APPENDIX A – NOP AND NOP COMMENTS

Exhibit N

COMMUNITY DEVELOPMENT AGENCY
DEVELOPMENT SERVICES DIVISION

2850 Fairlane Court, Placerville, CA 95667
Phone (530) 621-4650, Fax (530) 642-0508

COUNTY OF EL DORADO
NOTICE OF PREPARATION AND NOTICE OF PUBLIC SCOPING
DRAFT EIR FOR THE GREEN VALLEY CONVENIENCE CENTER (PD12-0003)

Date: December 19, 2014

To: Interested Parties

From: El Dorado County Community Development Agency

Subject: Notice of Preparation of an Environmental Impact Report for the Green Valley Convenience Center (PD12-0003), SCH# 2013062011

The County of El Dorado (County) is the lead agency under the California Environmental Quality Act (CEQA) for preparation of an environmental impact report (EIR) for the Green Valley Convenience Center. The project location, project description, proposed entitlement requests, and potential environmental effects of the proposed Green Valley Convenience Center are summarized in the attached materials. For more information, visit the project website at http://edcgov.us/publicnotices.aspx.

The purpose of this Notice of Preparation (NOP) and notice of public scoping is to solicit comments from public agencies and interested persons regarding the scope and content of the environmental information and analyses, including the significant environmental impacts, reasonable alternatives, and mitigation measures that should be included in the Draft EIR.

The County will hold an informational open house and scoping session during the 30-day public review period for the NOP. All interested parties are invited to attend the open house, at which time written information about the project will be available, and comment cards will be provided for those wishing to provide written comments concerning the Draft EIR. The open house will be held on **Wednesday, January 14, 2015, from 6:30 PM to 8:00 PM** in the El Dorado Hills Fire Department Conference Room, 1050 Wilson Boulevard, El Dorado Hills. Parking is available at the fire station.

Written comments concerning the NOP may be submitted any time during the 30-day NOP review period. Due to time limits mandated by state law, written comments on this NOP must be received by the County within 30 days of the date of this notice, but not later than **5:00 p.m. on January 20, 2015.** There will be another opportunity to submit detailed comments when the Draft EIR is released for public review. Please e-mail, fax, mail, or hand-deliver your comments to:

> Tiffany Schmid, Principal Planner
> El Dorado County Community Development Agency, Development Services Division
> 2850 Fairlane Court, Placerville, CA 95667
> E-mail: tiffany.schmid@edcgov.us
> Fax: (530) 642-0508

COMMUNITY DEVELOPMENT AGENCY
DEVELOPMENT SERVICES DIVISION

2850 Fairlane Court, Placerville, CA 95667
Phone (530) 621-4650, Fax (530) 642-0508

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE GREEN VALLEY CONVENIENCE CENTER

Project Location: The project site is at the southeast corner of Green Valley Road and Sophia Parkway in the north El Dorado Hills area. The Mormon Island Dam, one of the dams impounding Folsom Lake, is across Green Valley Road to the northwest. The triangular-shaped project site is an undeveloped 2.12-acre parcel (APN 124-301-46). It is approximately 10 feet below the adjacent roadway grade and is covered with non-native grasses, shrubs, and a few young trees. An intermittent stream bisects the parcel, flows west through culverts under Sophia Parkway, and empties into Mormon Island Wetland Preserve. The northeast corner of the site includes an asphalt drive apron and an unsurfaced road. Surrounding land use consists of the two roadways on the north and west and a commercial RV/boat storage business and commercial-zoned vacant land south of the storage yard. Two medium-density residential lots abut a portion of the property, and high-density residential lots are adjacent at the southeast corner.

Project Description: The proposed project would develop an ARCO-branded convenience center occupying approximately 1.3 acres of the site. It would include the following:

- 4,602-square-foot open-sided canopy with eight self-service fuel pumps (16 fueling positions and two payment island cashiers) and solar panels on the canopy
- Three underground fuel storage tanks
- 3,184-square-foot convenience store
- 1,794-square-foot single-bay self-service carwash
- Air/water unit and two vacuums
- 18-foot-tall monument site identification sign (67 square feet surface area)
- On-site parking spaces for vehicles (17-18 spaces) and bicycles (4 spaces)
- Trash enclosure
- On-site stormwater runoff underground collection and water quality vault
- Driveways, pavement, and hardscaping
- On-site lighting, consisting of wall lights, canopy lights, and 12-foot-tall-pole lights with full cutoff fixtures
- Landscaping, including evergreen species (deodar cedar, holly oak, ponderosa pine), on the south and east sides to buffer views into the project site from the east and south sides

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The area containing the structures and pavement would be raised to transition from the existing grade at Green Valley Road/Sophia Parkway by importing fill to create a flat building pad. On the south side of the carwash access driveway, there would be a short screen wall, and south of that, the site would be graded and sloped toward the creek. The slope would include erosion control vegetation, which would also be extended around the east side of the site.

The project proposes two new access points, one each onto Green Valley Road and Sophia Parkway. These encroachments would be right-in and right-out only. The driveway access on Green Valley Road would be at the east end of the project, where a deceleration taper would lead to the driveway. The driveway access from Sophia Parkway would be at the south end of the convenience center. The proposed project also includes installation of a raised median in Green Valley Road starting at the east side of the Sophia Parkway intersection and extending east approximately 350 feet and past the driveway access on Green Valley Road. The purpose of the raised median would be to prevent vehicles from turning left onto Green Valley Road.

The curb at Green Valley Road/Sophia Parkway would be modified to conform to county standards. This modification would facilitate U-turns from westbound Green Valley Road to access the driveway on Green Valley Road. The modification would add U-turn signs, a change to the pedestrian interface button, and may require an adjustment to signal timing.

Proposed Entitlement Requests: (1) Development Plan to allow the construction of a gas station, convenience store, and single-bay self-service carwash; (2) Finding of Consistency with General Plan Policy 7.3.3.4 to allow reduction of the wetland setback from 50 feet to 10 feet; and (3) Design Waiver request from Standard Plan 103-D to allow a longer taper for the encroachment.

Potential Environmental Effects: The proposed project was originally approved in 2013 with a Mitigated Negative Declaration (MND), which was challenged. The Superior Court of the State of California in and for the County of El Dorado subsequently issued a Peremptory Writ of Mandamus (Writ), which was followed by a Judgment dated August 13, 2014 that requires preparation of an EIR to address the following issue areas, which will be evaluated in the draft EIR:

- Analysis of five intersections (Green Valley Road/Sophia Parkway; Green Valley Road/Blue Ravine/E. Natoma Street; Green Valley Road/El Dorado Hills Boulevard; Green Valley Road/Amy's Lane; Sophia Parkway/Elmores/Socrates Place)
- Analysis of two roadway segments (Green Valley Road from E. Natoma Street to Sophia Parkway; Green Valley Road from Sophia Parkway to El Dorado Hills Boulevard)
- Vehicle, pedestrian, and bicycle safety
- Biological resources and riparian impacts on the on-site intermittent stream and off-site impacts on the stream

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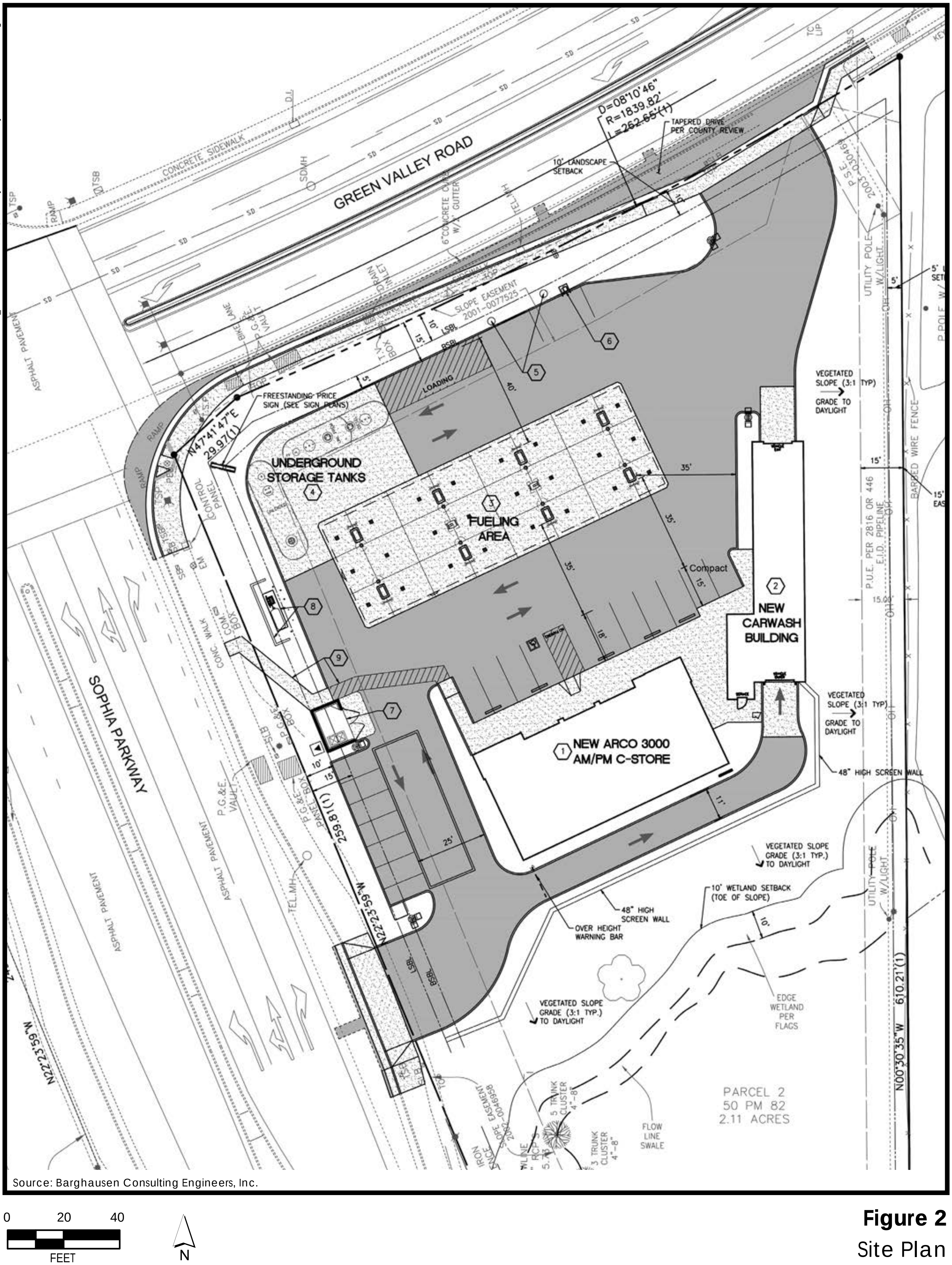
The Writ established that the following environmental issue areas were adequately addressed in the MND and do not need to be evaluated in the Draft EIR but rather referenced and summarized in the Draft EIR: aesthetics, agriculture/forestry resources, air quality, cultural resources, geology/soils, hazards/hazardous materials, hydrology/water quality, land use/planning, mineral resources, noise (with the exception of traffic noise impacts that may result from new traffic analysis), population/housing, public services, recreation, and utilities/service systems. The Draft EIR may address additional impacts, based on the comments received on the NOP.

Project Alternatives: As required under CEQA, the Draft EIR will evaluate a reasonable range of alternatives to the proposed project that could avoid or reduce environmental effects. In addition to the CEQA-required No Project Alternative, the Draft EIR will provide an analysis of a smaller project and an off-site alternative. In addition, the Writ specifically requires an analysis of (1) a "pocket lane" on Green Valley Road to access the convenience center driveway, and (2) a full deceleration lane on Green Valley Road extending east from the east side of Sophia Parkway.

Figure 1
Project Location

PMC



Source: Barghausen Consulting Engineers, Inc.

T:_CS\Work\El Dorado, County of\Green Valley Road Gas Station\Figures

Figure 2
Site Plan

PMC®

From: **Friends of Green Valley** <friendsofgreenvalley@gmail.com>
Date: Tue, Jan 20, 2015 at 12:11 PM
Subject: URGENT - ARCO AMPM PD12-0003 BOS Follow Up
To: bosone@edcgov.us, bostwo@edcgov.us, bosthree@edcgov.us, bosfour@edcgov.us, bosfive@edcgov.us, EDC COB <edc.cob@edcgov.us>
Cc: rtrout@co.el-dorado.ca.us, tiffany.schmid@edcgov.us, "tom.dougherty@edcgov.us" <tom.dougherty@edcgov.us>, Darren Bobrowsky <bobrowsky@gmail.com>, John Hidahl 2 <hidahl@aol.com>, annette chinn <AChinnCRS@aol.com>, Claire LaBeaux <claire_labeaux@yahoo.com>, vandyke.5@sbcglobal.net, "Tara McC." <mccannengineering@sbcglobal.net>, Green Valley Alliance <gvralliance@gmail.com>, Johnny Red <bugginu@sbcglobal.net>, Jennifer Bush <jenniferbush@comcast.net>, "jamiebush@comcast.net" <jamiebush@comcast.net>, rich.stewart@edcgov.us

Dear Supervisors Veerkamp, Frentzen, Novasel, Ranalli, and Mikulaco:

On January 13, 2015, I gave testimony on behalf of Friends of Green Valley directly to the BOS during open forum regarding the community's overwhelming concerns about Green Valley Convenience Center (Planned Development PD12-0003) a.k.a. ARCO AMPM. Chairman Veerkamp raised a thoughtful question regarding the Community's interaction with County staff and ongoing discussions of myriad concerns. This is follow up to that question:

On January 13, 2015, I reached out to Tiffany Schmid, Principle Planner, and expressed the Community's concerns about the timing for noticing (just days before Christmas) and the Scoping Session being scheduled on top of the APAC January monthly meeting. She stated "the noticing met CEQA requirements" and did not express concern about it having been scheduled on top of the APAC monthly meeting. She stated, "The Community can attend both meetings," which seemed to imply the Community's participation should be limited to merely stopping by the meeting venues. She also stated the scope of the EIR (including the peculiar Amy's Lane Alternative) was already defined by the Settlement Agreement and Writ of Mandamus. I informed her that her assumption was incorrect, and suggested she review the documents in order to better understand the concerns about the project and the process coming from the Community. I also asked her to determine who was responsible for drafting the Pacific Municipal Consultants (PMC) contract and adding the "Amy's Lane Alternative."

On January 14, 2015, I attended the ARCO AMPM Scoping Session and discussed concerns with Roger Trout, Director of Development Services. He immediately dismissed the Community's concerns about the County scheduling the ARCO scoping session on top of the APAC meeting, stating both the timing and noticing "met CEQA guidelines." He added that his role in the entire process was limited to "enforcing CEQA requirements." However, when questioned about who authored the "Amy's Lane Alternative," Trout admitted he had created it and unilaterally decided to include it in the scope of the PMC contract, which he also drafted. I informed Trout that the spirit and intent of the Settlement Agreement and Writ of Mandamus were to get to the truth about what is actually needed to protect public safety, not an exercise in circumventing the truth and short-cutting the process. Moreover, the Community does not want to waste valuable resources analyzing the Amy's Lane Alternative and explained the Community wants PMC to look at an alternative that features **full deceleration lanes on both Green Valley Road and Sophia Parkway**. (This alternative is more clearly described in public commentary from Friends of Green Valley and others in scoping comments for FEIR.)

Clearly, some El Dorado County staff members are taking liberties and short-cutting the CEQA process. **Allowing this behavior to continue is undermining the Community's confidence in our local government.** The Community is imploring the BOS to take swift action to correct these problems. Please direct staff to **1) conduct another scoping meeting in February using APAC's February meeting as the venue; and 2) extend public comment regarding scoping to five days beyond the February scoping session.**

Thank you for your review and consideration,

Amy L. Anders
for Friends of Green Valley
www.friendsofgreenvalley.org
(916) 220-8400

From: **Friends of Green Valley** <friendsofgreenvalley@gmail.com>
Date: Tue, Jan 20, 2015 at 4:27 PM
Subject: ARCO AMPM - PD12-0003 Green Valley Convenience Center FEIR Scope
To: tiffany.schmid@edcgov.us

Hi Tiffany,

I'm forwarding public comments regarding the scope of the FEIR.

Thank you for your hard work on this project!

Sincerely,
Amy L. Anders
for Friends of Green Valley

Friends of Green Valley

January 20, 2015

Tiffany Schmid, Principal Planner
El Dorado County Development Services Division
2850 Fairlane Court, Placerville, CA 95667
E-mail: tiffany.schmid@edcgov.us

VIA EMAIL

Subject: ARCO AMPM – PD12-0003 Green Valley Convenience Center EIR Scope

Dear Tiffany,

On behalf of members of Friends and El Dorado Hills residents, we sincerely appreciate your outstanding efforts and hard work on this project to date. Thank you for your commitment to public service and public safety. Please keep up the good work!

Please find the following comments from Friends of Green Valley regarding the scope of the FEIR for the above referenced project:

Traffic

According to the spirit and intent of the settlement agreement, the Community submits the following alternative for analysis:

- Reduce the size and intensity of the ARCO project to make sufficient room for a full deceleration/acceleration lane to be constructed along the entire project frontage on Green Valley Road and Sophia Parkway. Pull back existing curb at north-west corner of property approximately 10-15 feet to allow u-turn movements for vehicles traveling west on Green Valley Road, and construct an additional right turn lane for northbound traffic on Sophia Parkway. Include an analysis of the expense of relocating public utilities installed in the north-west corner of property to allow construction of dedicated turn lanes on Green Valley and Sophia Parkway.

The following are submitted for analysis and recommendations:

- Analyze the impacts of turning movements caused by gas tankers and delivery trucks. Include turning radius diagrams for gas tanker trucks and delivery trucks traveling east on Green Valley Road entering ARCO. Include turning radius diagrams for vehicles entering from Sophia Parkway.
- Analyze anticipated queueing of automobiles as a result of turning vehicles including gas delivery vehicles and vehicles pulling boats, personal water craft, etc. on Green Valley Road and Sophia Parkway. Perform scenario analysis for impacts after an accident at ARCO.

El Dorado Hills, CA 95762
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Email: friendsofgreenvalley@gmail.com

- Analyze expected impacts related to future expansion of Green Valley Road from two lanes to four lanes on prevailing speed, severity of accidents, and volume of turning vehicle incidents.
- Analyze expected impacts related to future expansion of Sophia Parkway to full interchange for HWY 50. Determine impacts to traffic volumes, prevailing speed, severity of accidents, and volume of turning vehicle incidents.
- Analyze and compare the impacts from similar expansion projects in El Dorado County. For example, the expansion of Foresthill Road from Auburn to Foresthill. Include impacts on prevailing speeds, severity of accidents, number of fatalities, and other expected impacts and compare to the pending Green Valley Road and Sophia Parkway expansions.

Biological

The community anticipates the project proponent will be required to obtain additional project reviews, approvals and/or permits from the following agencies:

- California Department of Fish and Game
- U.S. Fish and Wildlife Services
- Department of Army, Corps of Engineers
- California Central Valley Region Water Quality Control Board

We also anticipate that potentially significant adverse effects on wetlands will require compliance with Section 404 of the Clean Water Act, a Streambed Alteration Agreement, Water Quality Certification (section 401 permit), and adherence to El Dorado County Codes and General Plan Policies.

In addition, the Community has expressed concern that the existing environmental documentation did not accurately reflect the biological conditions existing on the subject property and those properties located nearby. For example, an adjacent property includes a pond that holds water year round in addition to a hosting a very large seasonal wetlands area. This area serves as a breeding ground for wildlife including the following, which were not previously identified in the environmental review:

- Northwestern pond turtles
- Wood ducks
- Mallard ducks
- Canadian geese
- Wild turkey
- Whitetail kites
- Great horned owls
- Swainson's hawk

This is important because many of the above wildlife inhabitants travel (migrate) to and from the local ponds / wetlands to the larger wetlands at Mormon Island State Park using the stream and wetlands that run across the southern half of the ARCO AMPM property. Undeniably, even a small amount of oil, gasoline, antifreeze, or trash overflowing into the natural environment will cause permanent damage to the wetlands. A reduction in the wetland setback from 50 feet to ten (10) feet, will increase the risk of storm water runoff, pollution and contamination significantly, and could permanently impact the water quality of local wetlands that run downstream to the State Park. **Please clarify the rationale for approving a significant reduction in the 50' wetlands setback set forth in General Plan Policy 7.3.3.4.**

Because of the extremely toxic characteristics inherent to this type of business and the project's unique design features, it is impossible to mitigate the potential for permanent damage to the wetland. At this specific location, any risk of permanently damaging the wetlands environment is not an acceptable risk given the consequences of even a small mistake.

Northwestern Pond Turtle in center of photo on bank under rock ledge.

Great Blue Heron in center of photo above rock.

As final comments on the ARCO AMPM project, the Community has expressed significant concerns about myriad public safety issues inherent to the project. As representatives who have undertaken an oath to work in the best interest of the Community at large, please exercise due diligence when reviewing the pertinent facts of this project. The ARCO AMPM project attempts to pack too much intensity onto an irregular shaped lot that is complicated by its close proximity to streams and wetlands. This project causes serious traffic, biological, noise, and public safety issues, and the court has compelled an EIR to analyze the impacts. The Community is confident an EIR will validate the gravity of the public safety issues. Please restore our faith in local government and require Pacific Municipal Consultants to be held accountable for their analysis and recommendations.

Thank you for your time and attention.

Sincerely,

Amy L. Anders

for Friends of Green Valley

From: **Shirley Biagi** <sbiagi@aol.com>
Date: Sun, Dec 28, 2014 at 3:26 PM
Subject: Proposed Convenience Center at Green Valley & Sophia Parkway
To: tiffany.schmid@edcgov.us

Tiffany Schmid:

Attached are our comments to be included in the record concerning the proposed Convenience Center at Green Valley & Sophia Parkway. We have also mailed a hard copy via usps.

We do not believe this is a good project for the neighborhood, for the reasons outlined in our attached letter. It would endanger the environment and potentially create traffic hazards that would threaten the safety of all the families in the neighborhood plus bikers and hikers who use the area for recreation

We appreciate your attention to our concerns about the project, which are substantial.

Shirley Biagi & Vic Biondi
5011 Thalia Drive
El Dorado Hills, CA 95762

December 28, 2014
(send via usps and email to tiffany.schmid@edcgov.us)

Tiffany Schmid, Principal Planner
El Dorado County Community Development Agency, Community Services Division
2850 Fairlane Court
Placerville, CA 95667

RE: Green Valley Convenience Center (PD12-0003, SCH#2013062011)

Ms. Schmid:

We were among the first residents of the Promontory. Our home is adjacent to Sophia Parkway. We've been here since 2004 and have lived in the area since 1964. So we were very concerned when we first learned about the proposed Green Valley Convenience Center in 2013. Nothing in the revised plan for the center has allayed our concerns.

We have at least **five main concerns** about the proposed project:

1. **Traffic safety for children, adults and their pets as well as biking groups who cross Green Valley Road at Sophia Parkway to enter the Folsom Lake recreation area.** This is a very busy crosswalk. On weekends, it's not uncommon to see 20 – 30 families with children and pets each hour going the lake, parked on Sophia Parkway. There also are several bike clubs that tour on weekends through the area. They all cross at the light at the eastern intersection of Sophia and Green Valley.

This project would exacerbate the danger that already exists when large groups of people on foot, along with bikers, cross a busy roadway. The only place for cars that are backed up from the drive thru and the gas station will be Green Valley Road. The **sight distance** going east toward the intersection on Green Valley is totally inadequate to alert someone driving 50 mph that there are cars stopped in the roadway ahead, as well as pedestrians and bikers crossing the roadway. This traffic backup, and others that would result from cars entering and exiting the ARCO, would be an extreme safety hazard.

We are also deeply concerned about the proposal for a U-turn lane at Green Valley and Sophia and the turn-in lane proposed for the bottom of Sophia. This is an extreme traffic hazard all-around. Just think about people making U-turns into the crosswalk as people are crossing to get to the lake. Or people turning across the bike lane on Sophia to go into the convenience center just as a bike tour of 15 bikes approaches the intersection of Green Valley and Sophia, going at top speed down the hill.

2. **Noise and Light Intrusion.** Promontory is a rural residential area with the benefit of a dark sky policy. At night, the dark sky policy allows our neighbors and us to enjoy an uninterrupted view of the sunset over Folsom Lake.

Yet the project includes a **Car Wash with dryers that will run day and night.** There has been no consideration given to the sound the dryers will emit in the area. Because sound rises, and the convenience center is located below most of the Promontory homes, the noise (which will rise) would be detrimental to the rural environment we all enjoy here, especially at night. Also, the plan does address the issue of how the **noise from the car wash dryers at night and the proposed signage lighting** would affect the rural quiet and the dark sky our neighbors and us all enjoy, which enhances the value of our property immensely.

