167	601	916	204	650	532	615	671	953
v/s Ratio Prot	c0.16	0.18		0.08	0.11	c0.20	0.07	c0.37		0.19	0.25	0.06
v/s Ratio Perm			0.02			0.23			0.05			0.18
v/c Ratio	1.03	0.80	0.07	0.87	0.66	1.11	0.63	1.05	0.13	1.06	0.59	0.40
Uniform Delay, d1	45.0	38.7	32.2	47.4	41.1	34.5	44.8	34.5	23.6	43.5	24.2	13.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.1	5.6	0.1	36.2	2.6	65.3	6.3	48.9	0.1	53.3	1.4	0.3
Delay (s)	85.1	44.3	32.3	83.6	43.7	99.8	51.0	83.4	23.7	96.8	25.6	13.3
Level of Service	F	D	C	F	D	F	D	F	C	F	C	B
Approach Delay (s)		64.1			84.7			71.0			52.6	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM Average Control Delay	68.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	1583		1770	1480		1770	1856		1770	1863	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1736	1583		1770	1480		1770	1856		1770	1863	1553
Volume (vph)	536	5	5	7	2	4	2	300	8	8	181	311
Peak-hour factor, PHF	0.87	0.87	0.87	0.75	0.75	0.75	0.87	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	616	6	6	9	3	5	2	345	9	9	197	338
RTOR Reduction (vph)	0	3	0	0	5	0	0	1	0	0	0	101
Lane Group Flow (vph)	616	9	0	9	3	0	2	353	0	9	197	237
Heavy Vehicles (%)	4%	2%	20%	2%	2%	25%	2%	2%	2%	2%	2%	4%
Turn Type	Prot			Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	27.1	28.6		0.5	2.0		0.5	16.1		0.5	16.1	43.2
Effective Green, g (s)	27.1	28.6		0.5	2.0		0.5	16.1		0.5	16.1	43.2
Actuated g/C Ratio	0.44	0.46		0.01	0.03		0.01	0.26		0.01	0.26	0.70
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	762	734		14	48		14	484		14	486	1188
v/s Ratio Prot	c0.35	0.01		0.01	c0.00		0.00	c0.19		c0.01	0.11	0.09
v/s Ratio Perm												0.06
v/c Ratio	0.81	0.01		0.64	0.07		0.14	0.73		0.64	0.41	0.20
Uniform Delay, d1	15.0	8.9		30.5	28.9		30.4	20.8		30.5	18.8	3.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	0.0		71.2	0.6		4.7	5.5		71.2	0.6	0.1
Delay (s)	21.4	8.9		101.7	29.5		35.0	26.3		101.7	19.4	3.3
Level of Service	C	A		F	C		D	C		F	B	A
Approach Delay (s)		21.1			67.7			26.3			10.8	
Approach LOS		C			E			C			B	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year Existing Plus Pref. Alt. with Mitigation
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Flow Rate Calculation*											*Speed Calculation*		*Results*	
	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	1,874	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,054	65.0	60.5	**17.4**	**B**
2	SR 99 SB	Riego Road to Elverta Road	AM	2,420	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,361	65.0	60.5	**22.5**	**C**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	3,399	0.92	2	Level	7%	0%	1.5	1.2	0.966	1.00	1,912	65.0	59.3	**32.2**	**D**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	4,240	0.92	3	Level	7%	0%	1.5	1.2	0.966	1.00	1,590	65.0	62.0	**25.6**	**C**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	1,327	0.92	3	Level	23%	0%	1.5	1.2	0.897	1.00	536	65.0	62.0	**8.6**	**A**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	1,131	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	685	65.0	60.5	**11.3**	**B**
7	SR 99 NB	Elverta Road to Riego Road	AM	902	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	547	65.0	60.5	**9.0**	**A**
8	SR 99 NB	Riego Road to Sankey Road	AM	745	0.92	2	Level	23%	0%	1.5	1.2	0.897	1.00	451	65.0	60.5	**7.5**	**A**
1	SR-99 SB	Sankey Road to Riego Road	PM	1,090	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	607	65.0	60.5	**10.0**	**A**
2	SR 99 SB	Riego Road to Elverta Road	PM	1,239	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	690	65.0	60.5	**11.4**	**B**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	1,722	0.92	2	Level	5%	0%	1.5	1.2	0.976	1.00	959	65.0	60.5	**15.9**	**B**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	2,052	0.92	3	Level	5%	0%	1.5	1.2	0.976	1.00	762	65.0	62.0	**12.3**	**B**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	4,728	0.92	3	Level	13%	0%	1.5	1.2	0.939	1.00	1,824	65.0	61.2	**29.8**	**D**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	3,664	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	2,121	65.0	56.2	**37.7**	**E**
7	SR 99 NB	Elverta Road to Riego Road	PM	2,514	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,455	65.0	60.5	**24.1**	**C**
8	SR 99 NB	Riego Road to Sankey Road	PM	1,991	0.92	2	Level	13%	0%	1.5	1.2	0.939	1.00	1,152	65.0	60.5	**19.0**	**C**