3. **Wetlands Intrusion.** As we understand it, the designated wetlands at the foot of Sophia and Green Valley are adjacent to the developer's property. He would, in essence, be the wetland's caretaker.

Nothing in the proposed plans addresses how the developer will preserve and protect this wetlands area, which is home to many species of birds, including white cranes that land there periodically. What he has proposed are dumpsters, a cement wall and a blacktop parking area backing up to the wetlands with a few trees for mitigation. He has not addressed how he will monitor the wetlands to assure that no waste from the gas station—either underground or above ground—will in no way interfere with these protected wetlands that are so important to the area's ecology. The wetlands are an essential part of our environment here in the Promontory and need a responsible caretaker and regular oversight.

4. **Lack of Complementary Architecture.** Homeowners in the Promontory are members of a homeowners association which means we must comply with a strict set of architectural guidelines at all times—earth tones for all exterior paint color, designated roof and fence design and color, as well as the use of stone on all the homes, for example. These requirements are designed to protect property values for all homeowners.

The proposed plan ignores all architectural aesthetics in the area. The plan has given no thought to aesthetics and has not even attempted to create a complementary facility to the adjacent property. Instead the proposal is a standard Arco station designed for a large throughway or a freeway off ramp. **There has been no consultation with the homeowners association to create a design that matches area homes. We believe that the proposed plan, if implemented, would seriously decrease property values in the Promontory area.**

5. **Entrance to El Dorado Hills—A Bad First Impression.** The proposed project is the first commercial project inside the El Dorado Hills County boundaries on Green Valley Road, just below the Promontory neighborhood.

Traveling east after the county line, on the right hand side, a driver first sees beautiful open space, then the intersection at Sophia and Green Valley with the carefully planned roadway and signage announcing the Promontory with its earth tone homes, then a crosswalk with people taking their children and dogs to the lake, and then **bang—**a line of cars backed up from the gas station. **This cannot be what the county planners envisioned when they created the Promontory as a planned residential community to enhance the El Dorado Hills area.**

Clearly, this project is a step backward for El Dorado County in its effort to create neighborhoods that are family-friendly, encourage recreation, respect the environment and contribute to the overall well being of its residents.

Please acknowledge that this communication has been entered as part of the record and has been included in the public comments scheduled for the meeting to discuss the Draft EIR.

We urge the county to reject the proposed convenience center and add our objections to the Draft EIR record.

No homeowner that we know in the Promontory is in favor of this project.

Thank you.

s/s

Shirley Biagi & Vic Biondi
5011 Thalia Drive
El Dorado Hills, CA 95762
sbiagi@aol.com
vbiondi@aol.com

From: <bobrowsky@gmail.com>
Date: Tue, Jan 20, 2015 at 3:52 PM
Subject: Green Valley Convenience Center - NOP comments
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>

Ms. Schmid:

Please see attached NOP comment letter. Do not hesitate to contact me if you have any questions.

PLEASE CONFIRM RECEIPT

Darren Bobrowsky
916-971-9540

January 20, 2015

Tiffany Schmid
Principal Planner
El Dorado County Community Development Agency
Development Services Division
2850 Fairlane Court
Placerville, CA 95667

Subject: Notice of Preparation of an Environmental Impact Report for the Green Valley Convenience Center (PD12-0003), SCH#2013062011

Dear Ms. Schmid:

Following please find my comments to the NOP. Please do not hesitate to contact me if you have any questions.

Traffic analysis needs to evaluate all activity around the site including bicycles, pedestrians, vehicles pulling boats/trailers, and recreational vehicles at ALL times of the year as some of these uses are seasonal. Additionally, the analysis needs to take into consideration that Green Valley Road in the City of Folsom will be widened to four lanes in the very near future as the City of Folsom is starting the planning process for this widening project.

The State park across the street is heavily used by with people and bicycles (mountain) parking along Sophia Parkway and walking across the street. The proposal to modify the southeast corner of this intersection which will lengthen the distance to cross the street for pedestrians needs to be evaluated. Any change to this intersection need to be in full compliance with ADA requirements.

Green Valley Road is an extremely popular recreation bicycle route, especially on the weekends in the summer. The traffic flow of these bicycles (often in large groups) needs to be accommodated with the turning movements of vehicles entering and exiting the project.

Folsom Lake is the most popular recreation lake in the State of California due to its close proximity to a metropolitan area. As such there is heavy usage at Brown's Ravine Marina, just to the east of the site that the marina parking fills to capacity on most weekend days during the boating season. If constructed there will be many boaters filling up at the proposed ARCO and the studies need to fully evaluate the usage of this project by vehicles pulling boats. Unlike commercially licensed fuel delivery drivers, these drivers quite often are inexperienced and need more room to negotiate turns.

Due to the limited turning room for vehicles pulling trailers including boats trying to make a U-turn heading west at the intersection so that they can enter the project, U-turns at westbound Green Valley Road needs to be limited to autos only. Additionally, due to limited sight distances, grade change, and vehicle speeds, U-turns at Sophia Parkway and Corsica Drive should be limited to autos only. For this same reason, installation of stop signs should be considers at Sophia Parkway and Corsica Drive as it is already difficult to make safe left turns onto Corsica Drive.

The grade traveling east on Green Valley Road is uphill which makes it more difficult for vehicles to merge into traffic (50+ MPH) onto this roadway. This is even more challenging for vehicles pulling boats as it takes three to four times as long to accelerate up to speed to safely merge into traffic. Additionally the turning radius of vehicles pulling boats making a right turn from the project onto Green Valley Road needs to be evaluated (may need to use both existing lanes of traffic to make the turn). Both a full length acceleration lane AND limiting the project's driveway on Green Valley Road to enter only needs to be evaluated.

Deceleration lane on Green Valley Road needs be extended to the corner of the intersection to allow vehicles entering the project to slow without impeding the flow of traffic, especially due to lengthen slowing distances for vehicles pulling boats or other trailers.

A masonry sound wall along the south and east of the property along the carwash driveway should be included in the project to reduce noise to the homes to the south and east, reduce trash blowing into the wetland area, and reduce visual blight of the rear of this project.

An enforceable requirement for the property owner to regularly (frequently) clean trash from the wetland area needs to be incorporated as a mitigating measures.

Sincerely,
Darren Bobrowsky
3531 Bergamo Drive
El Dorado Hills, CA 95762
916-871-9540
bobrowsky@gmail.com

From: **Vivian Chase** <vivian_chase@hotmail.com>
Date: Wed, Jan 14, 2015 at 8:38 PM
Subject: development on corner Green Valley/Sophia Pkwy, EDH
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>, "bosone@edcgov.us" <bosone@edcgov.us>

I'm sorry I was not able to attend the meeting this evening regarding the proposed development at the corner of Green Valley and Sophia Pkwy in El Dorado Hills. I live in Promontory, but not in the village that abuts the development. I do, however, use this intersection several times a week and I would like to voice my concern about potential traffic issues with any development there. Green Valley was, and still should be, a country road...but it's used as a major thoroughfare *and driven like a freeway*. The posted speed limit is 50mph, which is fast for a city road, but on that part of the road between Folsom and Sophia Pkwy, most people go 60mph, at least, because they feel they are "between cities". Speeds seem to slow down as cars travel farther east toward EDH Blvd.

Although it is legal to make a right turn on red from Sophia Pkwy onto Green Valley, you need to get up to speed as quickly as possible to avoid being hit by drivers coming from the west (Folsom). You can see the cars coming from the west, but it's hard to see which lane they are in and impossible to know if they will change to the right lane before you've had a chance to get up to speed. Often times cars switch to the right lane just before the intersection or in the middle of that intersection to go around cars that slow down to make left turns into the Valero/Purple Place parking lot on the north side of the road.

On the south side, opposite the Purple Place there are driveways for businesses. Cars entering Green Valley from these driveways have to contend with speeding cars from both directions. It can be a dangerous situation regardless of whether you are turning left or right, but at least these driveways are a few hundred yards from Sophia. If you add an ingress/egress from a busy commercial development (like a gas station or drive-thru) closer to the intersection at Sophia, you will be sandwiching drivers coming from Sophia between speeders from the west and slow moving traffic going into/out of the parking lot. You'll be reducing their reaction time and creating a hazardous driving situation.

If any commercial development is approved at this site, I hope it would be for a use which does not require as much in/out traffic as a gas station or fast food outlet. Regardless of what is chosen, I hope you ensure that the parking lot has it's own merge lane onto Green Valley eastbound to avoid accidents with traffic from the west. As for merging onto Green Valley westbound from that driveway, I think it would be extremely dangerous. Not only will people exiting the parking lot have to be concerned about speeders coming in both directions, but also avoiding drivers who are waiting to turn left onto Sophia. In my opinion, drivers exiting this proposed parking lot should *not* be allowed to turn left (westbound).
Thank you for your consideration of the issue outlined above.
Vivian Chase

From: **Shannon** <sgclark01@comcast.net>
Date: Tue, Jan 13, 2015 at 10:44 AM
Subject: AM/PM Car Wash/Fast Food Project on Sophia & Green Valley, EDH
To: tiffany.schmid@edcgov.us
Cc: bosone@edcgov.us

Ms. Schmid, writing today to voice my concerns on the proposed Arco AM/PM car wash & fast food project at the corner of Sophia & Green Valley. I've lived and used these roads for the last 10 years daily and can say with experience that putting such a project on that corner would add to the already hazardous intersection that it currently is. With the speed on Green Valley and the pedestrians who use that area to cross over to the dam for recreational use is already an accident waiting to happen! Add the Purple Place and it's bar where people drink and exit out to that area only adds to its inherent dangers. I ask that this project **not** be voting in. Thank you for your consideration!

Shannon Clark, Realtor

916-367-3514

BRE#01512567

CLARK PROPERTIES

From: **J. Durborough** <thedurbs@pacbell.net>
Date: Tue, Jan 20, 2015 at 11:24 AM
Subject: Preparation of EIR for Green Valley Convenience Center
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>

My husband and I built and have lived in our home at Lakeridge Oaks for almost 30 years. In this time, we have seen many changes to El Dorado Hills and to our area near Green Valley Road.

We recently attended the ARCO Scoping Meeting at the EDH fire station. We went there on a fact finding mission and left with deep concerns for the proposed Arco convenience station/car wash proposed for the Green Valley/Sophia Parkway corner. Specific concerns are increased traffic, increased water pollution (this is a wetland area), light pollution, and noise pollution.

A gas station was proposed about 2 years ago in Sacramento County at the corner of Green Valley Road/Natomas/Blue Ravine but was stopped because of the proximity to the lake. The proposed Arco station is even in closer proximity and closer to wetlands. Also, there is already a gas station by the Purple Place and one just up the road at Safeway and down the road at Raley's. Another gas station, especially in this area is simply not needed and from the comments made last at the recent meeting, not wanted.

Please, no gas station! Another gas station is not in keeping with this quaint area!

It would be greatly appreciated if you would keep us informed of any upcoming meetings regarding proposed changes to our area.

James Durborough
Joanne Durborough

442 Maul Oak Court
El Dorado Hills, CA 95762
(916) 933-0468
thedurbs@pacbell.net

From: **Larry Galia** <lgalia@att.net>
Date: Sun, Jan 18, 2015 at 1:22 PM
Subject: Proposed ARCO project
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>

Please see attached Word Doc.

January 18, 2015

Larry Galia
3009 Springburn Way
El Dorado Hills, CA 95762

Tiffany Schmid
2850 Fairlane Court
Placerville, CA 95667

Dear Ms. Schmid and to others concerned:

The following are just a few thoughts on the proposed Green Valley Road ARCO proposed project. Space did not allow for comments regarding several other negative aspects of the project. I am however confident that others writing to you will cover those topics.

Despite that fact that we are often told that we live in a democracy, the U.S. is a representative republic. At the federal level and at all of its subsidiary levels of government—state, county, city and town— citizens elect, appoint and hold responsible a relative handful individuals to represent our interests, to make decisions on our behalves, and to take into account the best interests of the people they represent.

Sometimes these decisions are relatively routine and largely mundane insofar as their impacts upon the community are neither extraordinary nor controversial. Indeed, the daily duties of the El Dorado County Board of Supervisors and the civil servants and bureaucrats who report to them (and by extension we citizens) are routine administrative activities so long as not too many competing interests are involved.

One can only imagine that our elected government representatives and other county authorities' work lives become much more difficult when conflicts over land use arise and our leaders must do their best to "split the baby." Many land use issues not involving civic construction can become conflicts between the rights of property owners to improve (build upon) their property versus the public's right to safety, convenience, and happiness. Convenience and happiness are conceptual notions which are different for all of us and can be argued at length and perhaps never with any agreement.

When it comes to approving new housing or commercial buildings in the community, we consider *the community's needs, safety, and traffic congestion.* Pollution, architecture, color, density, costs, open space, animal habitat and other considerations must also be weighed, both against and in favor of a property owner's legal right to do what he wishes with his property. Property rights are among the most important rights granted to us by The Constitution. Obviously all of these considerations and more have been considered, voiced and debated among and between the concerned and informed citizens of the county. I would like to share my opinion with you with regard to *need, safety and traffic congestion.*

Need:

For the most part, I prefer not to live in a world where individuals in authority may determineneeds and what is best for me. “Need” is often an arbitrary and elastic concept. Granting a government entity the authority to make that determination, thus allowing it to permit or deny an individual the right to engage in a commercial activity based upon no other criteria would be anathema to the notions of freedom and rule of law. If one wishes to open up a lawnmower repair shop, a nail salon, a Pizza shop or whatever in an existing retail center, the market will be the ultimate judge as to whether or not such a business represented a community “Need.” If the business succeeds, apparently the enterprise was needed; if it fails it was not.

Safety:

However, in some instances “need” becomes a primary consideration when safety trade-offs enter the equation. As a 27-year resident of El Dorado Hills, my driving trips up and down Green Valley Road number in the thousands. I am very familiar with the road. During off-peak times the traffic moves on at a brisk pace. Indeed, it is often too brisk. It is not unusual to observe groups of vehicles traveling 65, 70 and even 75 mph when traffic is light. Tailgating, erratic lane changing, use of the center lane for passing are commonplace and add an additional element of danger when speeders are traveling the road.

Ingress and egress are also problematic for that stretch of green Valley Road from approximately Sophia parkway toward the Purple Place on the left and the Firestone business on the right. While one can use the center lane to enter the parking lot for gasoline at the Chevron station or to visit any of the other businesses in the center, ingress to the proposed ARCO (coming from Sophia Parkway) will require traffic—often moving from 60-70mph—to slow down to just a few mph, causing traffic in the right lane to react to a rapid deceleration. Most drivers are alert. Most drive at or near the speed limit. Most are not impaired by alcohol or drugs. Most trips to the proposed ARCO project will be made without incident. But over the course of time, MANY WILL NOT. Bear in mind, this proposed ARCO business is intended to attract more customers than any of the existing businesses in the area. It would have triple the pumps as the Chevron station across the street. It will feature both a car wash and fast food with drive-through service. And it will operate 24/7. At this point it is not possible to even guess at the number of times throughout the day that brakes must be applied—slowing from 65 mph to 5 mph—in order to avoid colliding with the cars in front as they slow to enter the property.

Egress from the proposed project poses still more traffic problems. To turn on to green Valley, going up the hill, will require the driver to wait until there a safe break in the traffic—easier during off-peak hours—or force his way in, requiring other drivers to react to him by either braking or changing lanes or both, while also taking care to avoid vehicles merging into traffic from the center lane.

Again, most drivers are alert. Most drive at or near the speed limit. Most are not impaired by alcohol or drugs. Most trips from the proposed ARCO project will be made without incident. But over the course of time, MANY WILL NOT.

And I haven't even commented on the notion of making a left turn out of the proposed ARCO into the center lane: Not so tough maybe when traffic is light; a nightmare when it isn't.
If this project is approved, many people will be killed and injured over the course of time as a direct consequence of the disrupting of the traffic flow, exacerbating an already far less than perfect traffic safety situation.

<u>When safety, need and property rights collide:</u>
When safety considerations are entertained we must ask if the need for the project is urgent or minor and weather the rights of the property owner take preference over or are subservient to the safety of the community? Regarding the proposed ARCO project, do fifty community members need the goods and services to be offered or do twenty thousand? If the answer is twenty thousand, perhaps it would make some sense to allow the project to move forward in favor of the convenience of the many as opposed a few deaths or injuries every year. Conversely, if the citizenry have adequate current access to gasoline, car washing and fast food businesses, you must ask yourself if the degradation of safety that will result in the completion of this project is worth the cost in human lives and safety. Green valley road cannot be made safe to handle this project without the expenditure of vast sums of scarce public dollars which in any event, cannot lawfully be spent toward the purpose of enhancing the prospects of a private, commercial enterprise or of any private person or entity.

The owner of the property has the right, as a citizen of this country to pursue wealth and to utilize his property. However, when his pursuit of his personal interests so obviously goes against the broader interest of public safety, he must develop his property in a manner and fashion consistent with public safety. There are many types of business enterprises for which the property is suitable and compatible with the existing road structure. He should pursue one of those or sell the property to someone whose business plan would not be add odds with the needs of the community

Sincerely,

Larry Galia
El Dorado Hills, CA

From: **Carl Gaspari** <cng612@hotmail.com>
Date: Tue, Jan 20, 2015 at 5:11 PM
Subject: Green Valley Convenience
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>

I wish to voice my concern over the proposed Green Valley Convenience project. I am very concerned about the increased traffic and traffic flows connected with this project. This is an area that is heavily used by cyclist, joggers, and walkers. The traffic flows will create a hazard for all of those who enjoy this area. Additionally, the esthetics of entering the semi-rural area of El Dorado Hills, on a "back road" and being faced with a gas station/ convenience store does not fit the image that residences of El Dorado Hills endorse. I urge you to act on behalf of the residence of El Dorado Hills and not the developers and reject this project.

Carl N. Gaspari
3022 Melina Dr
El Dorado Hills CA

From: **Pari Goode** <pari@the-goodes.com>
Date: Tue, Jan 13, 2015 at 7:01 PM
Subject: Arco Sophia/Green Valleu
To: tiffany.schmid@edcgov.us, bosone@edcgov.us

Hi

I am unable to attend this meeting – but I would like to voice my objection to this project. The traffic at that corner is already bad at peak hours in the morning and evening. In addition, there are already plenty of gas stations in the near vicinity.

Thank you very much.

From: **John W. Houlihan** <jwhoulihan@comcast.net>
Date: Wed, Jan 14, 2015 at 7:50 PM
Subject: Notice of Preparation and Public Scoping for Draft EIR for the Green Valley Convenience Center (PD 12-0003) - Comments
To: tiffany.schmid@edcgov.us
Cc: cgeaney@comcast.net, darrenjoelle@sbcglobal.net

Dear Ms. Schmid

Here are my review comments:

- The Amy's Lane alternative (Alternative 2) is too schematic to be evaluated, considered and acted upon by the County. If this alternative is to be pursued, what is the process under CEQA?

I would expect a more definitive treatment of access from the property to Amy's Lane, attendant wetland/creek issues in supplemental documentation, with public review of a more definitive treatment of alternative 2.

- Per CEQA, the Draft EIR must address a no project alternative. How does the county propose to address this?

- One of the major concerns impacts of this project is trash generation. A reasonable expectation is that much of this may end up on State Parklands and the Folsom Lake watershed.
1.) Has State Parks been contacted as a responsible agency?
2.) Inasmuch as this may impact a federal facility (Folsom Lake watershed), has BUREC been contacted – If there is an impact on federal lands, should this also be a Draft EIS per NEPA?

My understanding is that NEPA would require equal treatment of all alternatives, including Amy's Lane/alternative 2.

From: **Amir Khoyi** <thepromontory@comcast.net>
Date: Thu, Jan 15, 2015 at 11:34 AM
Subject: ARCO Project @ Sophia & Green Valley
To: tiffany.schmid@edcgov.us

Good morning Tiffany

It was nice meeting and speaking with you last night regarding the ARCO project.

My main concern is the traffic/safety issues this project could cause for local residents who drive, bike or walk on Sophia Pkwy. I have some feedback specific to the intersection but so that I do not make my comments based on a wrong assumption can you please confirm if vehicles traveling West on Green Valley Rd would be allowed to make a U-turn at the intersection of Green Valley Rd & Sophia Pkwy? Last night you did not have the answer to that question so I thought I double check again. The following diagram should explain why the lack of a U-Turn option would concern me.

As a general comment I like to add that if the ARCO gas station was built at that corner, my family would not get impacted by its noise or lighting issues (unlike some other homes that sit right behind it). However, I am one of many folks who heavily travel on Green valley Rd (GVR) and I can easily testify that it takes one silly driving mistake (i.e. accident, slow down, rubber necking, bicyclists/pedestrians, etc.) to cause the traffic on that road to back up all the way to the intersection of E. Natomas St and Blue Ravine Road. Many times I have sat behind repeated red left-turn-lights on E. Natomas all because the cars on GVR just couldn't regain their normal pace after one such slow down.

Please understand that I have nothing against having more businesses pop up on GVR which could generate more tax revenues for our County. However, no matter how I look at this specific project I see many unnecessary problems by putting a gas station at such a tight corner and to be totally honest I am puzzled as to how this project has made it this far with the planning department.

Warmest regards,

Amir

Dr. Amir Khoyi

Informtics Consultant

7084 Agora Way, El Dorado Hills, CA. 95762

(916) 396-4325 / amirkhoyi@comcast.net

From: **Claire LaBeaux** <claire_labeaux@yahoo.com>
Date: Fri, Jan 23, 2015 at 3:13 PM
Subject: Green Valley Center EIR Scoping Meeting 1/14/2015 - Scoping Comments
To: Tiffany Schmid <tiffany.schmid@edcgov.us>
Cc: "roger.trout@edcgov.us" <roger.trout@edcgov.us>, "bosone@edcgov.us" <bosone@edcgov.us>

Hi Tiffany and Roger,

It was good seeing you at the community meeting in EDH last week. I made these comments to you in person but wanted to follow up in writing as well. Sorry for the delay; juggling work and family like everyone these days. :)

I'm concerned particularly with the unusual traffic pattern as people drive up Green Valley from Folsom and the road widens from 1 to 2 lanes. In a normal traffic pattern, the right lane is slower. But at that corner (GV and Sophia), people often move into the right lane to accelerate and get around the car in front of them. Drivers pulling out of the station and into that oncoming traffic on GV can't see a full picture of the traffic down the hill to the left, even if they do see the traffic they expect the right lane to be slower. It's an unusual situation, which makes it more dangerous.

Thanks for considering this factor as you look at the traffic scenarios for the EIR. Feel free to email or call me if you have questions.

Best,
Claire LaBeaux
925-337-0244 cell

From: **Tara Mccann** <mccannengineering@sbcglobal.net>
Date: Wed, Jan 14, 2015 at 11:41 PM
Subject: Green Valley Center EIR Scoping Meeting 1/14/2015 - Scoping Comments
To: "Tiffany.SCHmid@edcgov.us" <Tiffany.SCHmid@edcgov.us>, "roger.trout@edcgov.us" <roger.trout@edcgov.us>, "bosone@edcgov.us" <bosone@edcgov.us>, "bostwo@edcgov.us" <bostwo@edcgov.us>, "bosthree@edcgov.us" <bosthree@edcgov.us>, "bosfour@edcgov.us" <bosfour@edcgov.us>, "bosfive@edcgov.us" <bosfive@edcgov.us>, "edc.cob@edcgov.us" <edc.cob@edcgov.us>, "tom.dougherty@edcgov.us" <tom.dougherty@edcgov.us>, "greg.hicks@edcgov.us" <greg.hicks@edcgov.us>, David Goldenberg <golden59@pacbell.net>, "varshneyn@yahoo.com" <varshneyn@yahoo.com>, Michael Sheets <mikesheetster@comcast.net>, Woody Champion <woody_champion@yahoo.com>, claire labeaux <claire_labeaux@yahoo.com>, alex lebeaux <alabeaux@yahoo.com>, Ellen Van Dyke <vandyke.5@sbcglobal.net>, "don.spear@edcgov.us" <don.spear@edcgov.us>, "don.a.van.dyke@sbcglobal.net" <don.a.van.dyke@sbcglobal.net>, Al Vargas <vargas.al@hotmail.com>, "artwong888@sbcglobal.net" <artwong888@sbcglobal.net>, "andycronin@yahoo.com" <andycronin@yahoo.com>, Bob and Sue Comstock <surfinsoul@att.net>, John & Kelley <bugginu@sbcglobal.net>, Mary & Ollie Bollman <mbohlman@sbcglobal.net>, GREG FERRERO <gpferrero@yahoo.com>, "bill@automall.com" <bill@automall.com>

Tiffany Schmid, El Dorado County Planning:

RE: Green Valley Center (Arco AM/PM gas station fast food and car wash) at Corner of Green Valley/Sophia Parkway - EIR Scoping Comments. Scoping comments due to County Planning by Jan. 20, 2015.