Appendix C-2: Cumulative Plus Project Mitigation

Cumulative Plus Preferred Alternative Conditions

Cumulative Plus Approved Specific Plan Conditions

Cumulative Plus Minimal Impact Conditions

Cumulative Plus No Federal Action Conditions

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frt	0.98			1.00	0.98	0.85
Flt Protected	1.00			1.00	0.96	1.00
Satd. Flow (prot)	4976			5085	1744	1504
Flt Permitted	1.00			1.00	0.96	1.00
Satd. Flow (perm)	4976			5085	1744	1504
Volume (vph)	780	130	0	2050	390	520
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	804	134	0	2113	402	536
RTOR Reduction (vph)	27	0	0	0	10	85
Lane Group Flow (vph)	911	0	0	2113	471	372
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	34.4			34.4	22.6	22.6
Effective Green, g (s)	34.4			34.4	22.6	22.6
Actuated g/C Ratio	0.53			0.53	0.35	0.35
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2633			2691	606	523
v/s Ratio Prot	0.18			c0.42	c0.27	
v/s Ratio Perm						0.25
v/c Ratio	0.35			0.79	0.78	0.71
Uniform Delay, d1	8.8			12.3	19.0	18.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			1.6	6.2	4.5
Delay (s)	8.9			13.9	25.2	22.9
Level of Service	A			B	C	C
Approach Delay (s)	8.9			13.9	24.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.88		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3530		1770	3535		1770	1635		1770	1804	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3530		1770	3535		1770	1635		1770	1804	
Volume (vph)	10	550	10	120	1280	10	20	20	90	140	150	40
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	567	10	124	1320	10	21	21	93	144	155	41
RTOR Reduction (vph)	0	1	0	0	1	0	0	80	0	0	11	0
Lane Group Flow (vph)	10	576	0	124	1329	0	21	34	0	144	185	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.5	23.4		6.9	29.8		0.6	8.9		6.7	15.0	
Effective Green, g (s)	0.5	23.4		6.9	29.8		0.6	8.9		6.7	15.0	
Actuated g/C Ratio	0.01	0.38		0.11	0.48		0.01	0.14		0.11	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	14	1334		197	1702		17	235		192	437	
v/s Ratio Prot	0.01	0.16		c0.07	c0.38		0.01	0.02		c0.08	c0.10	
v/s Ratio Perm												
v/c Ratio	0.71	0.43		0.63	0.78		1.24	0.15		0.75	0.42	
Uniform Delay, d1	30.6	14.3		26.3	13.3		30.6	23.2		26.8	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	100.1	0.2		6.2	2.4		301.3	0.3		15.1	0.7	
Delay (s)	130.7	14.5		32.4	15.7		331.9	23.5		41.9	20.5	
Level of Service	F	B		C	B		F	C		D	C	
Approach Delay (s)		16.5			17.2			71.4			29.5	
Approach LOS		B			B			E			C	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	5073		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	5085	5073		1770	1583
Volume (vph)	90	600	1850	30	70	260
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	619	1907	31	72	268
RTOR Reduction (vph)	0	0	1	0	0	115
Lane Group Flow (vph)	93	619	1937	0	72	153
Turn Type	Prot					custom
Protected Phases	7	4	8			
Permitted Phases					6	6
Actuated Green, G (s)	5.2	39.3	30.1		12.1	12.1
Effective Green, g (s)	5.2	39.3	30.1		12.1	12.1
Actuated g/C Ratio	0.09	0.66	0.51		0.20	0.20
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	155	3364	2571		361	322
v/s Ratio Prot	c0.05	0.12	c0.38			
v/s Ratio Perm					0.04	c0.10
v/c Ratio	0.60	0.18	0.75		0.20	0.47
Uniform Delay, d1	26.1	3.9	11.7		19.6	20.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.1	0.0	1.3		0.3	1.1
Delay (s)	32.2	3.9	13.0		19.9	21.9
Level of Service	C	A	B		B	C
Approach Delay (s)		7.6	13.0		21.5	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.93		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3531		1770	3535		1770	1723		1770	1592	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3531		1770	3535		1770	1723		1770	1592	
Volume (vph)	170	600	10	10	1100	10	10	10	10	20	10	300
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	175	619	10	10	1134	10	10	10	10	21	10	309
RTOR Reduction (vph)	0	1	0	0	1	0	0	9	0	0	237	0
Lane Group Flow (vph)	175	628	0	10	1143	0	10	11	0	21	82	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.0	34.7		0.5	28.2		0.5	7.3		0.5	7.3	
Effective Green, g (s)	7.0	34.7		0.5	28.2		0.5	7.3		0.5	7.3	
Actuated g/C Ratio	0.12	0.59		0.01	0.48		0.01	0.12		0.01	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	2077		15	1690		15	213		15	197	
v/s Ratio Prot	c0.10	0.18		0.01	c0.32		0.01	0.01		c0.01	c0.05	
v/s Ratio Perm												
v/c Ratio	0.83	0.30		0.67	0.68		0.67	0.05		1.40	0.41	
Uniform Delay, d1	25.4	6.1		29.2	11.9		29.2	22.8		29.2	23.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.7	0.1		75.9	1.1		75.9	0.1		379.3	1.4	
Delay (s)	49.1	6.2		105.0	13.0		105.0	22.9		408.6	25.3	
Level of Service	D	A		F	B		F	C		F	C	
Approach Delay (s)		15.5			13.8			50.3			49.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3492		1770	3414		1770	1779		1770	1805	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3492		1770	3414		1770	1779		1770	1805	
Volume (vph)	10	520	50	160	1140	350	20	70	30	330	270	70
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	536	52	165	1175	361	21	72	31	340	278	72
RTOR Reduction (vph)	0	6	0	0	24	0	0	16	0	0	9	0
Lane Group Flow (vph)	10	582	0	165	1512	0	21	87	0	340	341	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	35.0		13.1	47.4		1.9	13.4		21.2	32.7	
Effective Green, g (s)	0.7	35.0		13.1	47.4		1.9	13.4		21.2	32.7	
Actuated g/C Ratio	0.01	0.35		0.13	0.48		0.02	0.14		0.21	0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	13	1238		235	1640		34	242		380	598	
v/s Ratio Prot	0.01	0.17		c0.09	c0.44		0.01	0.05		c0.19	c0.19	
v/s Ratio Perm												
v/c Ratio	0.77	0.47		0.70	0.92		0.62	0.36		0.89	0.57	
Uniform Delay, d1	48.9	24.7		40.9	23.9		48.0	38.8		37.7	27.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	128.6	0.3		9.1	9.0		29.0	0.9		22.5	1.3	
Delay (s)	177.6	25.0		50.1	32.9		77.0	39.7		60.2	28.5	
Level of Service	F	C		D	C		E	D		E	C	
Approach Delay (s)		27.5			34.6			46.0			44.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3442		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3442		1770	3539	1770	1583
Volume (vph)	710	160	100	1440	180	40
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	732	165	103	1485	186	41
RTOR Reduction (vph)	24	0	0	0	0	34
Lane Group Flow (vph)	873	0	103	1485	186	7
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	22.5		4.6	31.1	8.4	8.4
Effective Green, g (s)	22.5		4.6	31.1	8.4	8.4
Actuated g/C Ratio	0.47		0.10	0.65	0.18	0.18
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1630		171	2317	313	280
v/s Ratio Prot	0.25		0.06	c0.42	c0.11	
v/s Ratio Perm						0.00
v/c Ratio	0.54		0.60	0.64	0.59	0.03
Uniform Delay, d1	8.8		20.6	4.9	18.0	16.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		5.9	0.6	3.0	0.0
Delay (s)	9.2		26.4	5.5	21.0	16.2
Level of Service	A		C	A	C	B
Approach Delay (s)	9.2			6.9	20.1	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3496		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3496		1770	3539	1770	1583
Volume (vph)	680	60	330	1160	10	90
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	701	62	340	1196	10	93
RTOR Reduction (vph)	9	0	0	0	0	83
Lane Group Flow (vph)	754	0	340	1196	10	10
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	15.3		13.3	32.6	4.8	4.8
Effective Green, g (s)	15.3		13.3	32.6	4.8	4.8
Actuated g/C Ratio	0.34		0.29	0.72	0.11	0.11
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1178		519	2541	187	167
v/s Ratio Prot	c0.22		c0.19	0.34	0.01	
v/s Ratio Perm						c0.01
v/c Ratio	0.64		0.66	0.47	0.05	0.06
Uniform Delay, d1	12.7		14.0	2.7	18.3	18.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		3.0	0.1	0.1	0.1
Delay (s)	13.9		17.0	2.9	18.4	18.4
Level of Service	B		B	A	B	B
Approach Delay (s)	13.9			6.0	18.4	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	45.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1764		1770	1850		1770	1812		1770	1796	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1764		1770	1850		1770	1812		1770	1796	
Volume (vph)	30	110	60	200	200	10	50	270	60	20	380	120
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	113	62	206	206	10	52	278	62	21	392	124
RTOR Reduction (vph)	0	32	0	0	3	0	0	11	0	0	16	0
Lane Group Flow (vph)	31	143	0	206	213	0	52	329	0	21	500	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	1.6	8.0		10.4	16.8		1.9	20.5		0.6	19.2	
Effective Green, g (s)	1.6	8.0		10.4	16.8		1.9	20.5		0.6	19.2	
Actuated g/C Ratio	0.03	0.14		0.19	0.30		0.03	0.37		0.01	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	51	254		332	560		61	669		19	621	
v/s Ratio Prot	0.02	c0.08		c0.12	0.12		c0.03	0.18		0.01	c0.28	
v/s Ratio Perm												
v/c Ratio	0.61	0.56		0.62	0.38		0.85	0.49		1.11	0.80	
Uniform Delay, d1	26.6	22.1		20.7	15.3		26.7	13.5		27.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.8	2.9		3.6	0.4		65.3	0.6		242.0	7.5	
Delay (s)	45.4	25.0		24.3	15.7		92.0	14.1		269.5	23.9	
Level of Service	D	C		C	B		F	B		F	C	
Approach Delay (s)		28.1			19.9			24.4			33.5	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3444		1770	3539	1770	1583
Volume (vph)	1510	330	300	1360	80	240
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1557	340	309	1402	82	247
RTOR Reduction (vph)	11	0	0	0	0	233
Lane Group Flow (vph)	1886	0	309	1402	82	14
Turn Type			Prot			Perm
Protected Phases	2		1	6	3	
Permitted Phases						3
Actuated Green, G (s)	84.7		27.1	116.8	8.4	8.4
Effective Green, g (s)	85.7		27.9	117.6	7.9	7.9
Actuated g/C Ratio	0.61		0.20	0.84	0.06	0.06
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	2117		354	2986	100	90
v/s Ratio Prot	c0.55		c0.17	0.40	c0.05	
v/s Ratio Perm						0.01
v/c Ratio	0.89		0.87	0.47	0.82	0.16