1. The location of the Driveway access on Green Valley has significant Geometric issues, truck turning radius' not met for width of existing lane widths, intersection geometrics, small lot puts driveway access too close to intersection, right in right out design options not very desirable from a safety and esthetic point. This would be a considerable safety issue with the present configuration of Green Valley Road from one lane west of the intersection to two lanes north of the intersection. Additionally there needs to be a global design to improve traffic calming in this stretch of Green Valley from Sophia Parkway to Morman Island. The scoping of this project needs to evaluate the global circulation and traffic safety.

2. The scoping should resolve the Geometrics on Green Valley and the limitations before contemplating the right in right out on Green Valley. To do an adequate right in right out only yobu need to have enough shoulder width to be able to construct a porkchop such as on Green Valley at the CVS shopping center. It doesn't look like that amount of room on the shoulder is available here. The scoping meeting visuals didn't provide any dimensions. At this point in the process dimensions should be clear and verified. Scoping needs to show dimensionally the alternatives are viable.

3. An alternative of a raised median with channelizes down the middle should not be considered as that is extremely last resort bad planning, not aesthetically preferable as well as an ongoing maintenance and has traffic safety concerns. The local residents are concerned that if design isn't considered and conditioned before approval this will be the only option and not a preferable one. Scoping needs to clearly address the right in right out enforcement and traffic design to assure this is not a self enforced option.

4. The applicant states Green Valley Geometrics will be adequately taken care of after approval. We hope the County stops this process of conditioning projects after approval. We are now at the growth stage that design and conditions need to be analyzed and conditioned before project approval. One which many El Dorado County are voicing in

the LUPPA process of the General Plan. Scoping needs to analyze what conditions will be required for the project prior to occupancy.

What happens is these projects are approved at the planning level and often minimum at occupancy design standards are not met or the conditions to satisfy the traffic geometrics are too costly so they often get delayed to a date at some time well into the future. Green Valley is at a point with the volumes that minimum traffic improvements needed offsite cannot be delayed at some time in the future this would contribute to significant traffic safety and congestion issues. Good Planning is cost saving and life saving. It only makes sense for the applicant to know the costs of their offsite traffic improvements that are necessary before they commit money and time to the project. Too many times applicants are approved at the Planning level and when necessary DOT conditions are presented the applicants balks that DOT did not adequately notice them of these costs and they had they had spent so much time and money to this point that the burden of the infrastructure conditions was unfair and too costly.

5. This is a well known area for many bad accidents between Morman Island and Sophia Parkway. Before more turning movements are added to this quadrant the County must address the serious safety issues with the Geometrics on GreenValley Road. This stretch has driveways that have straight in curb cuts which cause vehicles to have to almost come to a stop or reduce speeds considerably to make the turn into the driveway. There needs to be widening and commercial curb cut accesses so that vehicles can turn off at a rate of speed that does not cause traffic to rear end them. All the Geometrics of Green Valley needed to be analyzed and an adequate widening and traffic calming design needs part of this scoping because although we heard many times from developers "I'm not the one that caused all this congestion". This development would significantly add turning movements at a location that due to the location of close proximity to the intersection would definitely make an unsafe situation where an already non ideal condition exists. This scoping needs to address the non ideal geometrics of Green Valley and the significant safety issues that exist.

The scoping needs to evaluate a final product that will result in a design that is vetted and conditioned. The applicant should be made well aware of the needed infrastructure investment that will be ultimately required.

6. Scoping should consider the evaluation of the size of lots being improved near major intersections and consider posted speed limits for adequacy of use when parcels are as small as this one for such a high use design of a gas station, fast food and carwash. Scoping should assist in identifying preferable uses for the geometric limitations if the geometrics are not funded to support the adequate infrastructure needed.

We need the design issues resolved and conditioned by DOT. DOT needs to assist the Planning Commission in their decision of the project by vetting the viable traffic improvements that are possible and not possible. The applicant should want to know up front the true costs of improvements that will be necessary. Thank You for the opportunity to review. Please enter my scoping comments into record.

Tara Mccann
El Dorado County Resident

From: **Kristina Smith** <kristinasmith_336@hotmail.com>
Date: Fri, Jan 16, 2015 at 7:49 AM
Subject: Fwd: Comments Re: Green Valley Convenience Center (PD12-003) SCH# 2013062011
To: "tiffany.schmid@edcgov.us" <tiffany.schmid@edcgov.us>

Good morning. Thanks for confirming your email address so that I can forward my comments that I previously misdirected. Not in El Dorado Hills so I did not have the public notice to refer to again. Thanks again. Kristina Smith

Sent from my iPad

Begin forwarded message:

From: Kristina Smith <kristinasmith_336@hotmail.com>
Date: January 15, 2015 at 8:48:58 AM PST
To: "t.schmid@edcgov.us" <t.schmid@edcgov.us>
Subject: Fwd: Comments Re: Green Valley Convenience Center (PD12-003) SCH# 2013062011

My original email was addressed incorrectly. Could you please confirm that you received my comments then disregard the voicemail message I left? Thank you.

Sent from my iPad

Begin forwarded message:

From: Kristina Smith <kristinasmith_336@hotmail.com>
Date: January 8, 2015 at 10:11:51 PM PST
To: "y.schmid@edcgov.us" <y.schmid@edcgov.us>
Subject: Fwd: Comments Re: Green Valley Convenience Center (PD12-003) SCH# 2013062011

Sent from my iPad

Begin forwarded message:

From: Kristina Smith <kristinasmith_336@hotmail.com>
Date: January 6, 2015 at 11:28:24 PM PST
To: "y.schmid@edcgov.us" <y.schmid@edcgov.us>
Subject: Comments Re: Green Valley Convenience Center (PD12-003) SCH# 2013062011

Thank you for the opportunity to comment on the proposed plan for a gas station, car wash, and convenience store at the corner of Sophia Parkway and Green Valley Road.

I am opposed to the plan because of the increased traffic congestion and safety hazard which would occur by adding a business of this size, whether the entrance would be off Green Valley Road or at the edge of Sophia Parkway. With the increased volume of traffic on Green Valley Road, a center lane was added to address the hazards for cars attempting to turn into the Green Valley Center and other small businesses in that area. While that modification has improved the safety for making turns and merging into traffic, it should be noted that the speed of the traffic has increased significantly now that Green Valley Road has been widened to four lanes. As Green Valley Road reduces back to two lanes after Sophia Parkway, drivers are scrambling to get ahead of the car next to them as the road reduces to two lanes heading into Folsom. For those coming from Folsom on the two lanes, the drivers are impatient and anxious to get out of the congested two lane traffic and speed up significantly as the road expands to four lanes at Sophia Parkway. I liken it to horses getting out of the starting gates at a horse race. Drivers turning right onto Green Valley Road from Sophia Parkway are often impatient to wait at a red light because they have gained speed coming down the hill. They convince themselves that it is safe to make a right- hand turn on a red light when it isn't, and pull out into the traffic scrambling to the expanded lanes. This is done, without consideration of the increased number of pedestrians who have parked along Sophie Parkway and are crossing Green Valley Road to walk to Folsom Lake. I believe an entrance off of Sophia Parkway would be as dangerous as an entrance off Green Valley Road.

Another consideration is the difficulty that the school buses are already having transporting children in this area with the increase in traffic moving at a higher rate of speed. In spite of the zoning, this area is predominantly residential and the quality of life needs to be considered. I have lived here for 37 years and I am saddened to say that I can no longer sit out on my deck because of the traffic noise and the smell of fumes coming up from Green Valley Road. Increasing the risk for accidents would be inevitable if this plan is approved.

Thank you for your consideration.

Kristina Smith
405 Green Valley Road
El Dorado HIlls, CA 95762
(916) 933-2259

From: **Ellen Van Dyke** <vandyke.5@sbcglobal.net>
Date: Thu, Jan 15, 2015 at 7:15 AM
Subject: Re: Green Valley Center EIR Scoping Meeting 1/14/2015 - Scoping Comments
To: Tara Mccann <mccannengineering@sbcglobal.net>, Tiffany.SCHmid@edcgov.us, roger.trout@edcgov.us, bosone@edcgov.us, bostwo@edcgov.us, bosthree@edcgov.us, bosfour@edcgov.us, bosfive@edcgov.us, edc.cob@edcgov.us, tom.dougherty@edcgov.us, greg.hicks@edcgov.us, David Goldenberg <golden59@pacbell.net>, varshneyn@yahoo.com, Michael Sheets <mikesheetster@comcast.net>, Woody Champion <woody_champion@yahoo.com>, claire labeaux <claire_labeaux@yahoo.com>, alex lebeaux <alabeaux@yahoo.com>, don.spear@edcgov.us, don.a.van.dyke@sbcglobal.net, Al Vargas <vargas.al@hotmail.com>, artwong888@sbcglobal.net, andycronin@yahoo.com, Bob and Sue Comstock <surfinsoul@att.net>, John & Kelley <bugginu@sbcglobal.net>, Mary & Ollie Bollman <mbohlman@sbcglobal.net>, GREG FERRERO <gpferrero@yahoo.com>, bill@automall.com
Cc: Amy Anders <gvcenter2012@gmail.com>, Marc Strauch <strauchco@sbcglobal.net>

Tiffany-

You are new to EDC Planning, and may not know that Tara is both a local resident and a traffic engineer. I so appreciate when people like her take the time to provide constructive input (such as her email below) and hope that those at the County will listen.

I drive Green Valley Rd, and I know that drivers accessing the project site will pose a hazard if they are not out of through traffic to make that maneuver. But I am not a traffic engineer and do not know the specifics of how to make that happen. People like me count on the professionals. The County has let us down enough times that you may now feel the brunt of the resulting lack of trust. The process to date has taken a toll on both the applicant and residents, and should not have required legal action to obtain this level of review.

I am urging you to be sure that the analysis hits it's mark this time, before Planning recommends the project for approval to our Supervisors.

Thank you for hosting last night's well-attended scoping meeting -Ellen Van Dyke

From: Tara Mccann
Sent: Wednesday, January 14, 2015 11:41 PM
To: Tiffany.SCHmid@edcgov.us ; roger.trout@edcgov.us ; bosone@edcgov.us ; bostwo@edcgov.us ; bosthree@edcgov.us ; bosfour@edcgov.us ; bosfive@edcgov.us ; edc.cob@edcgov.us ; tom.dougherty@edcgov.us ; greg.hicks@edcgov.us ; David Goldenberg ; varshneyn@yahoo.com ; Michael Sheets ; Woody Champion ; claire labeaux ; alex lebeaux ; Ellen Van Dyke ; don.spear@edcgov.us ; don.a.van.dyke@sbcglobal.net ; Al Vargas ; artwong888@sbcglobal.net ; andycronin@yahoo.com ; Bob and Sue Comstock ; John & Kelley ; Mary & Ollie Bollman ; GREG FERRERO ; bill@automall.com
Subject: Green Valley Center EIR Scoping Meeting 1/14/2015 - Scoping Comments

Tiffany Schmid, El Dorado County Planning:

RE: Green Valley Center (Arco AM/PM gas station fast food and car wash) at Corner of Green Valley/Sophia Parkway - EIR Scoping Comments. Scoping comments due to County Planning by Jan. 20, 2015.

1. The location of the Driveway access on Green Valley has significant Geometric issues, truck turning radius' not met for width of existing lane widths, intersection geometrics, small lot puts driveway access too close to intersection, right in right out design options not very desirable from a safety and esthetic point. This would be a considerable safety issue with the present configuration of Green Valley Road from one lane west of the intersection to two lanes north of the intersection. Additionally there needs to be a global design to improve traffic calming in this stretch of Green Valley from Sophia Parkway to Morman Island. The scoping of this project needs to evaluate the global circulation and traffic safety.

2. The scoping should resolve the Geometrics on Green Valley and the limitations before contemplating the right in right out on Green Valley. To do an adequate right in right out only yobu need to have enough shoulder width to be able to construct a porkchop such as on Green Valley at the CVS shopping center. It doesn't look like that amount of room on the shoulder is available here. The scoping meeting visuals didn't provide any dimensions. At this point in the process dimensions should be clear and verified. Scoping needs to show dimensionally the alternatives are viable.

3. An alternative of a raised median with channelizes down the middle should not be considered as that is extremely last resort bad planning, not aesthetically preferable as well as an ongoing maintenance and has traffic safety concerns. The local residents are concerned that if design isn't considered and conditioned before approval this will be the only option and not a preferable one. Scoping needs to clearly address the right in right out enforcement and traffic design to assure this is not a self enforced option.

4. The applicant states Green Valley Geometrics will be adequately taken care of after approval. We hope the County stops this process of conditioning projects after approval. We are now at the growth stage that design and conditions need to be analyzed and conditioned before project approval. One which many El Dorado County are voicing in the LUPPA process of the General Plan. Scoping needs to analyze what conditions will be required for the project prior to occupancy.

What happens is these projects are approved at the planning level and often minimum at occupancy design standards are not met or the conditions to satisfy the traffic geometrics are too costly so they often get delayed to a date at some time well into the future. Green Valley is at a point with the volumes that minimum traffic improvements needed offsite cannot be delayed at some time in the future this would contribute to significant traffic safety and congestion issues. Good Planning is cost saving and life saving. It only makes sense for the applicant to know the costs of their offsite traffic improvements that are necessary before they commit money and time to the project. Too many times applicants are approved at the Planning level and when necessary DOT conditions are presented the applicants balks that DOT did not adequately notice them of these costs and they had they had spent so much time and money to this point that the burden of the infrastructure conditions was unfair and too costly.

5. This is a well known area for many bad accidents between Morman Island and Sophia Parkway. Before more turning movements are added to this quadrant the County must address the serious safety issues with the Geometrics on GreenValley Road. This stretch has driveways that have straight in curb cuts which cause vehicles to have to almost come to a stop or reduce speeds considerably to make the turn into the driveway. There needs to be widening and commercial curb cut accesses so that vehicles can turn off at a rate of speed that does not cause traffic to rear end them. All the Geometrics of Green Valley needed to be analyzed and an adequate widening and traffic calming design needs part of this scoping because although we heard many times from developers "I'm not the one that caused all this congestion". This development would significantly add turning movements at a location that due to the location of close proximity to the intersection would definitely make an unsafe situation where an already non ideal condition exists. This scoping needs to address the non ideal geometrics of Green Valley and the significant safety issues that exist.

The scoping needs to evaluate a final product that will result in a design that is vetted and conditioned. The applicant should be made well aware of the needed infrastructure investment that will be ultimately required.

6. Scoping should consider the evaluation of the size of lots being improved near major intersections and consider posted speed limits for adequacy of use when parcels are as small as this one for such a high use design of a gas station, fast food and carwash. Scoping should assist in identifying preferable uses for the geometric limitations if the geometrics are not funded to support the adequate infrastructure needed.

We need the design issues resolved and conditioned by DOT. DOT needs to assist the Planning Commission in their decision of the project by vetting the viable traffic improvements that are possible and not possible. The applicant should want to know up front the true costs of improvements that will be necessary. Thank You for the opportunity to review. Please enter my scoping comments into record.

Tara Mccann
El Dorado County Resident

From: **Darlene Vogds** <dvogds@pacbell.net>
Date: Sun, Jan 18, 2015 at 2:40 PM
Subject: Green Valley Convenience Center PD 12-0003
To: Tiffany Schmid <tiffany.schmid@edcgov.us>

Hi Tiffany
I am against this development for the following reasons:

1. This project will definitely cause increase light pollution 24/7. I understand this area is probably designated for business development but does it have to be a gas station that is open 24/7? I really feel for the people that live on Corsica Drive as their homes will be have constant light pollution 24/7.

2. Noise Pollution from the car wash.

3. Emission pollution from the cars in the car wash.

4. Another gas station is not needed. We have 2 stations less than one mile from each other, Safeway and the Green Valley Gas. Neither gas station ever has a waiting line. What would be the logic for another gas station?

5. Increase traffic congestion. The traffic at this intersection is already dangerous with the narrowing of the road right at the intersection. This will only cause more congestion. The accident rate will increase with the U-turn that will be build.

Sincerely
Darlene Vogds
606 Blue Oak Court
El Dorado Hills, CA 95762

From: <lfwicklman@aol.com>
Date: Mon, Jan 19, 2015 at 7:19 PM
Subject: EIR for Green Valley Convenience Cetner (PD12-0003), SCH #2013062011
To: tiffany.schmid@edcgov.us, bosone@edcgov.us, roger.trout@edcgov.us
Cc: lfwicklman@aol.com, rewicklman@aol.com

Dear Tiffany, Mik and Roger,

A copy of the Notice for the proposed Green Valley Convenience Center was mailed to our home in December. It is dated the 19th but arrived the following week. My husband attended the meeting set on January 14th at the El Dorado Hills Fire Department.

I read the description and have driven and walked the site. Not to mention live above it. So I have looked at it from every angle. Based on the provided map and description, it is a poor, foolish and unsafe choice as well as significantly under studied and several questions still remain unanswered.

Tiffany & Roger, have you driven this road lately? Have you not noticed all the accidents, the heavy congestion already present? The bike riders and families that use this road as access to Folsom Lake?

Mik, As someone who lives in El Dorado Hills I am sure you appreciate what this type of land use means. this is not a source of income to the county but a source of expense. Please prevent this from being developed. There must be more reasonable occupant for the use of the land than a 24/7 gas station, liquor store/convenience shop, parking lot and car wash. No to this type of operation. I am open to reasonable commercial use that does NOT impact traffic, pedestrian or bicycle safety, with no negative impact to residential neighbors and NO lights.

We live in Mormon Island and look directly down at the proposed site, we drive Green Valley daily and hear the accidents, the screeching of brakes and broken glass as it is now. Since this is our home and neighborhood, I see this proposal as an additional safety issue.

Do not allow it to be built.

Notification:

- Why was this notice done over the holidays - why the short notice? Since many people travel through the holidays you missed reaching some people. How will you reach out to those who were not here and able to respond to the short timeframe? The timing of the notification and response time was poorly planned. You need to provide another notice so others may respond. You are impacting several homes. This was not a responsible approach, not to mention rude.

Safety:

- Accessing the property at either Sophia Parkway or Green Valley or extend Amy's Lane would be hazardous and unsafe.
- Traffic travels at speeds of 55 - 60 mph from Folsom to Francisco Drive in El Dorado Hills with limited visibility due to road alignments. Have you driven it lately? How long of a "deceleration lane" have you planned for?
- Hit & run accidents are not uncommon even with the existing Chevron station across the street. Summer traffic just intensifies the number of accidents. What is your plan for safety?
- Red light violations occur on a regular basis at Mormon Island/Lakeview Dr. as well as Sophia Parkway on Green Valley. Have you noticed this?
- How do you think a vehicle towing a boat or even the trucks bringing in the fuel will safely negotiate the turn into the site even if you raise the ground level?
- Parking - adding to the congestion is the number of cars which park along Sophia while accessing the trails around Folsom Lake - have you noticed this as well? Children are often walking in Sophia as their parents take them in and out of the car. Combine that with people trying to get in & out of this convenience/liquor center. This is an accident waiting to happen.
- Have you measured the bicycle traffic that uses both Sophia and Green Valley? What issues have you addressed? By the way, they do not follow traffic codes either and run lights on a frequent basis. Remember, they have right of way. How have you addressed this?
- How much traffic has been measured on Green Valley Parkway? What safety issues have been addressed?
- Please check with the California Highway Patrol. Speeds on Green Valley have been consistently measured in the 55-60 mph (at the very least) and there is nothing they can do about it. We went through this before getting the signal in at Mormon Island.
- California Highway Patrol has also used this area for safety road checks for alcohol - need I say more?
- The alternate proposed on Amy's Lane would not improve the safety but just move the congestion (and problem) up the road and equally unsafe.

Any sales taxes which would be collected, would be insufficient to offset any claims filed for negligence in approving this type of commercial operation. The effect of placing this type of business in this spot risks the health and safety of visitors and residents. Have we such deep pockets that we can pay these claims?

Environmental Concerns:

- Oil & gas runoffs to a stream which feeds to the Mormon Island preserve also affects the down stream area of Folsom. Not a good idea.
- What response have you received from City of Folsom and the people living in the immediate area of the preserve?

- City of Folsom turned down a request for a convenience center on Green Valley for health and safety reasons as well. Are we going lower our standard while Folsom keeps theirs high?
- Car wash - Water is already limited. Having a car wash next to Folsom Lake showing lowering water levels (unknown when the drought will end) does not show prudence by El Dorado County decision makers.
- Increased fumes from running engines - we have this with vehicles up and down Green Valley. Not acceptable to increase these levels. Considering you are allowing a parking area of 17-18 spaces?
- Asphalting or covering up natural springs will impact the preserve and further deteriorate it. The improvements to Folsom Dam/Mormon Island Dam have already impacted this area. It may be in another county but what notification have you provided to the City of Folsom and Ducks Unlimited? Do you want to be the ones to finish this preserve off?

Impact to property values and quality of life

- Lights - There is an emphasis in El Dorado County of no lights. Allowing ability to see the night sky. The proposal would place lights 24/7. Not acceptable
- 24/7 convenience store - increased traffic, noise, trash, loitering. Not acceptable.
- We already have a gas station and convenience store on Green Valley. The lights are only around the pumps and the store is not open 24/7. This is sufficient.
- Below is the Vision Statement on the El Dorado County website:

".......This is a place where a house is a home and neighborhoods are made up of friends. From the Foothill communities of the Western Slope to the Alpine beauty of Lake Tahoe, El Dorado County will offer you a unique perspective on life. Come experience life here in El Dorado County."

By placing a 24/7 convenience store, gas station, car wash, parking lot on an incredibly busy corner, congested road, neighboring residential areas is a not realizing the above vision. How is the above vision possible with the commercial operation you propose on that corner?

I truly cannot believe this is the *only* alternative. What other options have been discussed?

Please forward me a copy of the draft EIR that seems to suggest that there is **no** impact on the land, environment or residential areas to this proposal. Who ever made that up does not live here.

Please feel free to contact me as noted below. While I am forwarding my concerns in writing to other parties equally involved in the decision making and impacted by your decisions, I am still hopeful that prudence will be exercised. I am hopeful that there are other more reasonable options than gas station, car wash, parking lot, liquor/convenience store running 24/7.

Please do not allow this to be built.

Thank you!

Most sincerely,

Laura Wicklman
Resident of El Dorado Hills since 1992
916-933-8471
PO Box 4798
El Dorado Hills, CA 95762

Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments:

TO WHOM IT MAY CONCERN:

SUBJECT: GAS STATION AT GREEN VALLEY AND SOPHIA INTERSECT.
THE COMBINATION GAS STATION, CONVENIENCE STORE, DRIVE-THROUGH FASTFOOD RESTAURANT, ARE PROPOSED FOR THIS CORNER BY ONE MARC STRAUCH.

WHEN ONE REVIEWS THIS PROPOSAL IT IS VERY OBVIOUS THAT SAFETY AND TRAFFIC HAVE NOT BEEN GIVEN THE CONSIDERATION IT SHOULD HAVE. (QUOTE) OUR COUNTY BOARD OF SUPER-VISORS IS NOT LOOKING OUT FOR US. THEY ARE ABUSING THEIR DISCRETIONARY POWER BY APPROVING PROJECTS THAT (OVER)

Mr Tom Andrade
2017 Ahoy Ct
El Dorado Hls CA 95762

B. A. Andrade
2017 Ahoy Ct
El Dorado Hills, CA 95762

If you would like to mail your comments, please send them to:

Tiffany Schmid, Principal Planner
El Dorado County Community Development Agency
Development Services Department Planning Division
2850 Fairlane Court, Building C
Placerville, CA 95667
Fax: 530-642-0508
E-mail: Tiffany.Schmid@edcgov.us

Comments (*continued from front*):

RESIDENTS, THE LOCAL PLANNING BOARD, AND OUR COUNTY PLANNING COMMISSION HAVE ALL REJECTED. (END)

ALSO VERY IMPORTANT IS THE FACT THAT THIS LOCATION BORDERS A DEFINED WETLANDS.

Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments: Concerns:

Besides traffic -

1) noise from dryers + impact on homes up hill from car wash
2) light + visual impact to homes
3) aesethic impact + desire for good vegetative screening to mitigate visual impact to homes uphill.
4) sensitive wetland + proximity of dam + wild life

Traffic should consider:

1) study should be done when bike + pedestrian traffic is highest - April - July probably.
2) consider greater traffic as new homes develop off Sophia + ~~E~~ Folsom.
3) consider line of sight is already very poor for those turning right from Sophia. Hard to see + people often don't notice people walking.

Annette Chinn
(Name)
3051 Corsica Dr. EDH
(Address)
939-7901

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Development Services Department Planning Division
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Placerville, CA 95667
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E-mail: Tiffany.Schmid@edcgov.us

Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments: First: Do not want or need the project.
Concern: Long turnout lane off of Green Valley.
Traffic moves too fast on Green Valley.
Gas Stations across the street, Safeway
& Raleys.

Definitely should be required to adhere
to 50 ft. setback. This setback
is here for a reason.

Consider: What if this gas station was
at the entrance to your community?
What if it would affect the value
of your home?

Better meeting notification and more
impact meeting input from residents.

Suzanne Dalton
(Name)
420 Aria Ct
(Address)
El Dorado Hills, CA
(off Sophia PKWY)

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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments:

1) Concerned that the final construction will be of a quality elevation. Stone, roof style, painted retaining walls, quality landscaping and minimal signage at a low height.
This is the entrance to El Dorado Hills from Folsom and it should reflect the quality of the homes in El Dorado Hills
2) Why should this project have a waiver on the 50 environmental set backs to the rear. No logical reason for a variance.
3) Safety on Green Valley must be the most important consideration. Traffic problems accross the street are already well documented. Are we trading safety for profit and tax dollars? Lets get the full traffic study report before proceeding.
4) Stop trying to put projects through without the proper studies. 5) Hours of operation should be limited.

(Name)
JACK DALTON

(Address)
420 ARIA CT
El Dorado Hills 95762

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2850 Fairlane Court, Building C
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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

DO NOT WANT PROJECT!

Comments:

As a homeowner in the Promontory, I question the need to have a gas station at this corner. Is that how we want people to view El Dorado Hills as they drive up Green Valley Road?

We see this as a hazard to the immediate community not only for traffic problems but the potential increase in crime. We are concerned that this will be an attraction to youth who will just hang around looking for something.

We are concerned about the hours of operations, the size of signage and the amount of lighting used. The proposed access will impact traffic. Ingress and egress via ~~Amy~~ Lane would keep the conjestion away from the corner.

We object to building within 50' of the wetlands

Eugene Deimling
(Name)

344 Esatto Place
(Address) El Dorado Hills, CA

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El Dorado County Community Development Agency
Development Services Department Planning Division
2850 Fairlane Court, Building C
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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments:

The Arco Station proposed for Green Valley Rd and Sophia Parkway in El Dorado Hills in no way addresses the existing Traffic adequately with no consideration of the Future. As planned already the Traffic count will rise sharply and that will definitely impact the existing Residents + Business that are Struggling for Access + Egress To + From Amy's Ln Both directions on Green Valley Rd.

The designated wetlands setback should be maintained at the existing and not the proposed as allowed for closer ways of contamination.

The fact that 2mi East + 2mi West and across the street there are existing 20 dispensers with 40 handles to adequately dispense enough Polution that we dont need another 8 dispensers w/16 handles.

(Name)
Patrich Evans

(Address)
369 Green Valley Rd
El Dorado Hills CA
95672

If you would like to mail your comments, please send them to:

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El Dorado County Community Development Agency
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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

EL DORADO COUNTY CALIFORNIA

Comments:

The wetlands issue has never been itemized who is going to be responsible for maintaining the cleanliness, There will always be blowing trash, There is now and there will be many times more in the future if this project is approved. There is no provision for keeping the public out of the wetlands as there is elsewhere.

Patrick Evans
(Name)
369 Green Valley Rd
(Address)
El Dorado Hills CA
95762

If you would like to mail your comments, please send them to:

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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments:

- I'm very concernd about the saftly on Green Valley Road. By adding an active facity like a gas station that would be open and busy during the crazy traffic time or when people are speeding. Their is not enough warning time to get into the Arco.

- There are accidents all the time in that area and people walking to the lake to have ~~[illegible]~~ risk their lives.

- Amy's lane is also very dangerous going into and exiting when we go to visit "Dogs for Tots". To add when your exiting that lane there is a steep entrance and exit which again is not safe.

- Denise Hountalas
(Name)
607 Calabria Lane
(Address)

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- Denise Hountalas
(Name)
6007 Calabria Lane
(Address)

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Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments: thank you for holding this scoping meeting.
this project needs the deceleration lane - see attached page from the GV corridor traffic study.

The additional set back to the wetlands is great.

Ellen Van Dyke

(Name)

(Address)

If you would like to mail your comments, please send them to:

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El Dorado County Community Development Agency
Development Services Department Planning Division
2850 Fairlane Court, Building C
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- **Driveway east of 2801 Green Valley Road:** ISD is limited to the east because of the hillside, but improves by reducing the setback distance to 10 feet from the edge of pavement.

Limited Stopping Sight Distance

The following access points were identified with the stopping sight distance issues:

- **1530/1532/1540 Green Valley Road:** SSD for eastbound approaching vehicles was limited due to the horizontal and vertical curvature of the road.
- **1680 Green Valley Road:** Stopping sight distance for eastbound approaching vehicles was limited due to the horizontal and vertical curvature of the road.
- **1870/1880 Green Valley Road:** SSD for westbound vehicles approaching the driveway from the east was poor due to the vertical crest in the roadway.
- **1901 Green Valley Road:** SSD is limited for westbound approaching vehicles due to the hillside, vegetation, and horizontal curvature.
- **1960 Green Valley Road:** SSD is limited for westbound approaching vehicles because of vertical curvature and vegetation.
- **2001 Green Valley Road:** SSD is limited for westbound approaching vehicles because of vertical curvature and vegetation.
- **2321 Green Valley Road:** SSD is limited for westbound approaching vehicles due to the vertical crest in the road.
- **Travois Circle:** SSD is limited for westbound approaching vehicles due to the horizontal curve of the roadway.

The Purple Place Retail Center

The Purple Place Retail Center is located on the north side of Green Valley Road east of Sophia Parkway. In the westbound direction, Green Valley Road provides a 2% to 3% downgrade near The Purple Place. Motorists traveling in the westbound direction and wanting to enter The Purple Place Retail Center must decelerate to negotiate tight right-turn radii at the driveway. As a result, trailing motorists in the outside lane either slow down or move into the adjacent lane. This could potentially reduce roadway capacity and pose safety issues. Corner sight distance at the western driveway looking east was observed to be limited, primarily due to a horizontal curve. The eastern driveway has limited corner sight distance looking west due to a retaining wall.

Weekday AM and PM peak hour traffic volumes indicate that the western driveway was used more frequently relative to the eastern driveway.

Table 4. Crash Severity and Frequency by Segment

Segment	No. of Crashes	Corridor Percent	PDO	Injury	Fatal	Crash Rate per MVM
1. County Line to Sophia Parkway	1	1%	0	1	0	0.18
2. Sophia Parkway to Francisco Drive	22	14%	8	12	2	0.60
3. Francisco Parkway to El Dorado Hills Boulevard	4	3%	2	2	0	0.64
4. El Dorado Hills Boulevard to Silva Valley Parkway	7	4%	4	3	0	1.22
5. Silvia Valley Parkway to Malcom Dixon Road	7	4%	4	3	0	0.33
6. Malcom Dixon Road to Deer Valley Road (W)	8	5%	6	2	0	0.65
7. Deer Valley Road (W) to Bass Lake Road	8	5%	3	5	0	0.49
8. Bass Lake Road to Cameron Park Drive	2	1%	0	2	0	0.23
9. Cameron Park Drive to Ponderosa Road	19	12%	9	9	1	0.90
10. Ponderosa Road to N Shingle Road	1	1%	1	0	0	0.42
11. N Shingle Road to Lotus Road	2	1%	2	0	0	0.40
ENTIRE CORRIDOR	81	51%	39	39	3	0.51
Source: Kittelson & Associates						

Table 5. Crashes at Study Intersections

Green Valley Road Intersection with	No. of Crashes	Corridor Percent	PDO	Injury	Fatal	Crash Rate per MEV
1. Sophia Parkway	15	9%	10	5	0	0.38
2. Francisco Drive	8	5%	7	1	0	0.19
3. El Dorado Hills Boulevard/Salmon Falls Road	6	4%	4	2	0	0.19
4. Silva Valley Parkway/Allegheny Road	0	0%	0	0	0	0.00
5. Loch Way	2	1%	0	2	0	0.15
6. Rocky Springs Road/Steve's Way	1	1%	0	1	0	0.08
7. Malcom Dixon Road	3	2%	2	1	0	0.23
8. Deer Valley Road (West)	7	4%	2	4	1	0.52
9. Pleasant Grove School Access	2	1%	1	1	0	0.15
10. Bass Lake Road	1	1%	0	1	0	0.05
11. Cambridge Road/Peridot Drive	4	3%	4	0	0	0.24
12. Cameron Park Drive	15	9%	12	3	0	0.83
13. Deer Valley Road (East)	2	1%	0	2	0	0.30
14. Ponderosa Road	5	3%	1	2	2	0.83
15. North Shingle Road	4	3%	1	3	0	0.37
16. Lotus Road	2	1%	1	1	0	0.17
ENTIRE CORRIDOR	77	49%	45	29	3	0.27
Source: Kittelson & Associates						

For wetlands, the delineation shall be conducted using the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual

Policy 7.3.3.2 *intentionally blank*

Policy 7.3.3.3 The County shall develop a database of important surface water features, including lake, river, stream, pond, and wetland resources.

Policy 7.3.3.4 The Zoning Ordinance shall be amended to provide buffers and special setbacks for the protection of riparian areas and wetlands. The County shall encourage the incorporation of protected areas into conservation easements or natural resource protection areas.

Exceptions to riparian and wetland buffer and setback requirements shall be provided to permit necessary road and bridge repair and construction, trail construction, and other recreational access structures such as docks and piers, or where such buffers deny reasonable use of the property, but only when appropriate mitigation measures and Best Management Practices are incorporated into the project. Exceptions shall also be provided for horticultural and grazing activities on agriculturally zoned lands that utilize "best management practices (BMPs)" as recommended by the County Agricultural Commission and adopted by the Board of Supervisors.

Until standards for buffers and special setbacks are established in the Zoning Ordinance, the County shall apply a minimum setback of 100 feet from all perennial streams, rivers, lakes, and 50 feet from intermittent streams and wetlands. These interim standards may be modified in a particular instance if more detailed information relating to slope, soil stability, vegetation, habitat, or other site- or project-specific conditions supplied as part of the review for a specific project demonstrates that a different setback is necessary or would be sufficient to protect the particular riparian area at issue.

For projects where the County allows an exception to wetland and riparian buffers, development in or immediately adjacent to such features shall be planned so that impacts on the resources are minimized. If avoidance and minimization are not feasible, the County shall make findings, based on documentation provided by the project proponent, that avoidance and minimization are infeasible.

Policy 7.3.3.5 Rivers, streams, lakes and ponds, and wetlands shall be integrated into new development in such a way that they enhance the aesthetic and natural character of the site while disturbance to the resource is avoided or minimized and fragmentation is limited.

Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments: TRAFFIC IS TOO FAST IN THE SLOW LANE INCLUDING CARS MAKING A RIGHT TURN OFF SOPHIA AS THEY DO NOT LOOK FOR ANYTHING ON THE RIGHT, ONLY ONCOMING TRAFFIC - AS IS TOO MANY BICYCLIST AND PEDESTRIANS ALMOST GOT HIT.

IF THE DRIVEWAY OUT OF THE STATION IS UPHILL, THEY WILL HAVE THE SAME PROBLEM AS AMY LANE WHERE THEY ARE HALFWAY INTO THE ROAD BEFORE THEY CAN SEE ONCOMING TRAFFIC

THIS GAS STATION WOULD PRODUCE TOO MUCH TRAFFIC AND ESPECIALLY THOSE WITH BOATS AND TRAILERS GOING COMING FROM THE LAKE - THE CHEVRON STATION HAS ENOUGH TROUBLE WITH THESE VEHICLES - LOOK AT THE REPORT ON ALL THE FENDER BENDERS THAT HAPPEN IN THIS AREA AND INTERSECTION.

OVER

(Name) Ray Wickman

(Address) 449 Mohawk Ct
EDH 95762

If you would like to mail your comments, please send them to:

Tiffany Schmid, Principal Planner
El Dorado County Community Development Agency
Development Services Department Planning Division
2850 Fairlane Court, Building C
Placerville, CA 95667
Fax: 530-642-0508
E-mail: Tiffany.Schmid@edcgov.us

Comments (*continued from front*):

YOU DON'T WANT THIS TYPE OF BUSINESS BECAUSE
OF ITS RUN OFF THAT WILL GO IN THE CREEK
AND THEN SETTLE IN THE PRESERVE.

OVERALL THIS WILL CREATE TOO MUCH TRAFFIC AND
WE DO NOT BELIEVE ANOTHER GAS STATION ACROSS
ANOTHER IS APPLICABLE FOR THE AREA, ONE IS ENOUGH

WE LIVE ABOVE THIS INTERSECTION AND THERE IS
ENOUGH <u>NOISE</u> AND BRIGHT LIGHTS AND DUST
INCLUDING EXHAUST SMELLS - ALSO THERE
IS ENOUGH ACCIDENTS - WE DON'T NEED MORE
TRAFFIC.

AND WHEN THEY MAKE THE REST OF GREEN VALLEY
IN FOLSOM THERE WILL BE MORE TRAFFIC AND FASTER
TRAFFIC WITH MORE CARS GOING THROUGH RED LIGHTS

COMING OFF MORMON ISLAND DRIVE EVEN IF WE HAVE
A GREEN LIGHT WE WANT TO MAKE SURE THE ONCOMING
CARS STOP EVEN IF THEY HAVE THE RED LIGHT
BEFORE WE PROCEED - WE ALSO HAVE CURRENTLY
THE SAME PROBLEM ON SOPHIA.

Green Valley Convenience Center EIR

Comment Card

Public Scoping · January 14, 2015 6:30 PM

Comments: Terrible project. Listen to the residents who are tired of staff and our Board of Supervisors who don't listen. Try to start lisening to the Citizens of El Dorado Hills.

(Name)

(Address)

If you would like to mail your comments, please send them to:

Tiffany Schmid, Principal Planner
El Dorado County Community Development Agency
Development Services Department Planning Division
2850 Fairlane Court, Building C
Placerville, CA 95667
Fax: 530-642-0508
E-mail: Tiffany.Schmid@edcgov.us

Central Valley Regional Water Quality Control Board

15 January 2015

Tiffany Schnmid
El Dorado County
Community Development Agency Planning Services
2850 Fairlane Court, Building C
Placerville, CA 95667

CERTIFIED MAIL
7014 2120 0001 3978 4382

15 JAN 20 AM 11:46
RECEIVED
PLANNING DEPARTMENT

COMMENTS TO NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, GREEN VALLEY CONVENIENCE CENTER PROJECT, SCH# 2013062011, EL DORADO COUNTY

Pursuant to the State Clearinghouse's 22 December 2014 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Notice of Preparation for the Draft Environment Impact Report* for the Green Valley Convenience Center Project, located in El Dorado County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program.
There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory

Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

Trevor Cleak

Trevor Cleak
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

STATE OF CALIFORNIA Edmond G. Brown, Jr., *Governor*
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

January 8, 2015

15 JAN 12 AM 11:18
RECEIVED
PLANNING DEPARTMENT

Tiffany Schmid
El Dorado County Community Dev't Agency Planning Services
2850 Fairlane Court, Building C
Placerville, CA 95667

RE: SCH# 2013062011 Green Valley Convenience Center, El Dorado County.

Dear Ms. Schmid,

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064.5(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.

✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **SFL Check Completed with Negative Results**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached**

✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) Guidelines §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered cultural items that are not burial associated, which are addressed in Public Resources Code (PRC) §5097.98, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, PRC §5097.98, and CEQA Guidelines §15064.5(e), address the process to be followed in the event of an accidental discovery of any human remains and associated grave goods in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

CC: State Clearinghouse

Native American Contacts
El Dorado County
January 7, 2015

April Wallace Moore
19630 Placer Hills Road — Nisenan - So Maidu
Colfax , CA 95713 — Konkow
(530) 637-4279 — Washoe

United Auburn Indian Community of the Auburn Rancheria
Jason Camp, THPO
10720 Indian Hill Road — Maidu
Auburn , CA 95603 — Miwok
jcamp@auburnrancheria.com
(916) 316-3772 Cell
(530) 883-2390
(530) 888-5476 - Fax

Shingle Springs Band of Miwok Indians
Daniel Fonseca, Cultural Resource Director
P.O. Box 1340 — Miwok
Shingle , CA 95682 — Maidu
(530) 676-8010 Office
(530) 676-8033 Fax

T' si-Akim Maidu
Don Ryberg, Chairperson
P.O. Box 1246 — Maidu
Grass Valley , CA 95945
(530) 274-7497

Colfax-Todds Valley Consolidated Tribe
Judith Marks
1068 Silverton Circle — Miwok
Lincoln , Ca 95648 — Maidu
(916) 580-4078

Colfax-Todds Valley Consolidated Tribe
Pamela Cubbler
P.O. Box 734 — Miwok
Foresthill , Ca 95631 — Maidu
(530) 320-3943
(530) 367-2093 home

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2013062011 Green Valley Convenience Center, El Dorado County.

Native American Contacts
El Dorado County
January 7, 2015

Shingle Springs Band of Miwok Indians
Hermo Olanio, Vice Chairperson
P.O. Box 1340 Miwok
Shingle Springs, CA 95682 Maidu
holanio@ssband.org
(530) 676-8010 Office
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 Miwok
Shingle Springs, CA 95682 Maidu
nfonseca@ssband.org
(530) 676-8010 Office
(530) 676-8033 Fax

United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
10720 Indian Hill Road Maidu
Auburn, CA 95603 Miwok
(530) 883-2390 Office
(530) 883-2380 Fax

Washoe Tribe of Nevada and California THPO
Darrel Cruz, Cultural Resources Coordinator
919 Highway 395 South Washoe
Gardnerville, NV 89410
darrel.cruz@washoetribe.us
(775) 782-0014
(775) 546-3421 Cell
775-265-6240 Fax

T' si-Akim Maidu
Eileen Moon, Vice Chairperson
P.O. Box 1246 Maidu
Grass Valley, CA 95945
(530) 274-7497

T' si-Akim Maidu
Grayson Coney, Cultural Director
P.O. Box 1316 Maidu
Colfax, CA 95713
akimmaidu@att.net
(530) 383-7234

Washoe Tribe of Nevada and California
Darrell Kizer, Chairperson
919 Highway 395 South Washoe
Gardnerville, NV 89410
ktrovato@washoetribe.us
(775) 265-4191 Office
(775) 265-6240 Fax

United Auburn Indian Community of the Auburn Rancheria
Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road Maidu
Auburn, CA 95603 Miwok
mguerrero@auburnrancheria.com
(530) 883-2364 Office
(530) 883-2320 Fax

This list is current only as of the date of this document.

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This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH #2013062011 Green Valley Convenience Center, El Dorado County.

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
		Individuals	
Amy Anders	January 20, 2015	• Access alternatives	Section 4.0 (Alternatives) evaluates access alternatives.
Amy Anders	January 20, 2015	• Traffic safety (queuing, turning movements, traffic volumes, cumulative traffic, accidents) • Access alternatives • Wetlands (setback, permitting, stormwater runoff impacts) • Special-status species, wildlife, and habitat • Noise	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts, and access alternatives are evaluated in Section 4.0 (Alternatives) Section 3.2 (Biological Resources) evaluates impacts on wetlands, species, habitat, and stormwater runoff. Noise is addressed in Section 3.0.2 under the "Noise" subheading.
Tom Andrade	January 20, 2015	• Traffic safety (study needed) • Wetlands proximity	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Section 3.2 (Biological Resources) evaluates wetlands impacts.
Shirley Biagi and Vic Biondi	December 28, 2014	• Traffic safety (bicycles and pedestrians, sight distance, roadway and access/egress design) • Noise from car wash dryers • Lighting and signage • Wetlands setback and water quality • Aesthetics	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Noise is addressed in Section 3.0.2 under the "Noise" subheading. Lighting, signage, and aesthetics are addressed in Section 3.0.2 under the "Aesthetics" subheading. Section 3.2 (Biological Resources) evaluates the wetland setback and water quality.
Darren Bobrowsky	January 20, 2015	• Traffic (pedestrian and bicycle traffic, trucks and boat trailers, roadway and access/egress design) • Access alternatives • Noise • Wetlands (trash) • Aesthetics	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts, and access alternatives are evaluated in Section 4.0 (Alternatives). Noise is addressed in Section 3.0.2 under the "Noise" subheading. Section 3.2 (Biological Resources) evaluates wetlands impacts. Section 2.0 (Project Description) and Section 3.0.2 under the "Utilities/Service Systems-Solid Waste" subheading describe how trash would be managed. Aesthetics are addressed in Section 3.0.2 under the "Aesthetics" subheading.

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
Vivian Chase	January 14, 2015	• Traffic safety (traffic speeds, sight distance, access/egress design)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Annette Chinn	January 14, 2015	• Traffic safety (pedestrian/bicycle counts, sight distance) • Cumulative traffic • Lighting and aesthetics • Noise from car wash dryers • Wetlands • Wildlife habitat	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts and cumulative traffic. Lighting and aesthetics are addressed in Section 3.0.2 under the "Aesthetics" subheading. Noise is addressed in Section 3.0.2 under the "Noise" subheading. Section 3.2 (Biological Resources) evaluates wetlands and wildlife habitat impacts.
Shannon Clark	January 13, 2015	• Traffic safety (pedestrians, accidents)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Jack Dalton	January 14, 2015	• Traffic safety • Architecture, landscaping, signage • Wetlands setback	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Aesthetics are addressed in Section 3.0.2 under the "Aesthetics" subheading. Information about landscaping is also presented Section 3.2 (Biological Resources). Section 3.2 (Biological Resources) evaluates wetland setback impacts.
Suzanne Dalton	January 14, 2015	• Traffic safety (deceleration lane, traffic speeds) • Wetlands setback • Residential property values	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Section 3.2 (Biological Resources) evaluates wetland setback impacts. Property value is an economic concern and is not treated as a significant effect on the environment requiring analysis (CEQA Guidelines Section 15131)

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
Eugene Deimling	January 14, 2015	• Traffic safety (congestion, access/egress design) • Visual quality, lighting, and signage • Wetlands setback • Crime	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Visual quality, lighting, and signage are addressed in Section 3.0.2 under the "Aesthetics" subheading. Section 3.2 (Biological Resources) evaluates wetland setback impacts. Potential for crime is a social concern and is not treated as a significant effect on the environment requiring analysis (CEQA Guidelines Section 15131).
James and Joanne Durborough	January 20, 2015	• Traffic (increased traffic) • Wetlands and water quality • Lighting and noise	Section 3.1 (Traffic and Circulation) evaluates traffic impacts. Section 3.2 (Biological Resources) evaluates wetlands and water quality impacts. Lighting is addressed in Section 3.0.2 under the "Aesthetics" subheading. Noise is addressed in Section 3.0.2 under the "Noise" subheading.
Patrick Evans	January 19, 2015	• Traffic safety (traffic volumes, cumulative traffic, access/egress design) • Wetlands (trash, maintenance) • Air emissions from multiple gas stations	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Section 3.2 (Biological Resources) evaluates wetlands and water quality impacts. Section 2.0 (Project Description) and Section 3.0.2 under the "Utilities/Service Systems-Solid Waste" subheading describe how trash would be managed. Air emissions are addressed in Section 3.0.2 under the "Air Quality" subheading.
Larry Galia	January 18, 2015	• Traffic safety (accidents, access/egress design)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Carl Gaspari	January 20, 2015	• Traffic safety (traffic volumes, pedestrian and bicycle traffic) • Aesthetics	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Aesthetics are addressed in Section 3.0.2 under the "Aesthetics" subheading.

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
Pari Goode	January 13, 2015	• Traffic congestion	Section 3.1 (Traffic and Circulation) evaluates traffic congestion impacts.
John Houlihan	January 14, 2015	• Access alternatives • No project alternative • Trash • National Environmental Policy Act (NEPA) requirements	Section 4.0 (Alternatives) evaluates access alternatives. The No Project alternative is also evaluated in this section. Section 2.0 (Project Description) and Section 3.0.2 under the "Utilities/Service Systems-Solid Waste" subheading describes how trash would be managed. NEPA does not apply to the proposed project because there is no federal action required.
Denise Hountalas	January 14, 2015	• Traffic safety (accidents)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Amir Khoyi	January 15, 2015	• Traffic safety (pedestrians and bicycles, turning movements)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Claire LaBeaux	January 23, 2015	• Traffic safety (traffic speed, accidents)	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts.
Tara McCann	January 14, 2015	• Traffic safety (roadway and access design, traffic speeds, traffic calming) • Access alternatives	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts, and access alternatives are evaluated in Section 4.0 (Alternatives)
Kristina Smith	January 6, 2015	• Traffic safety (congestion, traffic volumes, pedestrians, accidents) • Exhaust odors from traffic on Green Valley Road	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Odors are addressed in Section 3.0.2 under the "Air Quality" subheading.
Ellen Van Dyke	January 14, 2015	• Traffic safety (sight distance and accident rates) • Access alternatives • Wetlands setback	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts, and access alternatives are evaluated in Section 4.0 (Alternatives). Section 3.2 (Biological Resources) evaluates wetlands setback impacts.