Uniform Delay, d1	22.9		54.0	2.8	65.0	62.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9		22.9	0.4	37.0	0.3
Delay (s)	28.8		76.9	3.2	102.1	62.9
Level of Service	C		E	A	F	E
Approach Delay (s)	28.8			16.5	72.6	
Approach LOS	C			B	E	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	139.4	Sum of lost time (s)	17.9
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	580	220	930	430	440	350	910	1290	90	120	1890	520
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	598	227	959	443	454	361	938	1330	93	124	1948	536
RTOR Reduction (vph)	0	0	2	0	0	11	0	0	46	0	0	190
Lane Group Flow (vph)	598	227	957	443	454	350	938	1330	47	124	1948	346
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.7	23.8	51.4	17.7	22.7	30.4	27.6	66.6	66.6	7.7	46.3	46.3
Effective Green, g (s)	20.2	25.4	54.5	19.2	24.4	33.6	29.1	68.1	68.1	9.2	48.2	48.2
Actuated g/C Ratio	0.15	0.18	0.40	0.14	0.18	0.24	0.21	0.49	0.49	0.07	0.35	0.35
Clearance Time (s)	5.5	5.6	5.5	5.5	5.7	5.5	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	1.0	1.0	5.9	1.0	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	503	937	672	478	900	432	724	2511	782	229	1777	553
v/s Ratio Prot	c0.17	0.04	c0.30	0.13	0.09	0.05	0.27	0.26		0.04	c0.38	
v/s Ratio Perm			0.30			0.17			0.03			0.22
v/c Ratio	1.19	0.24	1.42	0.93	0.50	0.81	1.30	0.53	0.06	0.54	1.10	0.63
Uniform Delay, d1	58.9	48.0	41.7	58.7	51.3	49.1	54.4	23.9	18.2	62.3	44.9	37.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	103.5	0.3	199.6	23.7	1.2	10.1	143.1	0.4	0.1	1.4	52.8	3.4
Delay (s)	162.3	48.3	241.3	82.4	52.5	59.3	197.5	24.4	18.3	63.7	97.6	40.7
Level of Service	F	D	F	F	D	E	F	C	B	E	F	D
Approach Delay (s)		190.3			65.0			92.9			84.3	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	107.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	137.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	116.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.91			0.91	1.00	0.95
Frt	0.98			1.00	0.90	0.85
Flt Protected	1.00			1.00	0.98	1.00
Satd. Flow (prot)	5002			5085	1646	1504
Flt Permitted	1.00			1.00	0.98	1.00
Satd. Flow (perm)	5002			5085	1646	1504
Volume (vph)	1140	140	0	1050	290	1390
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1175	144	0	1082	299	1433
RTOR Reduction (vph)	19	0	0	0	1	1
Lane Group Flow (vph)	1300	0	0	1082	935	795
Turn Type						Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	21.7			21.7	46.1	46.1
Effective Green, g (s)	21.7			21.7	46.1	46.1
Actuated g/C Ratio	0.29			0.29	0.61	0.61
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1432			1456	1001	915
v/s Ratio Prot	c0.26			0.21	c0.57	
v/s Ratio Perm						0.53
v/c Ratio	0.91			0.74	0.93	0.87
Uniform Delay, d1	26.1			24.5	13.5	12.3
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	8.6			2.1	15.0	8.8
Delay (s)	34.7			26.6	28.5	21.1
Level of Service	C			C	C	C
Approach Delay (s)	34.7			26.6	25.1	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3532		1770	3455		1770	1718		1770	1808	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3532		1770	3455		1770	1718		1770	1808	
Volume (vph)	60	1410	20	130	690	130	10	130	140	10	40	10
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	1454	21	134	711	134	10	134	144	10	41	10
RTOR Reduction (vph)	0	1	0	0	14	0	0	47	0	0	8	0
Lane Group Flow (vph)	62	1474	0	134	831	0	10	231	0	10	43	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.3	37.5		8.1	41.3		0.6	14.0		0.6	14.0	
Effective Green, g (s)	4.3	37.5		8.1	41.3		0.6	14.0		0.6	14.0	
Actuated g/C Ratio	0.06	0.49		0.11	0.54		0.01	0.18		0.01	0.18	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	100	1738		188	1873		14	316		14	332	
v/s Ratio Prot	0.04	c0.42		c0.08	c0.24		c0.01	c0.13		0.01	0.02	
v/s Ratio Perm												
v/c Ratio	0.62	0.85		0.71	0.44		0.71	0.73		0.71	0.13	
Uniform Delay, d1	35.2	16.9		32.9	10.5		37.7	29.3		37.7	26.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.9	4.1		12.0	0.2		100.1	8.5		100.1	0.2	
Delay (s)	46.1	20.9		45.0	10.7		137.8	37.8		137.8	26.2	
Level of Service	D	C		D	B		F	D		F	C	
Approach Delay (s)		21.9			15.4			41.3			44.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	5009		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	5085	5009		1770	1583
Volume (vph)	250	1990	810	90	40	150
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	258	2052	835	93	41	155
RTOR Reduction (vph)	0	0	13	0	0	131
Lane Group Flow (vph)	258	2052	915	0	41	24
Turn Type	Prot					custom
Protected Phases	7	4	8			
Permitted Phases					6	6
Actuated Green, G (s)	9.4	31.7	18.3		7.4	7.4
Effective Green, g (s)	9.4	31.7	18.3		7.4	7.4
Actuated g/C Ratio	0.20	0.67	0.39		0.16	0.16
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	353	3422	1946		278	249
v/s Ratio Prot	c0.15	c0.40	0.18			
v/s Ratio Perm					c0.02	0.02
v/c Ratio	0.73	0.60	0.47		0.15	0.10
Uniform Delay, d1	17.7	4.2	10.8		17.1	17.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.6	0.3	0.2		0.2	0.2
Delay (s)	25.2	4.5	11.0		17.4	17.2
Level of Service	C	A	B		B	B
Approach Delay (s)		6.8	11.0		17.2	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	8.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.93		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3535		1770	3532		1770	1723		1770	1594	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3535		1770	3532		1770	1723		1770	1594	
Volume (vph)	330	1220	10	10	690	10	10	10	10	10	10	250
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	340	1258	10	10	711	10	10	10	10	10	10	258
RTOR Reduction (vph)	0	0	0	0	1	0	0	9	0	0	228	0
Lane Group Flow (vph)	340	1268	0	10	720	0	10	11	0	10	40	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.1	34.4		0.5	19.8		0.5	6.8		0.5	6.8	
Effective Green, g (s)	15.1	34.4		0.5	19.8		0.5	6.8		0.5	6.8	
Actuated g/C Ratio	0.26	0.59		0.01	0.34		0.01	0.12		0.01	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	459	2089		15	1202		15	201		15	186	
v/s Ratio Prot	c0.19	c0.36		0.01	0.20		c0.01	0.01		0.01	c0.03	
v/s Ratio Perm												
v/c Ratio	0.74	0.61		0.67	0.60		0.67	0.06		0.67	0.22	
Uniform Delay, d1	19.8	7.6		28.8	15.9		28.8	22.8		28.8	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.3	0.5		75.9	0.8		75.9	0.1		75.9	0.6	
Delay (s)	26.1	8.1		104.6	16.7		104.6	23.0		104.6	23.9	
Level of Service	C	A		F	B		F	C		F	C	
Approach Delay (s)		11.9			17.9			50.2			26.8	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.94		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3530		1770	3341		1770	1736		1770	1806	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3530		1770	3341		1770	1736		1770	1806	
Volume (vph)	160	1150	20	30	620	370	50	230	190	380	80	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	165	1186	21	31	639	381	52	237	196	392	82	21
RTOR Reduction (vph)	0	1	0	0	79	0	0	27	0	0	8	0
Lane Group Flow (vph)	165	1206	0	31	941	0	52	406	0	392	95	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	41.2		2.4	32.6		6.2	27.5		25.0	46.3	
Effective Green, g (s)	11.0	41.2		2.4	32.6		6.2	27.5		25.0	46.3	
Actuated g/C Ratio	0.10	0.37		0.02	0.29		0.06	0.25		0.22	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	1297		38	972		98	426		395	746	
v/s Ratio Prot	c0.09	c0.34		0.02	0.28		0.03	c0.23		c0.22	0.05	
v/s Ratio Perm												
v/c Ratio	0.95	0.93		0.82	0.97		0.53	0.95		0.99	0.13	
Uniform Delay, d1	50.3	34.1		54.6	39.2		51.5	41.7		43.5	20.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.6	11.7		76.1	21.3		5.4	31.5		43.1	0.1	
Delay (s)	102.9	45.7		130.7	60.5		57.0	73.2		86.5	20.5	
Level of Service	F	D		F	E		E	E		F	C	
Approach Delay (s)		52.6			62.6			71.5			72.8	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM Average Control Delay	61.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	112.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3466		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3466		1770	3539	1770	1583
Volume (vph)	1440	230	70	810	180	100
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1485	237	72	835	186	103
RTOR Reduction (vph)	14	0	0	0	0	87
Lane Group Flow (vph)	1708	0	72	835	186	16
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	36.5		2.8	43.3	9.7	9.7
Effective Green, g (s)	36.5		2.8	43.3	9.7	9.7
Actuated g/C Ratio	0.60		0.05	0.71	0.16	0.16
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2074		81	2512	281	252
v/s Ratio Prot	c0.49		c0.04	0.24	c0.11	
v/s Ratio Perm						0.01
v/c Ratio	0.82		0.89	0.33	0.66	0.06
Uniform Delay, d1	9.7		28.9	3.4	24.1	21.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8		63.4	0.1	5.8	0.1
Delay (s)	12.5		92.3	3.4	29.9	21.9
Level of Service	B		F	A	C	C
Approach Delay (s)	12.5			10.5	27.0	
Approach LOS	B			B	C	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3523		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3523		1770	3539	1770	1583
Volume (vph)	1280	40	110	830	60	290
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1320	41	113	856	62	299
RTOR Reduction (vph)	3	0	0	0	0	150
Lane Group Flow (vph)	1358	0	113	856	62	149
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	25.6		3.5	33.1	8.1	8.1
Effective Green, g (s)	25.6		3.5	33.1	8.1	8.1
Actuated g/C Ratio	0.52		0.07	0.67	0.16	0.16
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1833		126	2381	291	261
v/s Ratio Prot	c0.39		c0.06	0.24	0.04	
v/s Ratio Perm						c0.09
v/c Ratio	0.74		0.90	0.36	0.21	0.57
Uniform Delay, d1	9.2		22.7	3.5	17.8	19.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7		49.5	0.1	0.4	3.0
Delay (s)	10.9		72.2	3.6	18.2	22.0
Level of Service	B		E	A	B	C
Approach Delay (s)	10.9			11.6	21.3	
Approach LOS	B			B	C	

Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	49.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1785		1770	1827		1770	1758		1770	1826	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1785		1770	1827		1770	1758		1770	1826	
Volume (vph)	150	130	50	120	140	20	90	350	210	10	330	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	155	134	52	124	144	21	93	361	216	10	340	52
RTOR Reduction (vph)	0	22	0	0	9	0	0	27	0	0	7	0
Lane Group Flow (vph)	155	164	0	124	156	0	93	550	0	10	385	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.5	8.5		4.8	7.8		4.1	24.2		0.6	20.7	
Effective Green, g (s)	5.5	8.5		4.8	7.8		4.1	24.2		0.6	20.7	
Actuated g/C Ratio	0.10	0.16		0.09	0.14		0.08	0.45		0.01	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	180	280		157	263		134	786		20	699	
v/s Ratio Prot	c0.09	c0.09		0.07	0.09		c0.05	c0.31		0.01	0.21	
v/s Ratio Perm												
v/c Ratio	0.86	0.59		0.79	0.59		0.69	0.70		0.50	0.55	
Uniform Delay, d1	23.9	21.2		24.2	21.7		24.4	12.0		26.6	13.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	31.9	3.1		22.7	3.6		14.4	2.7		18.3	0.9	
Delay (s)	55.8	24.3		46.8	25.3		38.8	14.8		44.9	14.0	
Level of Service	E	C		D	C		D	B		D	B	
Approach Delay (s)		38.6			34.5			18.1			14.8	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3487		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3487		1770	3539	1770	1583
Volume (vph)	1560	170	290	1590	410	300
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1608	175	299	1639	423	309
RTOR Reduction (vph)	5	0	0	0	0	189
Lane Group Flow (vph)	1778	0	299	1639	423	120
Turn Type			Prot			Perm
Protected Phases	2		1	6	3	
Permitted Phases						3
Actuated Green, G (s)	66.7		22.2	93.9	31.6	31.6
Effective Green, g (s)	67.7		23.0	94.7	31.1	31.1
Actuated g/C Ratio	0.48		0.16	0.68	0.22	0.22
Clearance Time (s)	5.0		4.8	4.8	3.5	3.5
Vehicle Extension (s)	6.8		6.3	6.3	2.0	2.0
Lane Grp Cap (vph)	1690		291	2399	394	352
v/s Ratio Prot	c0.51		c0.17	0.46	c0.24	
v/s Ratio Perm						0.08
v/c Ratio	1.05		1.03	0.68	1.07	0.34
Uniform Delay, d1	36.0		58.3	13.5	54.3	45.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	37.0		60.0	1.3	66.4	0.2
Delay (s)	73.0		118.4	14.8	120.7	45.9
Level of Service	E		F	B	F	D
Approach Delay (s)	73.0			30.8	89.1	
Approach LOS	E			C	F	

Intersection Summary			
HCM Average Control Delay	57.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	139.7	Sum of lost time (s)	17.9
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	530	500	960	270	360	90	1170	1420	280	140	1330	440
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	515	990	278	371	93	1206	1464	289	144	1371	454
RTOR Reduction (vph)	0	0	10	0	0	8	0	0	128	0	0	205
Lane Group Flow (vph)	546	515	980	278	371	85	1206	1464	161	144	1371	249
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.5	24.9	63.5	13.9	21.2	29.6	38.6	67.2	67.2	8.4	36.6	36.6
Effective Green, g (s)	19.0	26.5	66.6	15.4	22.9	32.8	40.1	68.7	68.7	9.9	38.5	38.5
Actuated g/C Ratio	0.14	0.19	0.49	0.11	0.17	0.24	0.29	0.50	0.50	0.07	0.28	0.28
Clearance Time (s)	5.5	5.6	5.5	5.5	5.7	5.5	5.5	5.5	5.5	5.5	5.9	5.9
Vehicle Extension (s)	1.0	5.0	1.0	1.0	5.9	1.0	1.0	5.4	5.4	1.0	5.4	5.4
Lane Grp Cap (vph)	478	987	819	387	853	427	1009	2559	797	249	1434	446
v/s Ratio Prot	c0.16	0.10	c0.35	0.08	0.07	0.01	0.35	0.29		0.04	c0.27	
v/s Ratio Perm			0.27			0.04			0.10			0.16
v/c Ratio	1.14	0.52	1.20	0.72	0.43	0.20	1.20	0.57	0.20	0.58	0.96	0.56
Uniform Delay, d1	58.8	49.3	35.0	58.5	51.0	41.4	48.2	23.6	18.7	61.3	48.2	41.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	86.4	1.0	100.4	5.2	1.0	0.1	97.7	0.5	0.3	2.0	14.9	2.9
Delay (s)	145.2	50.3	135.4	63.7	52.0	41.5	145.9	24.2	19.0	63.3	63.1	44.6
Level of Service	F	D	F	E	D	D	F	C	B	E	E	D
Approach Delay (s)		116.6			55.0			73.3			58.8	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM Average Control Delay	79.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3490		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3490		1770	3539	1770	1583
Volume (vph)	680	70	320	1170	10	80
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	701	72	330	1206	10	82
RTOR Reduction (vph)	12	0	0	0	0	74
Lane Group Flow (vph)	761	0	330	1206	10	8
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	14.6		12.5	31.1	4.4	4.4
Effective Green, g (s)	14.6		12.5	31.1	4.4	4.4
Actuated g/C Ratio	0.34		0.29	0.71	0.10	0.10
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1171		509	2530	179	160
v/s Ratio Prot	c0.22		c0.19	0.34	c0.01	
v/s Ratio Perm						0.01
v/c Ratio	0.65		0.65	0.48	0.06	0.05
Uniform Delay, d1	12.3		13.6	2.7	17.7	17.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3		2.8	0.1	0.1	0.1
Delay (s)	13.5		16.4	2.8	17.8	17.8
Level of Service	B		B	A	B	B
Approach Delay (s)	13.5			5.7	17.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	43.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3523		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3523		1770	3539	1770	1583
Volume (vph)	1290	40	110	820	70	250
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1330	41	113	845	72	258
RTOR Reduction (vph)	3	0	0	0	0	162
Lane Group Flow (vph)	1368	0	113	845	72	96
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	24.2		3.5	31.7	6.8	6.8
Effective Green, g (s)	24.2		3.5	31.7	6.8	6.8
Actuated g/C Ratio	0.52		0.08	0.68	0.15	0.15
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1833		133	2413	259	231
v/s Ratio Prot	c0.39		c0.06	0.24	0.04	
v/s Ratio Perm						c0.06
v/c Ratio	0.75		0.85	0.35	0.28	0.41
Uniform Delay, d1	8.7		21.2	3.1	17.7	18.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7		36.8	0.1	0.6	1.2
Delay (s)	10.4		58.1	3.2	18.3	19.3
Level of Service	B		E	A	B	B
Approach Delay (s)	10.4			9.7	19.0	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	46.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3502		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3502		1770	3539	1770	1583
Volume (vph)	670	50	340	1200	10	90
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	691	52	351	1237	10	93
RTOR Reduction (vph)	9	0	0	0	0	84
Lane Group Flow (vph)	734	0	351	1237	10	9
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	14.2		12.9	31.1	4.4	4.4
Effective Green, g (s)	14.2		12.9	31.1	4.4	4.4
Actuated g/C Ratio	0.33		0.30	0.71	0.10	0.10
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1143		525	2530	179	160
v/s Ratio Prot	c0.21		c0.20	0.35	0.01	
v/s Ratio Perm						c0.01
v/c Ratio	0.64		0.67	0.49	0.06	0.06
Uniform Delay, d1	12.5		13.4	2.7	17.7	17.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		3.2	0.1	0.1	0.2
Delay (s)	13.7		16.6	2.9	17.8	17.8
Level of Service	B		B	A	B	B
Approach Delay (s)	13.7			5.9	17.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	43.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3527		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3527		1770	3539	1770	1583
Volume (vph)	1320	30	110	820	50	270
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1361	31	113	845	52	278
RTOR Reduction (vph)	2	0	0	0	0	160
Lane Group Flow (vph)	1390	0	113	845	52	118
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	24.7		3.5	32.2	7.1	7.1
Effective Green, g (s)	24.7		3.5	32.2	7.1	7.1
Actuated g/C Ratio	0.52		0.07	0.68	0.15	0.15
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1842		131	2409	266	238
v/s Ratio Prot	c0.39		c0.06	0.24	0.03	
v/s Ratio Perm						c0.07
v/c Ratio	0.75		0.86	0.35	0.20	0.50
Uniform Delay, d1	8.9		21.7	3.2	17.6	18.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8		40.5	0.1	0.4	1.6
Delay (s)	10.7		62.1	3.3	18.0	20.1
Level of Service	B		E	A	B	C
Approach Delay (s)	10.7			10.2	19.8	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3532		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3532		1770	3539	1770	1583
Volume (vph)	690	10	240	1190	10	70
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	711	10	247	1227	10	72
RTOR Reduction (vph)	1	0	0	0	0	59
Lane Group Flow (vph)	720	0	247	1227	10	13
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	14.7		8.6	27.3	7.8	7.8
Effective Green, g (s)	14.7		8.6	27.3	7.8	7.8
Actuated g/C Ratio	0.34		0.20	0.63	0.18	0.18
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1205		353	2242	320	286
v/s Ratio Prot	0.20		c0.14	c0.35	0.01	
v/s Ratio Perm						c0.01
v/c Ratio	0.60		0.70	0.55	0.03	0.05
Uniform Delay, d1	11.8		16.0	4.4	14.5	14.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8		6.0	0.3	0.0	0.1
Delay (s)	12.6		22.0	4.7	14.6	14.6
Level of Service	B		C	A	B	B
Approach Delay (s)	12.6			7.6	14.6	
Approach LOS	B			A	B	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	43.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3539	1583	1770	1776		1770	1728	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3495		1770	3539	1583	1770	1776		1770	1728	
Volume (vph)	190	660	60	160	860	290	40	220	100	520	480	450
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	196	680	62	165	887	299	41	227	103	536	495	464
RTOR Reduction (vph)	0	5	0	0	0	195	0	12	0	0	26	0
Lane Group Flow (vph)	196	737	0	165	887	104	41	318	0	536	933	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	14.0	31.0		13.0	30.0	30.0	3.2	29.3		39.9	66.0	
Effective Green, g (s)	14.0	31.0		13.0	30.0	30.0	3.2	29.3		39.9	66.0	
Actuated g/C Ratio	0.11	0.24		0.10	0.23	0.23	0.02	0.23		0.31	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	839		178	822	368	44	403		547	883	
v/s Ratio Prot	c0.11	0.21		0.09	c0.25		0.02	0.18		c0.30	c0.54	
v/s Ratio Perm						0.07						
v/c Ratio	1.02	0.88		0.93	1.08	0.28	0.93	0.79		0.98	1.06	
Uniform Delay, d1	57.6	47.3		57.6	49.6	40.8	62.9	47.0		44.3	31.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	70.5	10.3		46.4	54.9	0.4	109.0	9.8		32.9	46.4	
Delay (s)	128.1	57.6		104.0	104.5	41.2	171.9	56.9		77.2	78.0	
Level of Service	F	E		F	F	D	F	E		E	E	
Approach Delay (s)		72.3			90.5			69.6			77.7	
Approach LOS		E			F			E			E	