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
Ellen Van Dyke	January 15, 2015	• Traffic safety (roadway and access design, traffic speed, traffic calming) • Access alternatives	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts, and access alternatives are evaluated in Section 4.0 (Alternatives).
Darlene Vogds	January 18, 2015	• Traffic safety (congestion, accident rates) • Light pollution • Noise from car wash • Emissions from cars in car wash	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Lighting is addressed in Section 3.0.2 under the "Aesthetics" subheading. Noise is addressed in Section 3.0.2 under the "Noise" subheading. Emissions are evaluated in Section 3.0.2 under the "Air Quality" subheading.
Laura Wicklman	January 19, 2015	• Traffic safety (pedestrians and bicycles, traffic volumes, accident s) • Access alternatives • Parking along Sophia Parkway • Stormwater runoff • Water use • Exhaust odors from traffic on Green Valley Road • Lighting • Noise • Trash	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts and parking, and access alternatives are evaluated in Section 4.0 (Alternatives). Stormwater runoff impacts are evaluated in Section 3.2 (Biological Resources) and in Section 3.0.2 under the "Hydrology and Water Quality" subheading. Water use is addressed in Section 3.0.2 under the "Utilities/Service Systems-Water Supply and Wastewaster" subheading. Odors are addressed in Section 3.0.2 under the "Air Quality" subheading. Lighting is addressed in Section 3.0.2 under the "Aesthetics" subheading. Noise is addressed in Section 3.0.2 under the "Noise" subheading. Section 2.0 (Project Description) and Section 3.0.2 under the "Utilities/Service Systems-Solid Waste" subheadings describes how trash would be managed.

TABLE A-1
SUMMARY OF NOP COMMENTS

Commenter	Date	Issues Raised in Comments	Location Addressed in Draft EIR
Roy Wicklman	January 14, 2015	• Traffic safety (pedestrians and bicycles, traffic volumes, accidents) • Stormwater runoff into creek • Noise • Exhaust odors and dust • Lighting • Quality of life, property values, loitering	Section 3.1 (Traffic and Circulation) evaluates traffic safety impacts. Stormwater runoff impacts are evaluated in Section 3.2 (Biological Resources). Noise is addressed in Section 3.0.2 under the "Noise" subheading. Odors and dust are addressed in Section 3.0.2 under the "Air Quality" subheading. Lighting is addressed under the "Aesthetics" subheading. Quality of life and related issues are social and economic concerns and are not treated as a significant effect on the environment requiring analysis (CEQA Guidelines Section 15131).
Anonymous	January 14, 2015	• Opposed to project, no environmental issue noted	
Agencies			
Central Valley Regional Water Quality Control Board	January 15, 2015	• Permit requirements	Relevant permits are described in Section 3.2 (Biological Resources) and Section 3.0.2 under the "Hydrology and Water Quality" subheading
Native American Heritage Commission	January 8, 2015	• Historical and archaeological resources, Native American resources	Cultural resources are addressed in Section 3.0.2 under the "Cultural Resources" subheading.

APPENDIX B – AIR AND GREENHOUSE GAS EMISSIONS MODEL DATA

Arco - Green Valley Road at Sophia Parkway

El Dorado-Mountain County County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	2.50	1000sqft	0.06	2,500.00	0
Other Non-Asphalt Surfaces	6.83	1000sqft	0.16	6,825.00	0
Parking Lot	18.00	Space	0.16	7,200.00	0
Automobile Care Center	1.79	1000sqft	0.04	1,794.00	0
Convenience Market With Gas Pumps	8.00	Pump	1.04	7,786.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Retail square footage includes 4,602 square foot canopy & 3,184 square foot store. "Auto Care Center" = carwash; "Enclosed Parking Structure" = underground fuel tanks. Accounts for 6,825 square feet of new raised median on Green Valley Road & an additional 1.3 acres of disturbance.

Construction Phase - Construction schedule per project applicant. Painting assumed to occur simultaneously with building construction & paving.

Grading - Total on-site ground disturbance = 1.3 acres

Trips and VMT - Haul trips to accommodate 10 cubic yards per load per project applicant. Material retreived from site on Sophia Parkway.

Vehicle Trips - Trip generation per Traffic Impact Analysis

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	4.00	18.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblConstructionPhase	PhaseStartDate	1/31/2015	2/2/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblGrading	AcresOfGrading	6.75	1.30
tblGrading	MaterialImported	0.00	10,800.00
tblGrading	MaterialImported	0.00	1,200.00
tblLandUse	LandUseSquareFeet	6,830.00	6,825.00
tblLandUse	LandUseSquareFeet	1,790.00	1,794.00
tblLandUse	LandUseSquareFeet	1,129.40	7,786.00
tblLandUse	LotAcreage	0.03	1.04
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripNumber	119.00	240.00
tblTripsAndVMT	HaulingTripNumber	1,068.00	2,160.00
tblVehicleTrips	ST_TR	62.00	0.00
tblVehicleTrips	ST_TR	204.47	134.50
tblVehicleTrips	SU_TR	62.00	0.00
tblVehicleTrips	SU_TR	166.88	134.50
tblVehicleTrips	WD_TR	62.00	0.00
tblVehicleTrips	WD_TR	542.60	134.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	16.6853	39.2486	47.7783	0.0417	6.2616	2.6063	7.8147	3.0784	2.4845	4.5072	0.0000	4,023.841 1	4,023.841 1	0.9288	0.0000	4,043.345 3
Total	**16.6853**	**39.2486**	**47.7783**	**0.0417**	**6.2616**	**2.6063**	**7.8147**	**3.0784**	**2.4845**	**4.5072**	**0.0000**	**4,023.841 1**	**4,023.841 1**	**0.9288**	**0.0000**	**4,043.345 3**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	16.6853	39.2486	47.7783	0.0417	6.2616	2.6063	7.8147	3.0784	2.4845	4.5072	0.0000	4,023.841 1	4,023.841 1	0.9288	0.0000	4,043.345 3
Total	**16.6853**	**39.2486**	**47.7783**	**0.0417**	**6.2616**	**2.6063**	**7.8147**	**3.0784**	**2.4845**	**4.5072**	**0.0000**	**4,023.841 1**	**4,023.841 1**	**0.9288**	**0.0000**	**4,043.345 3**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Energy	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
Mobile	3.5871	2.4422	14.4279	0.0195	1.2187	0.0294	1.2481	0.3252	0.0269	0.3522		1,675.7395	1,675.7395	0.0996		1,677.8317
Total	**4.2695**	**2.4599**	**14.4466**	**0.0196**	**1.2187**	**0.0307**	**1.2495**	**0.3252**	**0.0283**	**0.3535**		**1,696.9234**	**1,696.9234**	**0.1001**	**3.9000e-004**	**1,699.1449**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Energy	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
Mobile	3.5871	2.4422	14.4279	0.0195	1.2187	0.0294	1.2481	0.3252	0.0269	0.3522		1,675.7395	1,675.7395	0.0996		1,677.8317
Total	**4.2695**	**2.4599**	**14.4466**	**0.0196**	**1.2187**	**0.0307**	**1.2495**	**0.3252**	**0.0283**	**0.3535**		**1,696.9234**	**1,696.9234**	**0.1001**	**3.9000e-004**	**1,699.1449**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	2/2/2015	2/25/2015	5	18	
3	Building Construction	Building Construction	2/26/2015	4/22/2015	5	40	
4	Paving	Paving	2/26/2015	4/22/2015	5	40	
5	Architectural Coating	Architectural Coating	2/26/2015	4/22/2015	5	40	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,682; Non-Residential Outdoor: 9,561 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	240.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	2,160.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.744 0	1,801.744 0	0.5379		1,813.039 8
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**		**1,801.744 0**	**1,801.744 0**	**0.5379**		**1,813.039 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6733	8.6235	30.2872	0.0150	0.3963	0.0854	0.4818	0.1073	0.0785	0.1858		1,473.932 4	1,473.932 4	0.0146		1,474.238 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0370	0.4805	8.4000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		71.6337	71.6337	3.8100e-003		71.7138
Total	**1.7139**	**8.6605**	**30.7677**	**0.0159**	**0.4621**	**0.0860**	**0.5480**	**0.1247**	**0.0791**	**0.2038**		**1,545.566 1**	**1,545.566 1**	**0.0184**		**1,545.951 9**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.744 0	1,801.744 0	0.5379		1,813.039 8
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**	**0.0000**	**1,801.744 0**	**1,801.744 0**	**0.5379**		**1,813.039 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6733	8.6235	30.2872	0.0150	0.3963	0.0854	0.4818	0.1073	0.0785	0.1858		1,473.932 4	1,473.932 4	0.0146		1,474.238 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0370	0.4805	8.4000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		71.6337	71.6337	3.8100e-003		71.7138
Total	**1.7139**	**8.6605**	**30.7677**	**0.0159**	**0.4621**	**0.0860**	**0.5480**	**0.1247**	**0.0791**	**0.2038**		**1,545.566 1**	**1,545.566 1**	**0.0184**		**1,545.951 9**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5932	0.0000	4.5932	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5932**	**1.1968**	**5.7900**	**2.4909**	**1.1011**	**3.5920**		**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6733	8.6235	30.2872	0.0150	0.3963	0.0854	0.4818	0.1073	0.0785	0.1858		1,473.9324	1,473.9324	0.0146		1,474.2381
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0370	0.4805	8.4000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		71.6337	71.6337	3.8100e-003		71.7138
Total	**1.7139**	**8.6605**	**30.7677**	**0.0159**	**0.4621**	**0.0860**	**0.5480**	**0.1247**	**0.0791**	**0.2038**		**1,545.5661**	**1,545.5661**	**0.0184**		**1,545.9519**

3.3 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5932	0.0000	4.5932	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.800 0	1,479.800 0	0.4418		1,489.077 4
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5932**	**1.1968**	**5.7900**	**2.4909**	**1.1011**	**3.5920**	**0.0000**	**1,479.800 0**	**1,479.800 0**	**0.4418**		**1,489.077 4**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6733	8.6235	30.2872	0.0150	0.3963	0.0854	0.4818	0.1073	0.0785	0.1858		1,473.932 4	1,473.932 4	0.0146		1,474.238 1
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0406	0.0370	0.4805	8.4000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		71.6337	71.6337	3.8100e-003		71.7138
Total	**1.7139**	**8.6605**	**30.7677**	**0.0159**	**0.4621**	**0.0860**	**0.5480**	**0.1247**	**0.0791**	**0.2038**		**1,545.566 1**	**1,545.566 1**	**0.0184**		**1,545.951 9**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0588	0.4025	0.8479	8.1000e-004	0.0258	6.7100e-003	0.0325	7.3300e-003	6.1700e-003	0.0135		80.4429	80.4429	7.4000e-004		80.4583
Worker	0.0507	0.0463	0.6006	1.0500e-003	0.0822	7.0000e-004	0.0829	0.0218	6.3000e-004	0.0224		89.5421	89.5421	4.7700e-003		89.6422
Total	**0.1096**	**0.4488**	**1.4484**	**1.8600e-003**	**0.1080**	**7.4100e-003**	**0.1154**	**0.0291**	**6.8000e-003**	**0.0359**		**169.9850**	**169.9850**	**5.5100e-003**		**170.1006**

3.4 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0588	0.4025	0.8479	8.1000e-004	0.0258	6.7100e-003	0.0325	7.3300e-003	6.1700e-003	0.0135		80.4429	80.4429	7.4000e-004		80.4583
Worker	0.0507	0.0463	0.6006	1.0500e-003	0.0822	7.0000e-004	0.0829	0.0218	6.3000e-004	0.0224		89.5421	89.5421	4.7700e-003		89.6422
Total	**0.1096**	**0.4488**	**1.4484**	**1.8600e-003**	**0.1080**	**7.4100e-003**	**0.1154**	**0.0291**	**6.8000e-003**	**0.0359**		**169.9850**	**169.9850**	**5.5100e-003**		**170.1006**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4146**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0659	0.0601	0.7808	1.3600e-003	0.1068	9.1000e-004	0.1077	0.0283	8.2000e-004	0.0292		116.4048	116.4048	6.2000e-003		116.5349
Total	**0.0659**	**0.0601**	**0.7808**	**1.3600e-003**	**0.1068**	**9.1000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0292**		**116.4048**	**116.4048**	**6.2000e-003**		**116.5349**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.4703	1,382.4703	0.4054		1,390.9826
Paving	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4146**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.4703**	**1,382.4703**	**0.4054**		**1,390.9826**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0659	0.0601	0.7808	1.3600e-003	0.1068	9.1000e-004	0.1077	0.0283	8.2000e-004	0.0292		116.4048	116.4048	6.2000e-003		116.5349
Total	**0.0659**	**0.0601**	**0.7808**	**1.3600e-003**	**0.1068**	**9.1000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0292**		**116.4048**	**116.4048**	**6.2000e-003**		**116.5349**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.0785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**11.4851**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0101	9.2500e-003	0.1201	2.1000e-004	0.0164	1.4000e-004	0.0166	4.3600e-003	1.3000e-004	4.4800e-003		17.9084	17.9084	9.5000e-004		17.9285
Total	**0.0101**	**9.2500e-003**	**0.1201**	**2.1000e-004**	**0.0164**	**1.4000e-004**	**0.0166**	**4.3600e-003**	**1.3000e-004**	**4.4800e-003**		**17.9084**	**17.9084**	**9.5000e-004**		**17.9285**

3.6 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.0785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**11.4851**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0101	9.2500e-003	0.1201	2.1000e-004	0.0164	1.4000e-004	0.0166	4.3600e-003	1.3000e-004	4.4800e-003		17.9084	17.9084	9.5000e-004		17.9285
Total	**0.0101**	**9.2500e-003**	**0.1201**	**2.1000e-004**	**0.0164**	**1.4000e-004**	**0.0166**	**4.3600e-003**	**1.3000e-004**	**4.4800e-003**		**17.9084**	**17.9084**	**9.5000e-004**		**17.9285**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	3.5871	2.4422	14.4279	0.0195	1.2187	0.0294	1.2481	0.3252	0.0269	0.3522		1,675.739 5	1,675.739 5	0.0996		1,677.831 7
Unmitigated	3.5871	2.4422	14.4279	0.0195	1.2187	0.0294	1.2481	0.3252	0.0269	0.3522		1,675.739 5	1,675.739 5	0.0996		1,677.831 7

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Convenience Market With Gas Pumps	1,076.00	1,076.00	1076.00	577,171	577,171
Enclosed Parking Structure	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,076.00	1,076.00	1,076.00	577,171	577,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.456308	0.078455	0.189443	0.162186	0.075334	0.010727	0.010063	0.001006	0.001372	0.000782	0.008662	0.000748	0.004912

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
NaturalGas Unmitigated	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Automobile Care Center	18.0875	2.0000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1279	2.1279	4.0000e-005	4.0000e-005	2.1409
Convenience Market With Gas Pumps	161.906	1.7500e-003	0.0159	0.0133	1.0000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		19.0478	19.0478	3.7000e-004	3.5000e-004	19.1637
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9500e-003**	**0.0176**	**0.0148**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**		**21.1757**	**21.1757**	**4.1000e-004**	**3.9000e-004**	**21.3046**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.161906	1.7500e-003	0.0159	0.0133	1.0000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		19.0478	19.0478	3.7000e-004	3.5000e-004	19.1637
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Automobile Care Center	0.0180875	2.0000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1279	2.1279	4.0000e-005	4.0000e-005	2.1409
Total		**1.9500e-003**	**0.0176**	**0.0148**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**		**21.1757**	**21.1757**	**4.1000e-004**	**3.9000e-004**	**21.3046**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Unmitigated	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Total	**0.6804**	**4.0000e-005**	**3.8900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.1200e-003**	**8.1200e-003**	**2.0000e-005**		**8.6100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Total	**0.6804**	**4.0000e-005**	**3.8900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.1200e-003**	**8.1200e-003**	**2.0000e-005**		**8.6100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Arco - Green Valley Road at Sophia Parkway

El Dorado-Mountain County County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	2.50	1000sqft	0.06	2,500.00	0
Other Non-Asphalt Surfaces	6.83	1000sqft	0.16	6,825.00	0
Parking Lot	18.00	Space	0.16	7,200.00	0
Automobile Care Center	1.79	1000sqft	0.04	1,794.00	0
Convenience Market With Gas Pumps	8.00	Pump	1.04	7,786.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Retail square footage includes 4,602 square foot canopy & 3,184 square foot store. "Auto Care Center" = carwash; "Enclosed Parking Structure" = underground fuel tanks. Accounts for 6,825 square feet of new raised median on Green Valley Road & an additional 1.3 acres of disturbance.

Construction Phase - Construction schedule per project applicant. Painting assumed to occur simultaneously with building construction & paving.

Grading - Total on-site ground disturbance = 1.3 acres

Trips and VMT - Haul trips to accommodate 10 cubic yards per load per project applicant. Material retreived from site on Sophia Parkway.

Vehicle Trips - Trip generation per Traffic Impact Analysis

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	4.00	18.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblConstructionPhase	PhaseStartDate	1/31/2015	2/2/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblGrading	AcresOfGrading	6.75	1.30
tblGrading	MaterialImported	0.00	10,800.00
tblGrading	MaterialImported	0.00	1,200.00
tblLandUse	LandUseSquareFeet	6,830.00	6,825.00
tblLandUse	LandUseSquareFeet	1,790.00	1,794.00
tblLandUse	LandUseSquareFeet	1,129.40	7,786.00
tblLandUse	LotAcreage	0.03	1.04
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripNumber	119.00	240.00
tblTripsAndVMT	HaulingTripNumber	1,068.00	2,160.00
tblVehicleTrips	ST_TR	62.00	0.00
tblVehicleTrips	ST_TR	204.47	134.50
tblVehicleTrips	SU_TR	62.00	0.00
tblVehicleTrips	SU_TR	166.88	134.50
tblVehicleTrips	WD_TR	62.00	0.00
tblVehicleTrips	WD_TR	542.60	134.50

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	16.6910	39.3096	65.5197	0.0414	6.2616	2.6065	7.8175	3.0784	2.4846	4.5097	0.0000	3,998.8976	3,998.8976	0.9288	0.0000	4,018.4022
Total	**16.6910**	**39.3096**	**65.5197**	**0.0414**	**6.2616**	**2.6065**	**7.8175**	**3.0784**	**2.4846**	**4.5097**	**0.0000**	**3,998.8976**	**3,998.8976**	**0.9288**	**0.0000**	**4,018.4022**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	16.6910	39.3096	65.5197	0.0414	6.2616	2.6065	7.8175	3.0784	2.4846	4.5097	0.0000	3,998.8976	3,998.8976	0.9288	0.0000	4,018.4022
Total	**16.6910**	**39.3096**	**65.5197**	**0.0414**	**6.2616**	**2.6065**	**7.8175**	**3.0784**	**2.4846**	**4.5097**	**0.0000**	**3,998.8976**	**3,998.8976**	**0.9288**	**0.0000**	**4,018.4022**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Energy	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
Mobile	3.3397	2.7824	19.4177	0.0180	1.2187	0.0299	1.2486	0.3252	0.0274	0.3526		1,539.7412	1,539.7412	0.0997		1,541.8345
Total	**4.0221**	**2.8001**	**19.4364**	**0.0181**	**1.2187**	**0.0312**	**1.2499**	**0.3252**	**0.0287**	**0.3539**		**1,560.9251**	**1,560.9251**	**0.1001**	**3.9000e-004**	**1,563.1477**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Energy	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
Mobile	3.3397	2.7824	19.4177	0.0180	1.2187	0.0299	1.2486	0.3252	0.0274	0.3526		1,539.7412	1,539.7412	0.0997		1,541.8345
Total	**4.0221**	**2.8001**	**19.4364**	**0.0181**	**1.2187**	**0.0312**	**1.2499**	**0.3252**	**0.0287**	**0.3539**		**1,560.9251**	**1,560.9251**	**0.1001**	**3.9000e-004**	**1,563.1477**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	2/2/2015	2/25/2015	5	18	
3	Building Construction	Building Construction	2/26/2015	4/22/2015	5	40	
4	Paving	Paving	2/26/2015	4/22/2015	5	40	
5	Architectural Coating	Architectural Coating	2/26/2015	4/22/2015	5	40	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,682; Non-Residential Outdoor: 9,561 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	240.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	2,160.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497		1,801.744 0	1,801.744 0	0.5379		1,813.039 8
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**		**1,801.744 0**	**1,801.744 0**	**0.5379**		**1,813.039 8**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2576	9.4456	48.0530	0.0151	0.3963	0.0882	0.4846	0.1073	0.0811	0.1884		1,452.571 9	1,452.571 9	0.0155		1,452.897 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0460	0.4560	7.5000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		63.8852	63.8852	3.8100e-003		63.9653
Total	**2.2952**	**9.4915**	**48.5091**	**0.0159**	**0.4621**	**0.0888**	**0.5508**	**0.1247**	**0.0816**	**0.2063**		**1,516.457 1**	**1,516.457 1**	**0.0193**		**1,516.862 6**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	2.5362	26.8886	17.0107	0.0171		1.4671	1.4671		1.3497	1.3497	0.0000	1,801.744 0	1,801.744 0	0.5379		1,813.039 8
Total	**2.5362**	**26.8886**	**17.0107**	**0.0171**	**5.7996**	**1.4671**	**7.2666**	**2.9537**	**1.3497**	**4.3034**	**0.0000**	**1,801.744 0**	**1,801.744 0**	**0.5379**		**1,813.039 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2576	9.4456	48.0530	0.0151	0.3963	0.0882	0.4846	0.1073	0.0811	0.1884		1,452.571 9	1,452.571 9	0.0155		1,452.897 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0460	0.4560	7.5000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		63.8852	63.8852	3.8100e-003		63.9653
Total	**2.2952**	**9.4915**	**48.5091**	**0.0159**	**0.4621**	**0.0888**	**0.5508**	**0.1247**	**0.0816**	**0.2063**		**1,516.457 1**	**1,516.457 1**	**0.0193**		**1,516.862 6**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5932	0.0000	4.5932	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011		1,479.800 0	1,479.800 0	0.4418		1,489.077 4
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5932**	**1.1968**	**5.7900**	**2.4909**	**1.1011**	**3.5920**		**1,479.800 0**	**1,479.800 0**	**0.4418**		**1,489.077 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2576	9.4456	48.0530	0.0151	0.3963	0.0882	0.4846	0.1073	0.0811	0.1884		1,452.571 9	1,452.571 9	0.0155		1,452.897 3
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0460	0.4560	7.5000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		63.8852	63.8852	3.8100e-003		63.9653
Total	**2.2952**	**9.4915**	**48.5091**	**0.0159**	**0.4621**	**0.0888**	**0.5508**	**0.1247**	**0.0816**	**0.2063**		**1,516.457 1**	**1,516.457 1**	**0.0193**		**1,516.862 6**

3.3 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5932	0.0000	4.5932	2.4909	0.0000	2.4909			0.0000			0.0000
Off-Road	2.0666	21.9443	14.0902	0.0141		1.1968	1.1968		1.1011	1.1011	0.0000	1,479.8000	1,479.8000	0.4418		1,489.0774
Total	**2.0666**	**21.9443**	**14.0902**	**0.0141**	**4.5932**	**1.1968**	**5.7900**	**2.4909**	**1.1011**	**3.5920**	**0.0000**	**1,479.8000**	**1,479.8000**	**0.4418**		**1,489.0774**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.2576	9.4456	48.0530	0.0151	0.3963	0.0882	0.4846	0.1073	0.0811	0.1884		1,452.5719	1,452.5719	0.0155		1,452.8973
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0376	0.0460	0.4560	7.5000e-004	0.0657	5.6000e-004	0.0663	0.0174	5.1000e-004	0.0179		63.8852	63.8852	3.8100e-003		63.9653
Total	**2.2952**	**9.4915**	**48.5091**	**0.0159**	**0.4621**	**0.0888**	**0.5508**	**0.1247**	**0.0816**	**0.2063**		**1,516.4571**	**1,516.4571**	**0.0193**		**1,516.8626**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344		2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**		**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0739	0.4356	1.2065	8.0000e-004	0.0258	6.8500e-003	0.0327	7.3300e-003	6.2900e-003	0.0136		79.7135	79.7135	7.6000e-004		79.7294
Worker	0.0470	0.0574	0.5700	9.4000e-004	0.0822	7.0000e-004	0.0829	0.0218	6.3000e-004	0.0224		79.8565	79.8565	4.7700e-003		79.9566
Total	**0.1208**	**0.4930**	**1.7765**	**1.7400e-003**	**0.1080**	**7.5500e-003**	**0.1155**	**0.0291**	**6.9200e-003**	**0.0360**		**159.5699**	**159.5699**	**5.5300e-003**		**159.6860**