Intersection Summary			
HCM Average Control Delay	79.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	129.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	10	40	30	10	10	10	70	10	10	390	350
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	237	10	41	31	10	10	10	72	10	10	402	361

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	289	52	93	412	361
Volume Left (vph)	237	31	10	10	0
Volume Right (vph)	41	10	10	0	361
Hadj (s)	0.11	0.03	-0.01	0.05	-0.67
Departure Headway (s)	5.9	6.4	6.0	5.8	5.0
Degree Utilization, x	0.47	0.09	0.15	0.66	0.51
Capacity (veh/h)	582	509	557	611	700
Control Delay (s)	14.1	10.0	10.1	18.0	11.9
Approach Delay (s)	14.1	10.0	10.1	15.1	
Approach LOS	B	B	B	C	

Intersection Summary			
Delay	14.3		
HCM Level of Service	B		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3535		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3535		1770	3539	1770	1583
Volume (vph)	1210	10	80	830	10	260
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1247	10	82	856	10	268
RTOR Reduction (vph)	1	0	0	0	0	155
Lane Group Flow (vph)	1256	0	82	856	10	113
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	21.1		2.4	27.5	9.0	9.0
Effective Green, g (s)	21.1		2.4	27.5	9.0	9.0
Actuated g/C Ratio	0.47		0.05	0.62	0.20	0.20
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1676		95	2187	358	320
v/s Ratio Prot	c0.36		c0.05	0.24	0.01	
v/s Ratio Perm						c0.07
v/c Ratio	0.75		0.86	0.39	0.03	0.35
Uniform Delay, d1	9.5		20.9	4.3	14.2	15.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9		50.8	0.1	0.0	0.7
Delay (s)	11.4		71.7	4.4	14.3	15.9
Level of Service	B		E	A	B	B
Approach Delay (s)	11.4			10.3	15.9	
Approach LOS	B			B	B	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	44.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3513		1770	3539	1583	1770	1771		1770	1743	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3513		1770	3539	1583	1770	1771		1770	1743	
Volume (vph)	420	980	50	120	720	540	60	390	190	380	320	240
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	433	1010	52	124	742	557	62	402	196	392	330	247
RTOR Reduction (vph)	0	3	0	0	0	306	0	13	0	0	20	0
Lane Group Flow (vph)	433	1059	0	124	742	251	62	585	0	392	557	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	27.0	41.0		10.0	24.0	24.0	5.6	39.8		24.0	58.2	
Effective Green, g (s)	27.0	41.0		10.0	24.0	24.0	5.6	39.8		24.0	58.2	
Actuated g/C Ratio	0.21	0.31		0.08	0.18	0.18	0.04	0.30		0.18	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	1101		135	649	290	76	539		325	776	
v/s Ratio Prot	c0.24	0.30		0.07	c0.21		0.04	c0.33		c0.22	0.32	
v/s Ratio Perm						0.16						
v/c Ratio	1.19	0.96		0.92	1.14	0.86	0.82	1.08		1.21	0.72	
Uniform Delay, d1	51.9	44.1		60.0	53.4	51.8	62.1	45.5		53.4	29.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	108.2	18.6		52.8	81.9	22.5	46.7	63.8		118.2	3.2	
Delay (s)	160.1	62.7		112.8	135.3	74.3	108.8	109.3		171.6	32.8	
Level of Service	F	E		F	F	E	F	F		F	C	
Approach Delay (s)		90.9			109.5			109.2			88.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	99.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	320	10	10	10	10	10	40	350	30	10	160	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	330	10	10	10	10	10	41	361	31	10	165	309

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	351	31	433	175	309
Volume Left (vph)	330	10	41	10	0
Volume Right (vph)	10	10	31	0	309
Hadj (s)	0.20	-0.10	0.01	0.06	-0.67
Departure Headway (s)	6.6	7.4	6.1	6.7	5.9
Degree Utilization, x	0.64	0.06	0.74	0.33	0.51
Capacity (veh/h)	513	404	569	516	581
Control Delay (s)	20.6	10.9	24.4	11.7	13.8
Approach Delay (s)	20.6	10.9	24.4	13.0	
Approach LOS	C	B	C	B	

Intersection Summary			
Delay	18.8		
HCM Level of Service	C		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

HCM 2000
Basic Freeway Segments
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year C+ Pref Alt with Mitigation
Analyst F&P

Agency or Company Caltrans
Date 10/4/2010
Project Description Elverta Specific Plan