3.4 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6000	21.5642	15.0041	0.0220		1.4851	1.4851		1.4344	1.4344	0.0000	2,055.6247	2,055.6247	0.4741		2,065.5812
Total	**3.6000**	**21.5642**	**15.0041**	**0.0220**		**1.4851**	**1.4851**		**1.4344**	**1.4344**	**0.0000**	**2,055.6247**	**2,055.6247**	**0.4741**		**2,065.5812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0739	0.4356	1.2065	8.0000e-004	0.0258	6.8500e-003	0.0327	7.3300e-003	6.2900e-003	0.0136		79.7135	79.7135	7.6000e-004		79.7294
Worker	0.0470	0.0574	0.5700	9.4000e-004	0.0822	7.0000e-004	0.0829	0.0218	6.3000e-004	0.0224		79.8565	79.8565	4.7700e-003		79.9566
Total	**0.1208**	**0.4930**	**1.7765**	**1.7400e-003**	**0.1080**	**7.5500e-003**	**0.1155**	**0.0291**	**6.9200e-003**	**0.0360**		**159.5699**	**159.5699**	**5.5300e-003**		**159.6860**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215		1,382.470 3	1,382.470 3	0.4054		1,390.982 6
Paving	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4146**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**		**1,382.470 3**	**1,382.470 3**	**0.4054**		**1,390.982 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0747	0.7411	1.2200e-003	0.1068	9.1000e-004	0.1077	0.0283	8.2000e-004	0.0292		103.8134	103.8134	6.2000e-003		103.9435
Total	**0.0610**	**0.0747**	**0.7411**	**1.2200e-003**	**0.1068**	**9.1000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0292**		**103.8134**	**103.8134**	**6.2000e-003**		**103.9435**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4041	14.5959	9.1695	0.0133		0.8919	0.8919		0.8215	0.8215	0.0000	1,382.470 3	1,382.470 3	0.4054		1,390.982 6
Paving	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4146**	**14.5959**	**9.1695**	**0.0133**		**0.8919**	**0.8919**		**0.8215**	**0.8215**	**0.0000**	**1,382.470 3**	**1,382.470 3**	**0.4054**		**1,390.982 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0747	0.7411	1.2200e-003	0.1068	9.1000e-004	0.1077	0.0283	8.2000e-004	0.0292		103.8134	103.8134	6.2000e-003		103.9435
Total	**0.0610**	**0.0747**	**0.7411**	**1.2200e-003**	**0.1068**	**9.1000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0292**		**103.8134**	**103.8134**	**6.2000e-003**		**103.9435**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.0785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**11.4851**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.3900e-003	0.0115	0.1140	1.9000e-004	0.0164	1.4000e-004	0.0166	4.3600e-003	1.3000e-004	4.4800e-003		15.9713	15.9713	9.5000e-004		15.9913
Total	**9.3900e-003**	**0.0115**	**0.1140**	**1.9000e-004**	**0.0164**	**1.4000e-004**	**0.0166**	**4.3600e-003**	**1.3000e-004**	**4.4800e-003**		**15.9713**	**15.9713**	**9.5000e-004**		**15.9913**

3.6 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.0785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**11.4851**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.3900e-003	0.0115	0.1140	1.9000e-004	0.0164	1.4000e-004	0.0166	4.3600e-003	1.3000e-004	4.4800e-003		15.9713	15.9713	9.5000e-004		15.9913
Total	**9.3900e-003**	**0.0115**	**0.1140**	**1.9000e-004**	**0.0164**	**1.4000e-004**	**0.0166**	**4.3600e-003**	**1.3000e-004**	**4.4800e-003**		**15.9713**	**15.9713**	**9.5000e-004**		**15.9913**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3397	2.7824	19.4177	0.0180	1.2187	0.0299	1.2486	0.3252	0.0274	0.3526		1,539.7412	1,539.7412	0.0997		1,541.8345
Unmitigated	3.3397	2.7824	19.4177	0.0180	1.2187	0.0299	1.2486	0.3252	0.0274	0.3526		1,539.7412	1,539.7412	0.0997		1,541.8345

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Convenience Market With Gas Pumps	1,076.00	1,076.00	1076.00	577,171	577,171
Enclosed Parking Structure	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,076.00	1,076.00	1,076.00	577,171	577,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.456308	0.078455	0.189443	0.162186	0.075334	0.010727	0.010063	0.001006	0.001372	0.000782	0.008662	0.000748	0.004912

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046
NaturalGas Unmitigated	1.9400e-003	0.0177	0.0148	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1757	21.1757	4.1000e-004	3.9000e-004	21.3046

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Automobile Care Center	18.0875	2.0000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1279	2.1279	4.0000e-005	4.0000e-005	2.1409
Convenience Market With Gas Pumps	161.906	1.7500e-003	0.0159	0.0133	1.0000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		19.0478	19.0478	3.7000e-004	3.5000e-004	19.1637
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.9500e-003**	**0.0176**	**0.0148**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**		**21.1757**	**21.1757**	**4.1000e-004**	**3.9000e-004**	**21.3046**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas Pumps	0.161906	1.7500e-003	0.0159	0.0133	1.0000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		19.0478	19.0478	3.7000e-004	3.5000e-004	19.1637
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Automobile Care Center	0.0180875	2.0000e-004	1.7700e-003	1.4900e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		2.1279	2.1279	4.0000e-005	4.0000e-005	2.1409
Total		**1.9500e-003**	**0.0176**	**0.0148**	**1.1000e-004**		**1.3400e-003**	**1.3400e-003**		**1.3400e-003**	**1.3400e-003**		**21.1757**	**21.1757**	**4.1000e-004**	**3.9000e-004**	**21.3046**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Unmitigated	0.6804	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Total	**0.6804**	**4.0000e-005**	**3.8900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.1200e-003**	**8.1200e-003**	**2.0000e-005**		**8.6100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1214					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.8000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		8.1200e-003	8.1200e-003	2.0000e-005		8.6100e-003
Total	**0.6804**	**4.0000e-005**	**3.8900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**8.1200e-003**	**8.1200e-003**	**2.0000e-005**		**8.6100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Arco - Green Valley Road at Sophia Parkway

El Dorado-Mountain County County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	2.50	1000sqft	0.06	2,500.00	0
Other Non-Asphalt Surfaces	6.83	1000sqft	0.16	6,825.00	0
Parking Lot	18.00	Space	0.16	7,200.00	0
Automobile Care Center	1.79	1000sqft	0.04	1,794.00	0
Convenience Market With Gas Pumps	8.00	Pump	1.04	7,786.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	70
Climate Zone	1			**Operational Year**	2016
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Retail square footage includes 4,602 square foot canopy & 3,184 square foot store. "Auto Care Center" = carwash; "Enclosed Parking Structure" = underground fuel tanks. Accounts for 6,825 square feet of new raised median on Green Valley Road & an additional 1.3 acres of disturbance.

Construction Phase - Construction schedule per project applicant. Painting assumed to occur simultaneously with building construction & paving.

Grading - Total on-site ground disturbance = 1.3 acres

Trips and VMT - Haul trips to accommodate 10 cubic yards per load per project applicant. Material retreived from site on Sophia Parkway.

Vehicle Trips - Trip generation per Traffic Impact Analysis

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	4.00	18.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseEndDate	6/17/2015	4/22/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblConstructionPhase	PhaseStartDate	1/31/2015	2/2/2015
tblConstructionPhase	PhaseStartDate	4/23/2015	2/26/2015
tblGrading	AcresOfGrading	6.75	1.30
tblGrading	MaterialImported	0.00	10,800.00
tblGrading	MaterialImported	0.00	1,200.00
tblLandUse	LandUseSquareFeet	6,830.00	6,825.00
tblLandUse	LandUseSquareFeet	1,790.00	1,794.00
tblLandUse	LandUseSquareFeet	1,129.40	7,786.00
tblLandUse	LotAcreage	0.03	1.04
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripLength	20.00	4.00
tblTripsAndVMT	HaulingTripNumber	119.00	240.00
tblTripsAndVMT	HaulingTripNumber	1,068.00	2,160.00
tblVehicleTrips	ST_TR	62.00	0.00
tblVehicleTrips	ST_TR	204.47	134.50
tblVehicleTrips	SU_TR	62.00	0.00
tblVehicleTrips	SU_TR	166.88	134.50
tblVehicleTrips	WD_TR	62.00	0.00
tblVehicleTrips	WD_TR	542.60	134.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.3748	1.1032	1.1193	1.1300e-003	0.0560	0.0652	0.1213	0.0278	0.0618	0.0895	0.0000	100.2491	100.2491	0.0211	0.0000	100.6926
Total	**0.3748**	**1.1032**	**1.1193**	**1.1300e-003**	**0.0560**	**0.0652**	**0.1213**	**0.0278**	**0.0618**	**0.0895**	**0.0000**	**100.2491**	**100.2491**	**0.0211**	**0.0000**	**100.6926**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.3748	1.1032	1.1193	1.1300e-003	0.0560	0.0652	0.1213	0.0278	0.0618	0.0895	0.0000	100.2490	100.2490	0.0211	0.0000	100.6925
Total	**0.3748**	**1.1032**	**1.1193**	**1.1300e-003**	**0.0560**	**0.0652**	**0.1213**	**0.0278**	**0.0618**	**0.0895**	**0.0000**	**100.2490**	**100.2490**	**0.0211**	**0.0000**	**100.6925**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1241	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004
Energy	3.5000e-004	3.2200e-003	2.7100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	47.3270	47.3270	2.0500e-003	4.7000e-004	47.5170
Mobile	0.5703	0.4847	3.0748	3.3200e-003	0.2127	5.3800e-003	0.2180	0.0569	4.9300e-003	0.0619	0.0000	258.5142	258.5142	0.0164	0.0000	258.8593
Waste						0.0000	0.0000		0.0000	0.0000	1.3885	0.0000	1.3885	0.0821	0.0000	3.1116
Water						0.0000	0.0000		0.0000	0.0000	0.0800	0.5541	0.6341	8.2400e-003	2.0000e-004	0.8688
Total	**0.6948**	**0.4879**	**3.0778**	**3.3400e-003**	**0.2127**	**5.6200e-003**	**0.2183**	**0.0569**	**5.1700e-003**	**0.0621**	**1.4684**	**306.3959**	**307.8643**	**0.1088**	**6.7000e-004**	**310.3574**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1241	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004
Energy	3.5000e-004	3.2200e-003	2.7100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	47.3270	47.3270	2.0500e-003	4.7000e-004	47.5170
Mobile	0.5703	0.4847	3.0748	3.3200e-003	0.2127	5.3800e-003	0.2180	0.0569	4.9300e-003	0.0619	0.0000	258.5142	258.5142	0.0164	0.0000	258.8593
Waste						0.0000	0.0000		0.0000	0.0000	1.3885	0.0000	1.3885	0.0821	0.0000	3.1116
Water						0.0000	0.0000		0.0000	0.0000	0.0800	0.5541	0.6341	8.2400e-003	2.0000e-004	0.8687
Total	**0.6948**	**0.4879**	**3.0778**	**3.3400e-003**	**0.2127**	**5.6200e-003**	**0.2183**	**0.0569**	**5.1700e-003**	**0.0621**	**1.4684**	**306.3959**	**307.8643**	**0.1088**	**6.7000e-004**	**310.3573**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2015	1/30/2015	5	2	
2	Grading	Grading	2/2/2015	2/25/2015	5	18	
3	Building Construction	Building Construction	2/26/2015	4/22/2015	5	40	
4	Paving	Paving	2/26/2015	4/22/2015	5	40	
5	Architectural Coating	Architectural Coating	2/26/2015	4/22/2015	5	40	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,682; Non-Residential Outdoor: 9,561 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	240.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	2,160.00	10.80	7.30	4.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0269	0.0170	2.0000e-005		1.4700e-003	1.4700e-003		1.3500e-003	1.3500e-003	0.0000	1.6345	1.6345	4.9000e-004	0.0000	1.6448
Total	**2.5400e-003**	**0.0269**	**0.0170**	**2.0000e-005**	**5.8000e-003**	**1.4700e-003**	**7.2700e-003**	**2.9500e-003**	**1.3500e-003**	**4.3000e-003**	**0.0000**	**1.6345**	**1.6345**	**4.9000e-004**	**0.0000**	**1.6448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	9.2500e-003	0.0401	2.0000e-005	3.8000e-004	9.0000e-005	4.7000e-004	1.0000e-004	8.0000e-005	1.8000e-004	0.0000	1.3290	1.3290	1.0000e-005	0.0000	1.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0593	0.0593	0.0000	0.0000	0.0594
Total	**2.0100e-003**	**9.2900e-003**	**0.0405**	**2.0000e-005**	**4.4000e-004**	**9.0000e-005**	**5.3000e-004**	**1.2000e-004**	**8.0000e-005**	**2.0000e-004**	**0.0000**	**1.3883**	**1.3883**	**1.0000e-005**	**0.0000**	**1.3887**

3.2 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0269	0.0170	2.0000e-005		1.4700e-003	1.4700e-003		1.3500e-003	1.3500e-003	0.0000	1.6345	1.6345	4.9000e-004	0.0000	1.6448
Total	**2.5400e-003**	**0.0269**	**0.0170**	**2.0000e-005**	**5.8000e-003**	**1.4700e-003**	**7.2700e-003**	**2.9500e-003**	**1.3500e-003**	**4.3000e-003**	**0.0000**	**1.6345**	**1.6345**	**4.9000e-004**	**0.0000**	**1.6448**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	9.2500e-003	0.0401	2.0000e-005	3.8000e-004	9.0000e-005	4.7000e-004	1.0000e-004	8.0000e-005	1.8000e-004	0.0000	1.3290	1.3290	1.0000e-005	0.0000	1.3293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	4.0000e-005	4.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0593	0.0593	0.0000	0.0000	0.0594
Total	**2.0100e-003**	**9.2900e-003**	**0.0405**	**2.0000e-005**	**4.4000e-004**	**9.0000e-005**	**5.3000e-004**	**1.2000e-004**	**8.0000e-005**	**2.0000e-004**	**0.0000**	**1.3883**	**1.3883**	**1.0000e-005**	**0.0000**	**1.3887**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0413	0.0000	0.0413	0.0224	0.0000	0.0224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1975	0.1268	1.3000e-004		0.0108	0.0108		9.9100e-003	9.9100e-003	0.0000	12.0821	12.0821	3.6100e-003	0.0000	12.1578
Total	**0.0186**	**0.1975**	**0.1268**	**1.3000e-004**	**0.0413**	**0.0108**	**0.0521**	**0.0224**	**9.9100e-003**	**0.0323**	**0.0000**	**12.0821**	**12.0821**	**3.6100e-003**	**0.0000**	**12.1578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0178	0.0833	0.3609	1.4000e-004	3.4300e-003	7.8000e-004	4.2100e-003	9.3000e-004	7.2000e-004	1.6500e-003	0.0000	11.9609	11.9609	1.2000e-004	0.0000	11.9635
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	3.8000e-004	3.9800e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.5341	0.5341	3.0000e-005	0.0000	0.5348
Total	**0.0181**	**0.0837**	**0.3649**	**1.5000e-004**	**4.0000e-003**	**7.9000e-004**	**4.7800e-003**	**1.0800e-003**	**7.2000e-004**	**1.8100e-003**	**0.0000**	**12.4950**	**12.4950**	**1.5000e-004**	**0.0000**	**12.4982**

3.3 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0413	0.0000	0.0413	0.0224	0.0000	0.0224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0186	0.1975	0.1268	1.3000e-004		0.0108	0.0108		9.9100e-003	9.9100e-003	0.0000	12.0821	12.0821	3.6100e-003	0.0000	12.1578
Total	**0.0186**	**0.1975**	**0.1268**	**1.3000e-004**	**0.0413**	**0.0108**	**0.0521**	**0.0224**	**9.9100e-003**	**0.0323**	**0.0000**	**12.0821**	**12.0821**	**3.6100e-003**	**0.0000**	**12.1578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0178	0.0833	0.3609	1.4000e-004	3.4300e-003	7.8000e-004	4.2100e-003	9.3000e-004	7.2000e-004	1.6500e-003	0.0000	11.9609	11.9609	1.2000e-004	0.0000	11.9635
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	3.8000e-004	3.9800e-003	1.0000e-005	5.7000e-004	1.0000e-005	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.5341	0.5341	3.0000e-005	0.0000	0.5348
Total	**0.0181**	**0.0837**	**0.3649**	**1.5000e-004**	**4.0000e-003**	**7.9000e-004**	**4.7800e-003**	**1.0800e-003**	**7.2000e-004**	**1.8100e-003**	**0.0000**	**12.4950**	**12.4950**	**1.5000e-004**	**0.0000**	**12.4982**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0720	0.4313	0.3001	4.4000e-004		0.0297	0.0297		0.0287	0.0287	0.0000	37.2966	37.2966	8.6000e-003	0.0000	37.4773
Total	**0.0720**	**0.4313**	**0.3001**	**4.4000e-004**		**0.0297**	**0.0297**		**0.0287**	**0.0287**	**0.0000**	**37.2966**	**37.2966**	**8.6000e-003**	**0.0000**	**37.4773**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3200e-003	8.5900e-003	0.0209	2.0000e-005	5.0000e-004	1.4000e-004	6.3000e-004	1.4000e-004	1.2000e-004	2.7000e-004	0.0000	1.4540	1.4540	1.0000e-005	0.0000	1.4543
Worker	8.9000e-004	1.0600e-003	0.0111	2.0000e-005	1.5700e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4836	1.4836	9.0000e-005	0.0000	1.4854
Total	**2.2100e-003**	**9.6500e-003**	**0.0319**	**4.0000e-005**	**2.0700e-003**	**1.5000e-004**	**2.2200e-003**	**5.6000e-004**	**1.3000e-004**	**7.0000e-004**	**0.0000**	**2.9376**	**2.9376**	**1.0000e-004**	**0.0000**	**2.9397**

3.4 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0720	0.4313	0.3001	4.4000e-004		0.0297	0.0297		0.0287	0.0287	0.0000	37.2966	37.2966	8.6000e-003	0.0000	37.4772
Total	**0.0720**	**0.4313**	**0.3001**	**4.4000e-004**		**0.0297**	**0.0297**		**0.0287**	**0.0287**	**0.0000**	**37.2966**	**37.2966**	**8.6000e-003**	**0.0000**	**37.4772**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3200e-003	8.5900e-003	0.0209	2.0000e-005	5.0000e-004	1.4000e-004	6.3000e-004	1.4000e-004	1.2000e-004	2.7000e-004	0.0000	1.4540	1.4540	1.0000e-005	0.0000	1.4543
Worker	8.9000e-004	1.0600e-003	0.0111	2.0000e-005	1.5700e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4836	1.4836	9.0000e-005	0.0000	1.4854
Total	**2.2100e-003**	**9.6500e-003**	**0.0319**	**4.0000e-005**	**2.0700e-003**	**1.5000e-004**	**2.2200e-003**	**5.6000e-004**	**1.3000e-004**	**7.0000e-004**	**0.0000**	**2.9376**	**2.9376**	**1.0000e-004**	**0.0000**	**2.9397**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0281	0.2919	0.1834	2.7000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	25.0831	25.0831	7.3500e-003	0.0000	25.2376
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0283**	**0.2919**	**0.1834**	**2.7000e-004**		**0.0178**	**0.0178**		**0.0164**	**0.0164**	**0.0000**	**25.0831**	**25.0831**	**7.3500e-003**	**0.0000**	**25.2376**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	1.3800e-003	0.0144	2.0000e-005	2.0500e-003	2.0000e-005	2.0600e-003	5.4000e-004	2.0000e-005	5.6000e-004	0.0000	1.9287	1.9287	1.1000e-004	0.0000	1.9310
Total	**1.1500e-003**	**1.3800e-003**	**0.0144**	**2.0000e-005**	**2.0500e-003**	**2.0000e-005**	**2.0600e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**1.9287**	**1.9287**	**1.1000e-004**	**0.0000**	**1.9310**

3.5 Paving - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0281	0.2919	0.1834	2.7000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	25.0831	25.0831	7.3500e-003	0.0000	25.2375
Paving	2.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0283**	**0.2919**	**0.1834**	**2.7000e-004**		**0.0178**	**0.0178**		**0.0164**	**0.0164**	**0.0000**	**25.0831**	**25.0831**	**7.3500e-003**	**0.0000**	**25.2375**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	1.3800e-003	0.0144	2.0000e-005	2.0500e-003	2.0000e-005	2.0600e-003	5.4000e-004	2.0000e-005	5.6000e-004	0.0000	1.9287	1.9287	1.1000e-004	0.0000	1.9310
Total	**1.1500e-003**	**1.3800e-003**	**0.0144**	**2.0000e-005**	**2.0500e-003**	**2.0000e-005**	**2.0600e-003**	**5.4000e-004**	**2.0000e-005**	**5.6000e-004**	**0.0000**	**1.9287**	**1.9287**	**1.1000e-004**	**0.0000**	**1.9310**

3.6 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1300e-003	0.0514	0.0380	6.0000e-005		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	5.1065	5.1065	6.6000e-004	0.0000	5.1205
Total	**0.2297**	**0.0514**	**0.0380**	**6.0000e-005**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**	**0.0000**	**5.1065**	**5.1065**	**6.6000e-004**	**0.0000**	**5.1205**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	2.1000e-004	2.2100e-003	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2967	0.2967	2.0000e-005	0.0000	0.2971
Total	**1.8000e-004**	**2.1000e-004**	**2.2100e-003**	**0.0000**	**3.1000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2967**	**0.2967**	**2.0000e-005**	**0.0000**	**0.2971**

3.6 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.1300e-003	0.0514	0.0380	6.0000e-005		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	5.1065	5.1065	6.6000e-004	0.0000	5.1205
Total	**0.2297**	**0.0514**	**0.0380**	**6.0000e-005**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**	**0.0000**	**5.1065**	**5.1065**	**6.6000e-004**	**0.0000**	**5.1205**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	2.1000e-004	2.2100e-003	0.0000	3.1000e-004	0.0000	3.2000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2967	0.2967	2.0000e-005	0.0000	0.2971
Total	**1.8000e-004**	**2.1000e-004**	**2.2100e-003**	**0.0000**	**3.1000e-004**	**0.0000**	**3.2000e-004**	**8.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2967**	**0.2967**	**2.0000e-005**	**0.0000**	**0.2971**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5703	0.4847	3.0748	3.3200e-003	0.2127	5.3800e-003	0.2180	0.0569	4.9300e-003	0.0619	0.0000	258.5142	258.5142	0.0164	0.0000	258.8593
Unmitigated	0.5703	0.4847	3.0748	3.3200e-003	0.2127	5.3800e-003	0.2180	0.0569	4.9300e-003	0.0619	0.0000	258.5142	258.5142	0.0164	0.0000	258.8593

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Convenience Market With Gas Pumps	1,076.00	1,076.00	1076.00	577,171	577,171
Enclosed Parking Structure	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,076.00	1,076.00	1,076.00	577,171	577,171

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Convenience Market With Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.456308	0.078455	0.189443	0.162186	0.075334	0.010727	0.010063	0.001006	0.001372	0.000782	0.008662	0.000748	0.004912

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43.8211	43.8211	1.9800e-003	4.1000e-004	43.9898
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43.8211	43.8211	1.9800e-003	4.1000e-004	43.9898
NaturalGas Mitigated	3.5000e-004	3.2200e-003	2.7100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5059	3.5059	7.0000e-005	6.0000e-005	3.5272
NaturalGas Unmitigated	3.5000e-004	3.2200e-003	2.7100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5059	3.5059	7.0000e-005	6.0000e-005	3.5272

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	6601.92	4.0000e-005	3.2000e-004	2.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3523	0.3523	1.0000e-005	1.0000e-005	0.3545
Convenience Market With Gas Pumps	59095.7	3.2000e-004	2.9000e-003	2.4300e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1536	3.1536	6.0000e-005	6.0000e-005	3.1728
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.6000e-004**	**3.2200e-003**	**2.7000e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.5059**	**3.5059**	**7.0000e-005**	**7.0000e-005**	**3.5272**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	6601.92	4.0000e-005	3.2000e-004	2.7000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3523	0.3523	1.0000e-005	1.0000e-005	0.3545
Convenience Market With Gas Pumps	59095.7	3.2000e-004	2.9000e-003	2.4300e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1536	3.1536	6.0000e-005	6.0000e-005	3.1728
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.6000e-004**	**3.2200e-003**	**2.7000e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**3.5059**	**3.5059**	**7.0000e-005**	**7.0000e-005**	**3.5272**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	8485.62	2.4686	1.1000e-004	2.0000e-005	2.4781
Convenience Market With Gas Pumps	119437	34.7457	1.5700e-003	3.3000e-004	34.8794
Enclosed Parking Structure	16375	4.7637	2.2000e-004	4.0000e-005	4.7820
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	6336	1.8432	8.0000e-005	2.0000e-005	1.8503
Total		**43.8211**	**1.9800e-003**	**4.1000e-004**	**43.9898**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	8485.62	2.4686	1.1000e-004	2.0000e-005	2.4781
Convenience Market With Gas Pumps	119437	34.7457	1.5700e-003	3.3000e-004	34.8794
Enclosed Parking Structure	16375	4.7637	2.2000e-004	4.0000e-005	4.7820
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	6336	1.8432	8.0000e-005	2.0000e-005	1.8503
Total		**43.8211**	**1.9800e-003**	**4.1000e-004**	**43.9898**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1241	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004
Unmitigated	0.1241	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004
Total	**0.1241**	**0.0000**	**3.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1020					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.6000e-004	6.6000e-004	0.0000	0.0000	7.0000e-004
Total	**0.1241**	**0.0000**	**3.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6341	8.2400e-003	2.0000e-004	0.8687
Unmitigated	0.6341	8.2400e-003	2.0000e-004	0.8688

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.168405 / 0.103216	0.4236	5.5000e-003	1.3000e-004	0.5804
Convenience Market With Gas Pumps	0.0836574 / 0.0512739	0.2104	2.7300e-003	7.0000e-005	0.2883
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.6340**	**8.2300e-003**	**2.0000e-004**	**0.8688**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.168405 / 0.103216	0.4236	5.5000e-003	1.3000e-004	0.5804
Convenience Market With Gas Pumps	0.0836574 / 0.0512739	0.2104	2.7300e-003	7.0000e-005	0.2883
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.6340**	**8.2300e-003**	**2.0000e-004**	**0.8687**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.3885	0.0821	0.0000	3.1116
Unmitigated	1.3885	0.0821	0.0000	3.1116

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	6.84	1.3885	0.0821	0.0000	3.1116
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.3885**	**0.0821**	**0.0000**	**3.1116**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	6.84	1.3885	0.0821	0.0000	3.1116
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.3885**	**0.0821**	**0.0000**	**3.1116**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

APPENDIX C – TRAFFIC IMPACT ANALYSIS

Exhibit P

TRAFFIC IMPACT ANALYSIS

FOR

ARCO AM/PM GAS STATION & CONVENIENCE MARKET SITE
Green Valley Road at Sophia Parkway
El Dorado Hills, El Dorado County CA

Prepared For:

THE STRAUCH COMPANIES
301 Natomas Street, Suite 202
Folsom, CA 95630

Prepared By:

KDAnderson & Associates, Inc.
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Green Valley Rd ARCO AM PM CEQA doc.rpt

TRAFFIC IMPACT ANALYSIS FOR
ARCO AM/PM GAS STATION & CONVENIENCE MARKET SITE
Green Valley Road at Sophia Parkway

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ARCO AM/PM GAS STATION & CONVENIENCE MARKET SITE
TRAFFIC IMPACT ANALYSIS

EXECUTIVE SUMMARY

Project Description. The Arco AM/PM project includes a gasoline station with 16 fueling positions, a 3,000± square foot convenience store and a car wash. The project is located in the southeast quadrant of the Green Valley Road / Sophia Parkway intersection in El Dorado Hills. The project includes two right-in, right-out access driveways, one along Green Valley Road and one along Sophia Parkway. The project is expected to generate approximately 2,445 daily trips on a weekday basis. The project will generate 189 trips during the a.m. peak hour and 222 trips during the p.m. peak hour. After discounting pass-by trips the project will generate 1,076 new daily trips, 72 new a.m. peak hour trips and 98 new p.m. peak hour trips.

Existing Setting - Traffic. The location of the project is in western El Dorado County, in the southeast quadrant of the Green Valley Road / Sophia Parkway intersection. Traffic volumes from the Green Valley Corridor Analysis prepared by Kittelson & Associates, Inc. in November 2014 were used as the basis for this report. New traffic counts were completed for the Green Valley Road – Blue Ravine Road / E. Natoma Street in the City of Folsom.

All intersections on El Dorado County roads operate at LOS E or better, which satisfies the County's minimum standard. The Green Valley Road – Blue Ravine Road / E. Natoma Street intersection in the City of Folsom will operate at LOS C. All study roadway segments will operate at LOS E or better with the two-lane segment west of Sophia Parkway operating at LOS E in both directions and the four-lane roadway east of Sophia Parkway operating at LOS B or better in both directions.

The existing 85' eastbound left turn lane at the Green Valley Road / El Dorado Hills Blvd is inadequate to service left turns and is considered an existing deficiency. This will be improved with the County's CIP Project GP 178 which will widen Green Valley Road to four lanes with turn lanes between Francisco Drive and El Dorado Hills Blvd- Salmon Falls Road.

During the p.m. peak hour long rolling queues are created on eastbound Green Valley Road in the two lane segment between the City of Folsom and El Dorado County. Eastbound traffic leaves the Green Valley Road / E. Natoma Street intersection traveling at about 40 mph until it reaches the end of the auxiliary through lane where the platoon must begin to merge into a single eastbound lane. Traffic slows down to about 10-15 mph and sometimes stops as the vehicle platoon merges into the single lane. After the immediate effects of this bottleneck, the traffic speed increases, and eastbound traffic and can be going between 30 to 50 mph as it approaches the Sophia Parkway intersection, depending where the vehicle is within the platoon.

Many public comments were received during the Notice of Preparation indicating that there are long queues consistently along eastbound Green Valley Road. The Highway Capacity Manual (HCM) considers a vehicle to be in a queue when it approaches within one car length of a stopped vehicle and is itself about to stop. During our observations we found that the long "queues" are actually "moving" rather than "stopped" queues and they occurred randomly or as the result of slow moving vehicles. It was concluded that the congestion and queuing along eastbound Green Valley Road is caused primarily by the lane drop from two lanes to one lane in the City of Folsom. The operation of the traffic signal at Sophia Parkway was not observed to be the major factor in queueing along eastbound Green Valley Road.

This segment of Green Valley Road will be widened by the City of Folsom to a four-lane roadway that will connect to the existing four-lane section just west of Sophia Parkway. This widening project is scheduled to be ready for construction in Fiscal Year 2016/2017.

Existing Setting – Non-Automotive. The Mormon Island Auxiliary Dam (MIAD) to Brown's Ravine Marina Trail trailhead is located off of the northerly extension of Sophia Parkway beyond Green Valley Road. Parking for the trailhead is limited and most visitors park along Sophia Parkway and walk to the trailhead. Pedestrian traffic within the intersection occurs in the crosswalks on the east and south legs of the intersections. On weekends many pedestrians cross Green Valley Road to access the trailhead, with about 100 pedestrian movements per hour during the peak periods. A "Yield to Pedestrians" sign is posted on the near side northbound signal pole to caution motorists making right turns about the potential conflict with pedestrians crossing within the crosswalk.

The County may want to consider enhancing the crossing to address weekend conditions. One option would be to add a Leading Pedestrian Interval (LPI) to the traffic signal's northbound phase. A LPI is a time period when the pedestrian indication tells pedestrians it is okay to begin crossing but would hold traffic, in this case, the northbound traffic, in red. LPI's enhance the visibility of pedestrians in the intersection since motorists will see them at a location further into the crosswalk when the signal turns green. LPI is typically between 3 to 7 seconds in length, but may be longer when high pedestrian volumes occur.

Existing Plus Project Traffic Impacts. The proposed project will contribute to the traffic volumes along Green Valley Road and Sophia Parkway. However, all study intersections will continue to operate at acceptable Levels of Service (i.e., LOS E or better at El Dorado County intersections and at LOS C or better at City of Folsom intersections). Based on Level of Service, the project's impacts are not significant.

The project shall install improvements to restrict project access to right turns only and to facilitate westbound to eastbound U-turns on Green Valley Road. A 350 foot long raised median will be installed on Green Valley Road along the project frontage that will extend beyond the project driveway. To provide the maximum left turn storage for traffic turning onto Sophia Parkway the left turn lane can be striped as a dedicated left turn lane or, can be a combination of a dedicated left turn lane and the existing continuous left turn lane existing east of the project site. The project applicant shall also modify the southeast quadrant of the Green Valley Road / Sophia Parkway intersection to allow westbound U-turn movements. Improvements shall include modifications necessary to maintain the existing traffic signal system.

The westbound Green Valley Road left turn lane at Sophia Parkway will extend to beyond the proposed 350' long raised median under existing traffic signal operation. The traffic signal timing should be adjusted to provide a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 250' in the a.m. peak hour and 203' in the p.m. peak hour.

The existing 85' eastbound left turn lane at the Green Valley Road / El Dorado Hills Blvd is currently inadequate to service left turns. The simulation analysis indicates that the queues projected in the p.m. peak period will be about the same as currently experienced, about 221' long. The project shall pay their TIM fees to improve this intersection.

The project applicant shall identify approach and departure routes for delivery vehicles as single unit trucks and larger cannot make a U-turn along westbound Green Valley Road or along northbound Sophia Parkway. All delivery vehicles shall approach the site from either Green Valley Road west of Sophia Parkway or northbound along Sophia Parkway. Outbound delivery vehicles can proceed either east or west on Green Valley Road.

Locally, the project will introduce potential vehicular / pedestrian / bicycle conflicts at its access and the project may increase traffic through the Green Valley Road / Sophia Parkway intersection during periods of high pedestrian activity. A portion of the curb along Sophia Parkway adjoining the project driveway should be marked as "No Parking". This action would allow motorists to see approaching vehicles well in advance and can then focus their attention on pedestrians. As noted in the Existing Conditions the County should consider incorporating a Leading Pedestrian Interval (LPI) into the operation of the intersection. This may be accomplished when intersection improvements under Existing plus Project are constructed.

Driveway Operational Analysis. The adequacy of the site access design was evaluated within the context of three factors:

- Sight Distance
- Throat Depth
- Relationship to through traffic

The assessment also considers two alternative access configurations:

Alternative A: Access further east on Green Valley Road
Alternative B: Access via Amy's Lane.

The proposed access and the two access alternatives will provide sight distance that meets the minimum requirements of the Caltrans *Highway Design Manual* (HDM) Table 201.1 "Minimum Safe Stopping Distance" per the 50 mph posted speed.

The Sophia Parkway driveway has a 60 foot throat, and at the Green Valley Road driveway roughly 100 feet of queueing area would be available for waiting vehicles before the possibility of conflict with inbound traffic occurred. The 95th percentile queue at each location is one vehicle or less (i.e., <25 feet), and the available throat is adequate.

Motorists entering and exiting the site will slow to enter the project's driveways. The relationship between vehicles entering the site and through traffic has been evaluated based on Caltrans standards for deceleration, and the relative difference between access under the proposed project and under the access alternatives has been evaluated.

The HDM describes the area available for a vehicle to slow as the Deceleration Lane Length. El Dorado County staff has considered available information regarding the travel speed Green Valley Road to identify an applicable entry speed. While the posted speed limit is 50 mph, speed surveys note that the 85^{th} percentile speed is 55 mph. After discounting 20 mph for deceleration in the through lanes, a 35 mph entry design is applicable. A 35 mph design would require 275 feet to come to a stop.

The proposed project provides a right turn taper along Green Valley Road that is 135 feet long and 8 feet wide. An approaching motorist would begin to move into the 4' bike lane prior to the beginning of the taper and the distance from this point to the driveway is 200 feet. Under this plan a motorist intending to turn into the driveway at 10 mph would slow to 44 mph as they begin to move into the bike lane. A motorist would slow to 43 mph at this point to stop on Green Valley Road. Deceleration will begin within the Sophia Parkway intersection with vehicles slowing from 55 mph to 44 mph. This is within the deceleration guidelines identified in the Highway Design Manual.

Under Alternative A the driveway would be moved off site to a location further east on Green Valley Road. Under this alternative the total length of bay taper and right turn lane is 275 feet. This distance satisfies the Caltrans guideline. At standard deceleration rates a motorist could be traveling at 56 mph when entering the bike lane if the turn into the site was made without stopping. An approaching vehicle would be traveling at 53 mph to decelerate prior to stopping. Under this alternative a motorist will begin slowing as they are leaving the Sophia Parkway intersection.

Alternative B. Alternative B eliminates the project's new access to Green Valley Road and uses Amy's Lane for access. This alternative presents a 450 foot long combination of bay taper and right turn lane. This distance meets Caltrans guideline. At standard deceleration rates a motorist could be traveling greater than 55 mph as it crosses the bike lane before turning into Amy's Lane at 10 mph or greater than 55 mph before coming to a stop.

The longest deceleration opportunity (i.e., Alternative B) would create the least amount of potential interference with through traffic on Green Valley Road since the speed of decelerating vehicle and through traffic would be similar where exiting traffic begins to leave the through lane. With the proposed right turn taper the proposed access does not represent a significant safety hazard for eastbound traffic on Green Valley Road and no further improvements are required.

The project shall contribute its fair share to the cost of regional circulation improvements via the existing countywide traffic impact mitigation (TIM) fee program, and no other mitigations are identified.

2019 Background Setting. Growth is expected to occur along Green Valley Road and Sophia Parkway in the next five years. Peak hour turning movement counts for 2019 were calculated under a worst case approach assuming seven projects in the vicinity identified by County staff were completed: Wilson Estates, Green Valley Center, Dixon Ranch, Alto, Summer Brook, Silver Springs and the Equestrian Center.

Green Valley Road from Folsom to Sophia Parkway will be widened to a four-lane roadway. This widening project is scheduled to be ready for construction in Fiscal Year 2016/2017. The *Final Corridor Analysis Report - Green Valley Road* identified that the County is currently processing a project to modify the alignment of the southbound approach of the Green Valley Road / El Dorado Hills Boulevard - Salmon Falls Road intersection that will allow for protected left-turn phasing. This improvement is assumed to be completed by 2019. All other intersections will remain as they currently exist.

With identified improvements all intersections except the Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection will continue to operate at acceptable Levels of Service. This intersection will decline to a LOS F condition in the a.m. peak hour. This intersection is part of the County's CIP projects GP 178 and GP 159 which will widen Green Valley Road to a four lane roadway with left turn lanes. The County has identified the project construction of these projects between Fiscal Year (FY) 2024/25 and FY 2033/34.

2019 Plus Project Specific Impacts. With the addition of project traffic all intersections, except the Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection, will continue to operate at acceptable Levels of Service. This intersection will continue to operate at LOS F in the a.m. peak hour. The project adds 13 trips to the intersection during the a.m. peak hour and 17 trips during the p.m. peak hour. As this increment exceeds the 10 vehicles threshold employed by El Dorado County, the impact is significant. The County has two identified projects in the project vicinity in the next 20 years. The project shall pay their traffic impact fees which will reduce this impact to less than significant.

The westbound Green Valley Road left turn lane at Sophia Parkway will extend beyond Amy's Lane under existing traffic signal operation. The traffic signal timing should be adjusted to provide a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 282' in the a.m. peak hour and 249' in the p.m. peak hour.

2035 Setting. The County's traffic model was used as a basis for developing future volumes and the model was updated by adding proposed projects such as Dixon Ranch that were not in the model.

Two new interchanges will be completed providing access to US 50. These include the Silva Valley Road interchange and the proposed US 50 / Empire Ranch Road – Sophia Parkway interchange in the City of Folsom. With the two interchanges completed the model suggests that traffic volumes in this area could be expected to increase moderately in the future.

Green Valley Road, between Francisco Drive and Deer Valley Road is identified to be widened from two to four lanes by 2035. Intersection configurations in the widened segment are assumed to include a left turn lane, a though lane and a through-right lane. Green Valley Road in the City of Folsom will also be widened to a four-lane roadway.

With identified improvements all intersections in El Dorado County will operate at acceptable Levels of Service. The Green Valley Road – Blue Ravine Road / E. Natoma Street intersection will decline to LOS D (40.4 seconds) in the a.m. peak hour and LOS E (71.5 seconds) in the p.m. peak hour. The City normally has a maximum accepted intersection geometry of dual left lanes, three through lanes and a free right lane on any given approach. Under this geometry the a.m. peak hour can operate at LOS C, however, the p.m. peak hour will operate at LOS D.

No other improvement recommendations have been made.

2035 Plus Project Impacts. With the addition of project traffic all intersections in El Dorado County will operate at acceptable Levels of Service. In Folsom, the Green Valley Road – Blue Ravine Road / E. Natoma Street intersection will decline to LOS D (40.9 seconds) in the a.m. peak hour and LOS E (73.9 seconds) in the p.m. peak hour. However, since the incremental change in delay resulting from the project is less than the 5.0 second threshold employed by Folsom, the project's impact is not significant.

As identified earlier adjusting the traffic signal timing will result in a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 224' in the a.m. peak hour and 246' in the p.m. peak hour.

No mitigations are necessary.

ARCO AM/PM GAS STATION & CONVENIENCE MARKET SITE
TRAFFIC IMPACT ANALYSIS

INTRODUCTION

Study Purpose and Objectives

This study evaluates the traffic impacts for a gas station, convenience store and car wash project located on the southeast quadrant of the Green Valley Road / Sophia Parkway intersection in El Dorado Hills in western El Dorado County. The project includes a gasoline station with 16 fueling positions, a 3,000± square foot convenience store and a car wash. The project includes two right-in, right-out access driveways, one along Green Valley Road and one along Sophia Parkway.

Based on direction from the County this study addresses the following scenarios:

1. Existing (2014) Traffic Conditions
2. Existing (2014) Plus Project Conditions
3. 2019 Traffic Conditions
4. 2019 Plus Project Conditions
5. 2035 Traffic Conditions
6. 2035 Plus Project Conditions

The objective of this study is to identify those roads and street intersections that may be impacted by development of this project.

Project Description

The Arco AM/ PM project includes a gasoline station with 16 fueling positions, a 3,000± square foot convenience store and a car wash. The project is located in the southeast quadrant of the Green Valley Road / Sophia Parkway intersection in El Dorado Hills.

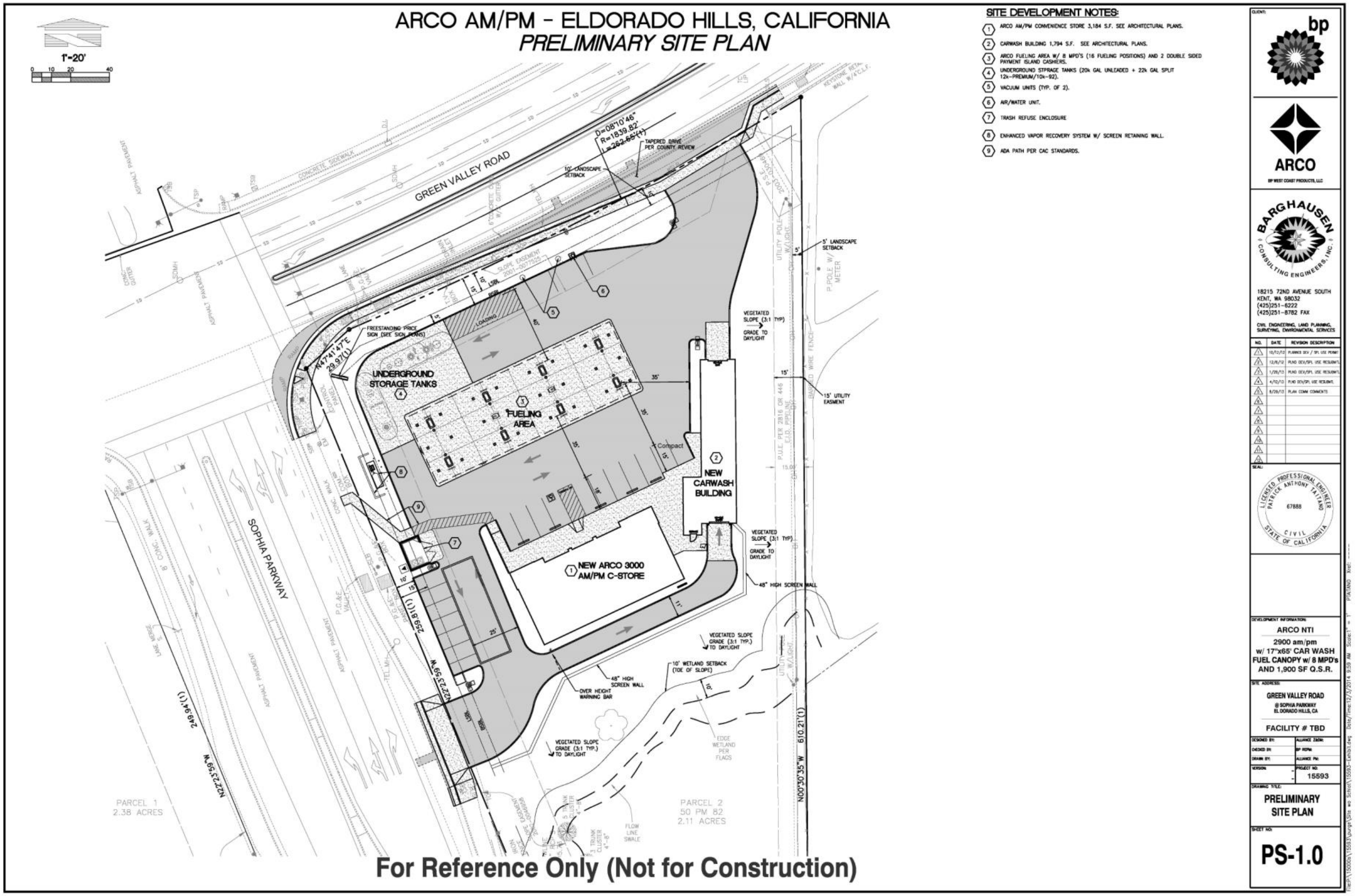
Access to and from the site will be along both Green Valley Road and Sophia Parkway. The site will have right-in, right-out access driveways along Sophia Parkway and along Green Valley Road. U-turns will be permitted at the Green Valley Road / Sophia Parkway intersection to allow westbound Green Valley Road traffic to reach the site. A raised median along Green Valley Road will be constructed to prevent left turns out from the site. Figure 1 presents a map of the vicinity with the project location relative to the project area while Figure 2 presents the proposed project configuration.

VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

1260-002 LT 8/12/2015

figure 1



SITE PLAN

KD Anderson & Associates, Inc.
Transportation Engineers

1260-002 LT 8/12/2015

figure 2

EXISTING SETTING

Study Area

This study addresses traffic conditions at six intersections in the western El Dorado County / City of Folsom area. All study intersections, excluding the Green Valley Road / Francisco Drive intersections were identified in the writ of mandate; the County requested that this intersection be included in the analysis. The text that follows describes the facilities included in this analysis. The quality of traffic flow is typically governed by the operation of major intersections and the daily volume of traffic along the roadways. The study locations include:

Study Area Roadways and Intersections

Green Valley Road is an arterial roadway that extends from the City of Folsom in Sacramento County through the Sophia Parkway intersection beyond the El Dorado Hills area to its terminus at the Placerville Drive / Ray Lawyer Drive intersection in Placerville. Generally the eastern segment of Green Valley Road is a two lane rural highway, and the mile of Green Valley Road west of the Sacramento County line into the City of Folsom is also two lanes. Green Valley Road has been widened to a four lane width for approximately 1½ miles in the area starting just east of the Sacramento County line, passed the project site to a point roughly 1,000 feet east of the Francisco Drive intersection. The posted speed limit on Green Valley Road in the immediate area of the project is 50 mph, and on-street parking is not allowed.

Sophia Parkway is an Arterial street that extends south from its intersection on Green Valley Road for about 4 miles along the Sacramento County – El Dorado County line to its current terminus on Iron Pointe Road north of US 50. The southern portion of this route in Sacramento County is named Empire Ranch Road. In the area of the project Sophia Parkway is a divided two lane road. On-street parking is permitted on Sophia Parkway, and the posted speed limit in the immediate vicinity of the project is 50 mph.

The **Green Valley Road / Blue Ravine Road / E. Natoma Street intersection** is located within the City of Folsom, west of the project site. This intersection provides access between El Dorado Hills and the City of Folsom in Sacramento County. It is the first signalized intersection as you enter the City of Folsom from El Dorado County and is located about 1¼ miles from the site. Green Valley Road approaches the intersection from the north and includes two left turn lanes, three through lanes and a free right turn lane. The road changes name at the intersection to Blue Ravine Road on the south. The Blue Ravine Road approach includes two left turn lanes, two through lanes and two right turn lanes. East Natoma Street is the east-west street and consists of two left turn lanes, two through lanes and a right turn lane on both approaches.