General Information				*Flow Rate Calculation*													*Speed Calculation*		*Results*	
	Freeway/ Direction	From/To	Analysis Time Period	Volume (vph)	PHF	Lanes	HOV Lane?	HOV Lane Volume	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcphpl)	Measured FFS (mph)	S (mph)	Density, D (pcplpm)	Level of Service
1	SR-99 SB	Sankey Road to Riego Road	AM	4,630	0.97	3	No		Level	7%	0%	1.5	1.2	0.966	1.00	1,647	65.0	61.9	**26.6**	**D**
2	SR 99 SB	Riego Road to Elverta Road	AM	5,010	0.97	3	No		Level	7%	0%	1.5	1.2	0.966	1.00	1,782	65.0	61.5	**29.0**	**D**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	AM	4,550	0.97	3	No		Level	7%	0%	1.5	1.2	0.966	1.00	1,618	65.0	62.0	**26.1**	**D**
4	SR 99 SB	Elkhorn Blvd to I-5	AM	5,460	0.97	4	Yes	874	Level	7%	0%	1.5	1.2	0.966	1.00	1,631	65.0	62.0	**26.3**	**D**
5	SR 99 NB	I-5 to Elkhorn Blvd	AM	2,930	0.97	4	Yes	791	Level	23%	0%	1.5	1.2	0.897	1.00	820	65.0	62.0	**13.2**	**B**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	AM	2,530	0.97	3	No		Level	23%	0%	1.5	1.2	0.897	1.00	969	65.0	62.0	**15.6**	**B**
7	SR 99 NB	Elverta Road to Riego Road	AM	2,320	0.97	3	No		Level	23%	0%	1.5	1.2	0.897	1.00	889	65.0	62.0	**14.3**	**B**
8	SR 99 NB	Riego Road to Sankey Road	AM	1,720	0.97	3	No		Level	23%	0%	1.5	1.2	0.897	1.00	659	65.0	62.0	**10.6**	**A**
1	SR-99 SB	Sankey Road to Riego Road	PM	2,410	0.97	3	No		Level	5%	0%	1.5	1.2	0.976	1.00	849	65.0	62.0	**13.7**	**B**
2	SR 99 SB	Riego Road to Elverta Road	PM	3,170	0.97	3	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,117	65.0	62.0	**18.0**	**C**
3	SR 99 SB	Elverta Road to Elkhorn Blvd	PM	3,360	0.97	3	No		Level	5%	0%	1.5	1.2	0.976	1.00	1,184	65.0	62.0	**19.1**	**C**
4	SR 99 SB	Elkhorn Blvd to I-5	PM	3,970	0.97	4	Yes	635	Level	5%	0%	1.5	1.2	0.976	1.00	1,175	65.0	62.0	**18.9**	**C**
5	SR 99 NB	I-5 to Elkhorn Blvd	PM	6,100	0.97	4	Yes	1647	Level	13%	0%	1.5	1.2	0.939	1.00	1,630	65.0	62.0	**26.3**	**D**
6	SR 99 NB	Elkhorn Blvd to Elverta Road	PM	4,980	0.97	3	No		Level	13%	0%	1.5	1.2	0.939	1.00	1,823	65.0	61.3	**29.8**	**D**
7	SR 99 NB	Elverta Road to Riego Road	PM	5,160	0.97	3	No		Level	13%	0%	1.5	1.2	0.939	1.00	1,888	65.0	60.7	**31.1**	**D**
8	SR 99 NB	Riego Road to Sankey Road	PM	4,320	0.97	3	No		Level	13%	0%	1.5	1.2	0.939	1.00	1,581	65.0	62.0	**25.5**	**C**

HCM 2000
Merge Ramp Junctions
Capacity Analysis

Jurisdiction Sacramento County
Analysis Year C+ Pref Alt with Mitigation
Analyst F&P

Agency or Company Caltrans
Date 40455.00
Project Description Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	On-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	AM	3	65.0	4,150	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	4,428	4,428
M-2	SR 99 SB	Elverta Road Slip On	AM	3	65.0	4,520	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	4,823	4,823
M-3	SR 99 NB	Elverta Road Loop On	AM	3	65.0	1,930	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,219	2,219
M-4	SR 99 NB	Elverta Road Slip On	AM	3	65.0	2,080	0.97	Level	23.0%	0.0%	1.5	1.20	0.90	1.00	2,391	2,391
M-1	SR-99 SB	Elverta Road Loop On	PM	3	65.0	2,890	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,054	3,054
M-2	SR 99 SB	Elverta Road Slip On	PM	3	65.0	3,230	0.97	Level	5.0%	0.0%	1.5	1.20	0.98	1.00	3,413	3,413
M-3	SR 99 NB	Elverta Road Loop On	PM	3	65.0	4,440	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	4,875	4,875
M-4	SR 99 NB	Elverta Road Slip On	PM	3	65.0	5,110	0.97	Level	13.0%	0.0%	1.5	1.20	0.94	1.00	5,610	5,610

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*On-Ramp Data*							*On-Ramp Volume Adjustment*								
	Freeway/				S_{FR}	V_R	Accel Lane (ft)					Truck/						Flow Rate
	Direction	On-ramp	Type	Lanes	(mph)	(vph)	L_{A1}	L_{A2}	L_{Aeff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P	v_p (pcph)
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	370	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	395
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	30	250		250	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	32
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	150	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00	172
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	240	250		250	0.97	Level	23.0%	0.0%	1.5	1.2	0.90	1.00	276
M-1	SR-99 SB	Elverta Road Loop On	Right	1	25.0	340	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00	359
M-2	SR 99 SB	Elverta Road Slip On	Right	1	45.0	130	250		250	0.97	Level	5.0%	0.0%	1.5	1.2	0.98	1.00	137
M-3	SR 99 NB	Elverta Road Loop On	Right	1	25.0	670	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00	736
M-4	SR 99 NB	Elverta Road Slip On	Right	1	45.0	50	250		250	0.97	Level	13.0%	0.0%	1.5	1.2	0.94	1.00	55

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*v_{12} Estimation*						
	Freeway/		L_{EQ}		P_{FM} Equations				v_{12}
	Direction	On-ramp	25-2	25-3	1	2	3	P_{FM}	(pcph)
M-1	SR-99 SB	Elverta Road Loop On			0.585			0.585	2,588
M-2	SR 99 SB	Elverta Road Slip On			0.585			0.585	2,819
M-3	SR 99 NB	Elverta Road Loop On			0.585			0.585	1,297
M-4	SR 99 NB	Elverta Road Slip On			0.585			0.585	1,397
M-1	SR-99 SB	Elverta Road Loop On			0.585			0.585	1,785
M-2	SR 99 SB	Elverta Road Slip On			0.585			0.585	1,995
M-3	SR 99 NB	Elverta Road Loop On			0.585			0.585	2,849
M-4	SR 99 NB	Elverta Road Slip On			0.585			0.585	3,279

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*													
	Freeway/ Direction	On-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	v_{R12a} (pcph)	Max v_{R12a} (pcph)	LOS F?
M-1	SR-99 SB	Elverta Road Loop On	4,428	7,050	No	4,823	7,050	No	1,840	No	No	2,588	2,983	4,600	No
M-2	SR 99 SB	Elverta Road Slip On	4,823	7,050	No	4,855	7,050	No	2,004	No	No	2,819	2,851	4,600	No
M-3	SR 99 NB	Elverta Road Loop On	2,219	7,200	No	2,391	7,200	No	922	No	No	1,297	1,469	4,600	No
M-4	SR 99 NB	Elverta Road Slip On	2,391	7,200	No	2,667	7,200	No	993	No	No	1,397	1,673	4,600	No
M-1	SR-99 SB	Elverta Road Loop On	3,054	7,200	No	3,413	7,200	No	1,269	No	No	1,785	2,144	4,600	No
M-2	SR 99 SB	Elverta Road Slip On	3,413	7,200	No	3,551	7,200	No	1,418	No	No	1,995	2,132	4,600	No
M-3	SR 99 NB	Elverta Road Loop On	4,875	7,200	No	5,610	7,200	No	2,025	No	No	2,849	3,585	4,600	No
M-4	SR 99 NB	Elverta Road Slip On	5,610	7,200	No	5,665	7,200	No	2,331	No	No	3,279	3,334	4,600	No

HCM 2000
Merge Ramp Junctions
Capacity Analysis

General Information						*Results*		*Speed Estimation*			
	Freeway/ Direction	On-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. M_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
M-1	SR-99 SB	Elverta Road Loop On	395	1,900	No	**27.0**	**C**	0.386	56.1	60.2	57.6
M-2	SR 99 SB	Elverta Road Slip On	32	2,100	No	**26.1**	**C**	0.366	56.6	59.6	57.8
M-3	SR 99 NB	Elverta Road Loop On	172	1,900	No	**15.3**	**B**	0.325	57.5	63.5	59.7
M-4	SR 99 NB	Elverta Road Slip On	276	2,100	No	**16.8**	**B**	0.319	57.7	63.2	59.6
M-1	SR-99 SB	Elverta Road Loop On	359	1,900	No	**20.5**	**C**	0.342	57.1	62.2	58.9
M-2	SR 99 SB	Elverta Road Slip On	137	2,100	No	**20.5**	**C**	0.331	57.4	61.7	59.0
M-3	SR 99 NB	Elverta Road Loop On	736	1,900	No	**31.5**	**D**	0.449	54.7	59.5	56.3
M-4	SR 99 NB	Elverta Road Slip On	55	2,100	No	**29.9**	**D**	0.408	55.6	58.3	56.7

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

Jurisdiction: Sacramento County
Analysis Year: C+ Pref Alt with Mitigation
Analyst: F&P
Agency or Company: Caltrans
Date: 10/4/2010
Project Description: Elverta Specific Plan

General Information				*Freeway Data*			*Freeway Volume Adjustment*									Effective
	Freeway/ Direction	Off-ramp	Analysis Time Period	Lanes	S_{FF} (mph)	V (vph)	PHF	Terrain	Truck/ Bus %	RV %	E_T	E_R	f_{HV}	f_P	Flow Rate v_p (pcph)	Flow Rate v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	AM	3	65.0	5,010	0.97	Level	7%	0%	1.5	1.20	0.966	1.00	5,346	5,346
D-2	SR 99 NB	Elverta Road Off Ramp	AM	3	65.0	2,530	0.97	Level	23.0%	0.0%	1.5	1.200	0.897	1.00	2,908	2,908
D-3	SR 99 SB	Elverta Road Off Ramp	PM	3	65.0	3,170	0.97	Level	5.0%	0.0%	1.5	1.200	0.976	1.00	3,350	3,350
D-4	SR 99 NB	Elverta Road Off Ramp	PM	3	65.0	4,980	0.97	Level	13.0%	0.0%	1.5	1.200	0.939	1.00	5,468	5,468

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

	General Information		*Off-Ramp Data*							*Off-Ramp Volume Adjustment*								
	Freeway/				S_{FR}	V_R	Decel Lane (ft)					Truck/						Flow Rate
	Direction	Off-ramp	Type	Lanes	(mph)	(vph)	L_{D1}	L_{D2}	L_{Deff}	PHF	Terrain	Bus %	RV %	E_T	E_R	f_{HV}	f_P	v_p (pcph)
D-1	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	860	150		150	0.97	Level	7%	0%	1.5	1.2	0.966	1.00	918
D-2	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	600	150		150	0.97	Level	23.0%	0.0%	1.5	1.2	0.897	1.00	690
D-3	SR 99 SB	Elverta Road Off Ramp	Right	1	45.0	280	150		150	0.97	Level	5.0%	0.0%	1.5	1.2	0.976	1.00	296
D-4	SR 99 NB	Elverta Road Off Ramp	Right	1	45.0	540	150		150	0.97	Level	13.0%	0.0%	1.5	1.2	0.939	1.00	593

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*v_{12} Estimation*						
	Freeway/		L_{EQ}		P_{FD} Equations				v_{12}
	Direction	Off-ramp	25-13	25-14	5	6	7	P_{FD}	(pcph)
D-1	SR 99 SB	Elverta Road Off Ramp			0.584			0.584	3,504
D-2	SR 99 NB	Elverta Road Off Ramp			0.656			0.656	2,144
D-3	SR 99 SB	Elverta Road Off Ramp			0.663			0.663	2,320
D-4	SR 99 NB	Elverta Road Off Ramp			0.596			0.596	3,498

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information			*Capacity Checks*											
	Freeway/ Direction	Off-ramp	v_{Fi} (pcph)	Max v_{Fi} (pcph)	LOS F?	v_3, v_{av34} (pcphpl)	v_3, v_{av34} > 2,700?	v_3, v_{av34} >1.5*v_{12}/2?	v_{12a} (pcph)	Max v_{12} (pcph)	LOS F?	v_{FO} (pcph)	Max v_{FO} (pcph)	LOS F?
D-1	SR 99 SB	Elverta Road Off Ramp	5,346	7,050	No	1,841	No	No	3,504	4,400	No	4,428	7,050	No
D-2	SR 99 NB	Elverta Road Off Ramp	2,908	7,200	No	764	No	No	2,144	4,400	No	2,219	7,200	No
D-3	SR 99 SB	Elverta Road Off Ramp	3,350	7,200	No	1,030	No	No	2,320	4,400	No	3,054	7,200	No
D-4	SR 99 NB	Elverta Road Off Ramp	5,468	7,200	No	1,969	No	No	3,498	4,400	No	4,875	7,200	No

HCM 2000
Diverge Ramp Junctions
Capacity Analysis

General Information						*Results*		*Speed Estimation*			
	Freeway/ Direction	Off-ramp	v_R (pcph)	Max v_R (pcph)	LOS F?	Density, D (pcplpm)	Level of Service	Int. Var. D_S	Inf. Area S_R (mph)	Out Lns. S_O (mph)	All vehs. S (mph)
D-1	SR 99 SB	Elverta Road Off Ramp	918	2,100	No	**33.0**	**D**	0.381	56.2	68.0	59.8
D-2	SR 99 NB	Elverta Road Off Ramp	690	2,100	No	**21.3**	**C**	0.360	56.7	71.3	59.9
D-3	SR 99 SB	Elverta Road Off Ramp	296	2,100	No	**22.8**	**C**	0.325	57.5	71.2	61.1
D-4	SR 99 NB	Elverta Road Off Ramp	593	2,100	No	**33.0**	**D**	0.351	56.9	67.5	60.3