The **Green Valley Road / Sophia Parkway intersection** provides access between El Dorado Hills and the City of Folsom in Sacramento County. This intersection is the last major intersection prior to entering Sacramento County. The intersection is signalized and provides protected left turn lanes, through and through-right lanes along Green Valley Road. The three lane Sophia Parkway approach includes a left lane, a left-through lane and a right only lane; the opposing approach provides access to the Folsom Lake State Recreation Area (SRA). These approaches include a split phase signal. U-turns are currently prohibited on the Green Valley Road approaches.

The **Green Valley Road / Amy's Lane intersection** is a tee intersection about 600' east of the Green Valley Road / Sophia Parkway intersection. This intersection is stop controlled along Amy's Lane which includes a single lane approach to the intersection. Green Valley Road consists of two lanes in each direction and a continuous left turn lane (CLTL) allowing inbound left turns and outbound left turns for westbound traffic.

The **Green Valley Road / Francisco Drive intersection** provides access to the north side of El Dorado Hills. The intersection is signalized and provides dual left turn lanes in the eastbound direction along Green Valley Road; the opposing westbound left is a single left turn lane. Both approaches include dual through lanes and a right turn lane. Northbound Francisco Drive includes dual left turn lanes, a through lane and a through–right lane while the southbound approach includes left, through and right lanes. The intersection operates with protected left turns on all approaches.

The **Green Valley Road / El Dorado Hills Blvd-Salmon Falls Road intersection** provides access to US 50 to the south and access across the American River to the north. The intersection is a four-way signalized intersection. The Green Valley Road approach includes left turn lanes and through-right lanes. The El Dorado Hills Blvd approach includes a left turn lane and a through-right lane while the Salmon Falls Road intersection includes a left-through lane and a right turn lane; the El Dorado Hills Blvd – Salmon Falls Road approaches are split phased while the Green Valley Road approaches are protected.

The **Sophia Parkway / Elmores Way intersection** provides access between Green Valley Road and East Natoma Street in Folsom. The intersection is all-way stop controlled. Sophia Parkway consists of left turn lanes and through-right lanes in both north and southbound directions. Elmores Way includes a left-through-right lane along the eastbound approach and left-through and right only lanes along the westbound approach.

Level of Service Analysis

Intersections. *Level of Service Analysis* has been employed to provide a basis for describing existing traffic conditions and for evaluating the significance of project traffic impacts. Level of Service measures the *quality* of traffic flow and is represented by letter designations from "A" to "F", with a grade of "A" referring to the best conditions, and "F" representing the worst conditions. The guidelines and analyses used for this report follow El Dorado County and City of Folsom standards. Local agencies adopt minimum Level of Service standards for their facilities. Intersection Levels of Service for signalized and all-way stop controlled intersections are based on the weighted average total delay per vehicle for the intersection as a whole based on the thresholds shown in Table 1. The average delay experienced by motorists yielding the right of way is the basis for identification of Level of Service at locations controlled by side street stop signs. These thresholds are also identified in Table 1.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: 2000 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.			

El Dorado County Roadway Segments. Roadway segment LOS was determined using the methodology for multilane highways and two-lane highways outlined in the HCM 2010, Chapters 14 and 15. For multilane highways the calculation of the density of the traffic stream determines level of service. Density measures the proximity of vehicles to each other in the traffic stream. For two-lane highways, the level of service calculation is dependent on the class of the roadway. Class I two-lane highways are highways where motorists expect to travel at high speeds. Class II two-lane highways are lower speed highways and serve scenic routes or areas of rugged terrain. Class III two-lane highways serve moderately developed areas with higher densities of local traffic and roadside access.

Two-lane roadway segments along Green Valley Road in the project vicinity are made up of Class II highways. The LOS is determined based on the percent time spend following (PTSF). This measure is calculated as the percentage of vehicles traveling at headways of less than three seconds. Tables 2 and 3 show the segment LOS criteria for multilane highways and two-lane highways, respectively, according to the HCM 2010.

TABLE 2
LOS CRITERIA FOR MULTILANE HIGHWAY SEGMENTS

LOS	Free Flow Speed (mph)	Density (pc/mi/ln)
A	All	>0 – 11
B	All	>11 – 18
C	All	>18 – 26
D	All	>26 – 35
E	60	>35 – 40
	55	>35 – 41
	50	>35 – 43
	45	>35 – 45
F	Demand Exceeds Capacity	
	60	>40
	55	>41
	50	>43
	45	>45

Source: *Highway Capacity Manual,* Transportation Research Board, Washington D.C, 2010

TABLE 3
LOS CRITERIA FOR TWO-LANE HIGHWAY SEGMENTS

LOS	Percent Time Following
A	0 – 40
B	>40 – 55
C	>55 – 70
D	>70 – 85
E	>85

Source: *Highway Capacity Manual,* Transportation Research Board, Washington D.C., 2010

El Dorado County Intersection Thresholds of Significance. El Dorado County identifies LOS E as the acceptable Level of Service on roadways and state highways within the unincorporated areas of the County in the Community Regions and LOS D in the Rural Centers and Rural Regions except as specified in the General Plan. Four roadway segments, none of which are part of this study, allow LOS F conditions after 2008. The *2010 Highway Capacity Manual* was used to provide a basis for describing existing traffic conditions and for evaluating the significance of project traffic impacts. An impact is considered significant if the project causes an intersection to change from LOS E to LOS F. Worsening of existing facilities already operating at unacceptable Levels of Service is also considered a significant impact. The County's General Plan Policy TC-Xe defines "worsen" as any of the following conditions:

a. a 2% increase in traffic during the a.m. peak hour, p.m. peak hour or daily trips, or
b. the addition of 100 or more daily trips, or
c. the addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour.

City of Folsom Intersection Thresholds. The City of Folsom identifies LOS ‘C’ as the acceptable Level of Service on roadways within the City. The City normally has a maximum accepted intersection geometry of dual left lanes, three through lanes and a free right lane on any given approach. The *2010 Highway Capacity Manual* was used to provide a basis for describing existing conditions and for evaluating the significance of project impacts.

An impact is considered significant if the project causes a signalized intersection to deteriorate from an acceptable LOS to an unacceptable LOS. If an intersection is operating at an unacceptable LOS without the project, a project is not considered to have a significant impact if the increase in delay is 5 seconds or less or the increase in the volume to capacity (v/c) ratio is 0.05.

City of Folsom Roadway Segments. The City of Folsom does use roadway segment criteria as an analysis tool.

Existing Levels of Service

Intersection Levels of Service. Figure 3 presents the existing lane configurations and current peak hour traffic volumes at intersections in the study area. Traffic volumes at the El Dorado County intersections were obtained from the Final Corridor Analysis Report for Green Valley Road prepared by Kittelson & Associates, Inc. in October 2014. Traffic counts at the Green Valley Road / Blue Ravine Road / E. Natoma Street intersection in the City of Folsom were made on December 4, 2014.

Table 4 summarizes current Levels of Service at the seven study area intersections during the a.m. and p.m. peak hours. All of the County intersections operate at an acceptable Level of Service, operating at LOS E or better; the Green Valley Road / Blue Ravine Road / E. Natoma Street intersection in the City of Folsom operates at LOS C.

TABLE 4
EXISTING PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS

Location	Control	AM Peak Hour Intersection		PM Peak Hour Intersection		Traffic Signal Warranted?
		LOS	Average Delay	LOS	Average Delay	
1. Green Valley Rd / Blue Ravine Rd/ E. Natoma St	Signal	C	28.3	C	32.1	N/A
2. Green Valley Rd / Sophia Parkway	Signal	B	16.5	C	22.8	N/A
3. Green Valley Rd / Amy's Lane	NB Stop					No
NB		C	18.7	D	30.7	
WB left		---	---	B	14.4	
4. Green Valley Rd / Francisco Dr	Signal	D	45.1	D	40.3	N/A
5. Green Valley Rd / El Dorado Hills Blvd – Salmon Falls Rd	Signal	E	66.2	E	57.6	N/A
6. Sophia Parkway / Elmores Way	AWS	A	8.9	A	9.8	No

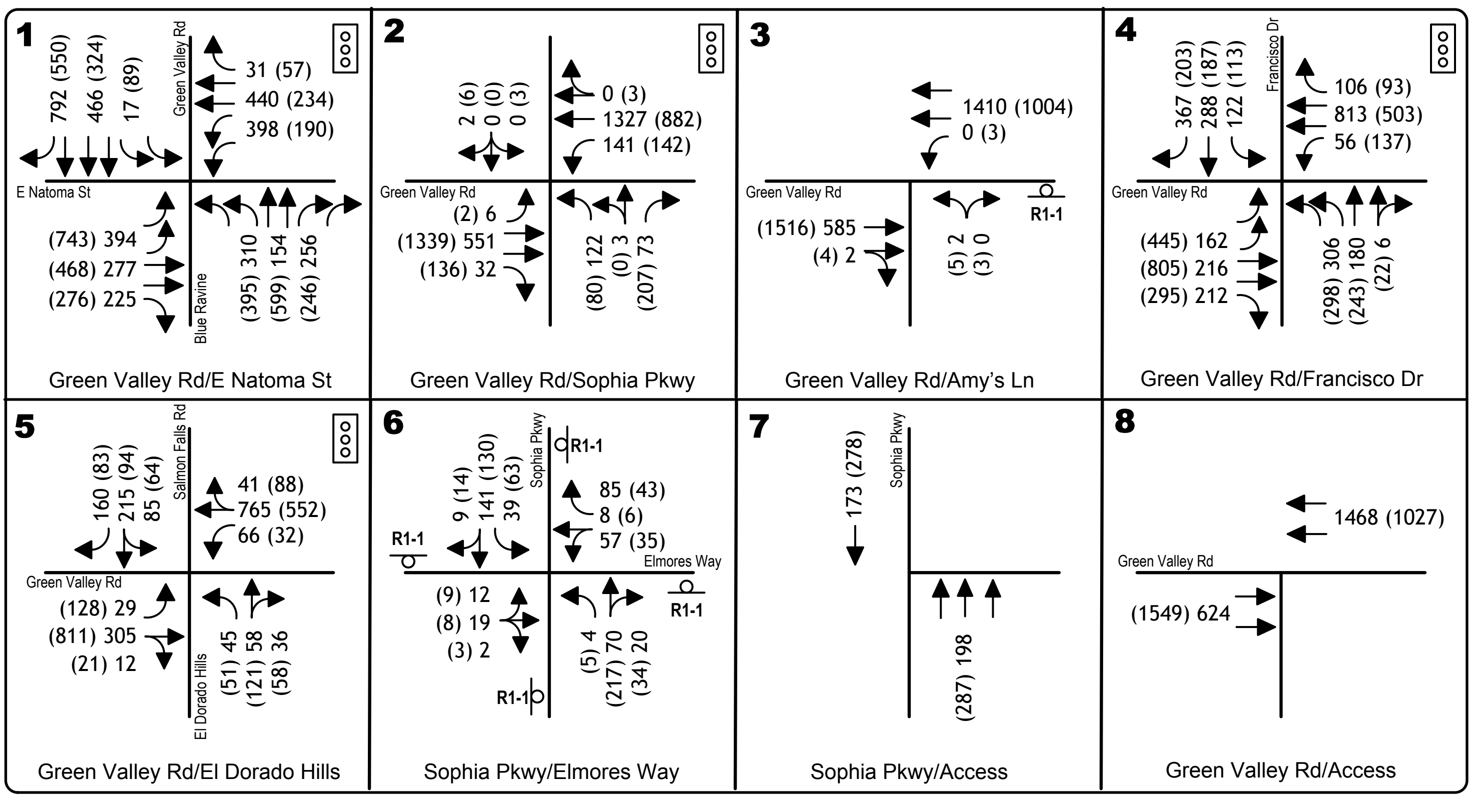
AWS – all way stop, N/A is not applicable

Roadway Levels of Service. The existing roadway west of Sophia Parkway is a four lane section within El Dorado County, but transitions to a two-lane segment entering Folsom. The City of Folsom does not employ a methodology to evaluate roadway segments; however, for purposes of this analysis the County methodology was used west of Sophia Parkway. Table 5 summarizes current Levels of Service at the two roadway segments along Green Valley Road east of west of Sophia Parkway during the peak hour. The roadway segment west of Sophia Parkway operates at LOS E while the segments east of Sophia Parkway operate at LOS B or better.

TABLE 5
EXISTING ROADWAY SEGMENT LEVELS OF SERVICE

Location	Facility Classification	LOS Threshold	Eastbound		Westbound	
			PTSF or Density	LOS	PTSF or Density	LOS
West of Sophia Parkway	Class II Two-Lane	E	95.4%	E	87.7%	E
East of Sophia Parkway	Multi-lane	E	15.7	B	10.4	A

PTSF expressed as a percentage; density expressed in passenger cars per mile per lane



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

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figure 3

Queuing

Vehicles queue on approaches to intersections or at bottlenecks on roadway segments. For this analysis current queueing was investigated through field observation and as a byproduct of Level of Service analysis. El Dorado County policy is to evaluate queueing at study intersections where queue spillback is anticipated based on the potential addition of more than 10 peak hour trips or where the existing left turn lanes are less than 100 feet. Two intersections meet this criteria: Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road where the eastbound left lane of 85' in length and Green Valley Road / Sophia Parkway intersection where the project is expected to add more than 10 turns in both the northbound and westbound left turn lanes.

Queuing was also reviewed for the eastbound Green Valley Road from the Blue Ravine / East Natoma intersection in Folsom to the Sophia Parkway. As noted earlier this roadway segment contained portions where multiple lanes are available as well as a two lane section where the City of Folsom has a widening project scheduled to be ready for construction in Fiscal Year 2016/2017.

This segment of Green Valley Road is roughly 6,400 feet long. There are two eastbound travel lanes leaving the Blue Ravine Road / East Natoma Street intersection, and the second lane and 450 feet from the intersection. The road narrows through a 250 foot long transition area, and from that point a two lane roadway exists for a mile to the across the El Dorado County line. Eastbound Green Valley Road begins to widen roughly 630 feet east of the county line, and the approach to the Sophia Parkway intersection includes a 220 foot long transition area into a separate right turn and second through lane that are 200 feet long.

Observations. A field review was conducted during the weekday p.m. commute period on Friday February 27 to identify the causes and effects of queues that may occur during a typical day. The segment was driven continuously during the peak hour with the following observations:

Traffic leaving the Green Valley Road – Blue Ravine Road / E. Natoma Street intersection, either from the dual left turn lanes on East Natoma Street or from the two northbound lanes on Blue Ravine Road. Due to the phasing of the intersection, these two traffic streams from distinct and separate platoons. Eastbound traffic leaves the intersection traveling at about 40 mph until it reaches the end of the auxiliary through lane where the platoon must begin to merge into a single eastbound lane. Traffic slows down to about 10-15 mph and sometimes stops as the vehicle platoon merges into the single lane. After the immediate effects of this bottleneck, the traffic speed increases, and eastbound traffic and can be going between 30 to 50 mph as it approaches the Sophia Parkway intersection, depending where the vehicle is within the platoon.

As the platoon approaches Sophia Parkway it may slow down depending on what point the signal is within an individual cycle and on the length of the waiting queue. The stopped queue was not observed to extend beyond the four-lane roadway section. The length of the stopped queue varies with the length of green time for the approach's phase in each signal cycle. The green time also varies based on demand from other phases in the traffic signal's cycle. It was observed that the actuated intersection could complete a cycle in as short as 50 seconds when there was a gap in eastbound traffic along Green Valley Road. Conversely the cycle length was observed to extend to as long as about 2 minutes when there wasn't an immediate call for service along Sophia Parkway or in the westbound Green Valley Road left turn lane. The side street and left turn traffic and occasional pedestrian crossings contributed to the length of queue on eastbound Green Valley Road, but the longer signal cycles cleared out the eastbound Green Valley Road queue. Trucks also occasionally slowed eastbound traffic but the longer cycle lengths again cleared the eastbound queues.

Many public comments were received during the Notice of Preparation indicating that there are long queues consistently along eastbound Green Valley Road. The Highway Capacity Manual (HCM) considers a vehicle to be in a queue when it approaches within one car length of a stopped vehicle and is itself about to stop. During our observations we found that the long "queues" are actually "moving" rather than "stopped" queues and they occurred randomly or as the result of slow moving vehicles. It was concluded that the congestion and queuing along eastbound Green Valley Road is caused primarily by the lane drop from two lanes to one lane in the City of Folsom. The operation of the traffic signal at Sophia Parkway was not observed to be an appreciable factor.

Queue Length Calculation. Synchro-SimTraffic software was used to determine queue lengths at the two study locations and to provide a basis for addressing project impacts. The Synchro-SimTraffic simulations were calibrated based on the existing observed stopped queue lengths. The software is a stochastic model, i.e. randomness is present is when running the simulations; therefore, the results will vary within each scenario and between scenarios. Table 6 presents the simulation queuing results for eastbound Green Valley Road at Sophia Parkway and for the three left turn lanes. As shown, the 95th percentile queue at the Green Valley Road / El Dorado Hills Blvd / Salmon Falls already exceeds the available queue length in both the a.m. and p.m. peak hours. The queue calculated in the westbound left turn lane at the Green Valley Road / Sophia Parkway intersection exceeds the available storage. However, because the area east of the intersection is a striped two-way-left turn lane, queue in excess of storage would not be an appreciable problem.

TABLE 6
PROJECTED 95th PERCENTILE QUEUES

Location	**Lane Length (feet)**	**Existing 95th Percentile Queue (feet)**	
		AM	**PM**
2. Green Valley Rd / Sophia Parkway			
Eastbound Green Valley through lanes	-	137	288*
Westbound left turn lane	230	**356**	**293**
Northbound left turn lanes	200	117	89
5. Green Valley Rd / El Dorado Hills Blvd / Salmon Falls Road			
Eastbound left turn lane	85	**96**	**219**

* observed queue length of 225'±
Bold indicates turn lane length exceeded
Length indicated is worst case for multiple lane movements

KDA

Collision History

The Corridor Analysis Report for Green Valley Road summarizes recent collision history along 11 miles of Green Valley Road east of the Sacramento County line. That document noted that over the three-year study period, 158 total crashes were reported within the area from the County line to the Lotus Road intersection. A total of 81 crashes occurred along a roadway segment (i.e. at least 250 feet away from a major intersection). There were more severe crashes reported along the segments than at the intersections within the study area. Rear-end, broadside and fixed-objected were predominant crash types, accounting for approximately 75 percent of all reported crashes. Approximately 70 percent of crashes along the corridor cited "unsafe speed", "unsafe turning movement" and "did not yield right of way" as the contributing factors for crashes.

Collision frequency varied along the corridor. The segment between El Dorado Hills Boulevard and Silva Valley Parkway reported the highest crash rate of 1.22 crashes per Million Vehicle Miles (MVM) along the corridor. The segment of Green Valley Road from Sophia Parkway to Francisco Drive experienced 0.60 crashes per MVM. The Cameron Park Drive and Ponderosa Road intersections at Green Valley Road each reported the highest crash rate of 0.83 per Million Entered Vehicles (MEV). The Sophia Parkway / Green Valley Road intersection experienced a rate of 0.38 crashes per MEV.

The County has established benchmark thresholds for determining when collision history warrants further investigation. For intersections the crash rate threshold is 1.0 MEV while for roadway segments the threshold is 1.7 MVM. However, none of the study intersections or segments exceeds the County's benchmark of average crash rates.

Public Transit

El Dorado County Transit Authority (EDCTA) operates buses throughout El Dorado County. In the vicinity of the site, there is no scheduled bus service.

Non-Motorized Transportation

The available facilities for bicycles and pedestrians in the area of the project were inventoried.

Sidewalks / Trails. Sidewalk is present along both sides of Green Valley Road east of Sophia Parkway. The sidewalk along the south side of Green Valley Road becomes discontinuous beginning about midway between Sophia Parkway and Mormon Island Drive to Francisco Drive. The north side sidewalk is continuous to Mormon Island Drive. Along Sophia Drive sidewalk extends from Green Valley Road to south of Alexandra Drive.

Crosswalks are striped on the eastern and southern legs of the Green Valley Road / Sophia Parkway intersection. The intersection is equipped with pedestrian indications and push buttons.

The Mormon Island Auxiliary Dam (MIAD) to Brown's Ravine Marina Trail is a local trail along the Folsom Lake shore. The trailhead is located off of the northerly extension of Sophia

Parkway beyond Green Valley Road. Parking for the trailhead is limited and most users park along Sophia Parkway and walk to the trailhead.

Bicycle Facilities. Few designated bicycle routes currently exist throughout El Dorado County due to the rural nature of the county, but bicycle lanes have been developed where new construction has occurred.

In the project vicinity, bike lanes already exist along Sophia Parkway. Along Green Valley Road a bike lane does not exist along the eastbound approach to the Sophia Parkway intersection, but lanes are present on all other approaches and departures. The Mormon Island Auxiliary Dam (MIAD) to Brown's Ravine Marina trail is a local trail along the Folsom Lake shore. Parking for the trailhead is limited and most users park along Sophia Parkway to access the site on the north leg of the Green Valley Road / Sophia Parkway intersection.

Current Pedestrian and Bicycle Activity. To gauge the level of activity along and across the Green Valley Road / Sophia Parkway intersection a weekend pedestrian and bicycle count was conducted for a four hour-mid-day period on Sunday March 1, 2015. The weather that day was clear and reasonably warm. Table 7 presents the number of pedestrians and bicyclists that were observed. Most bicycle traffic occurred along Green Valley Road, and the average volume was 14 to 24 bicycles per hour in each direction on Green Valley Road. Some bicycle traffic occurred along Sophia Parkway heading towards Folsom, El Dorado Hills and to the trailhead (i.e., 7 per hour). Conversely, bicycle traffic exiting from the trailhead continued onto Sophia Parkway.

Pedestrian traffic within the intersection occurs in the crosswalks on the east and south legs of the intersections. The count data confirmed that there are many pedestrians crossing Green Valley Road to access the trailhead, with about 100 pedestrian movements during the peak hours. A "Yield to Pedestrians" sign is posted on the near side northbound signal pole to caution motorists making right turns about the potential conflict with pedestrians crossing within the crosswalk.

Parking is currently allowed along both sides of Sophia Parkway. Along the east side, i.e. the project side, parking is allowed adjacent to the existing bike lane, ending about 160' from the intersection; adequate width to allow parking from this point to the intersection is unavailable. Parking along the west side of the roadway is allowed beginning about 160' from the intersection.

The County may want to consider enhancing the crossing to address weekend conditions. One option would be to add a **Leading Pedestrian Interval (LPI)** to the traffic signal's northbound phase. An LPI is a time period when the pedestrian indication tells pedestrians it is okay to begin crossing but holds northbound traffic in red. LPI's enhance the visibility of pedestrians in the intersection since motorists will see them at a location further into the crosswalk when the signal turns green. LPI is typically between 3 to 7 seconds in length; but may be longer when high pedestrian volumes occur.

TABLE 7
PEDESTRIAN / BICYCLE ACTIVITY
AT GREEN VALLEY ROAD / SOPHIA PARKWAY INTERSECTION
SUNDAY MARCH 1, 2015

Time	Northbound				Southbound				Eastbound				Westbound			
	Bikes			Total Peds Crossing	Bikes			Total Peds Crossing	Bikes			Total Peds Crossing	Bikes			Total Peds Crossing
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
11-12	2	1	3	100	0	2	0	Prohibited movement	1	6	1	35	0	21	0	Prohibited movement
12-1	2	3	3	92	0	0	0		3	11	3	23	4	24	0	
1-2	4	3	2	105	0	1	0		2	14	1	21	1	11	0	
2-3	2	3	0	98	0	3	0		0	4	5	34	8	28	0	
Total	28			395	6				57			113	97			
Avg	7 per hour			99 per hr	2 per hr				14 per hour			28 per hr	24 per hour			

EXISTING PLUS PROJECT IMPACTS

Project Characteristics

The development of this project will attract additional traffic to the project site. The amount of additional traffic on a particular section of the street network is dependent upon two factors:

- Trip Generation, the number of new trips generated by the project, and
- Trip Distribution and Assignment, the specific routes that the new traffic takes.

Trip Generation. Trip generation is determined by identifying the type and size of land use being developed. Recognized sources of trip generation data may then be used to calculate the total number of trip ends.

The site includes a 16-fueling position gas station with convenience store and a single lane car wash. The convenience store is about 3,000 square feet. The trip generation of the project was computed using trip generation rates published in *Trip Generation* (Institute of Transportation Engineers, 9th Edition, 2013) based on the projected uses. For this project, Land Use 946, a gas station with convenience store and car wash was used to establish projected trip generation for the site. Table 8 displays the daily, a.m. peak hour, and p.m. peak hour trip generation for the site.

Trips made by fuel trucks and other deliveries would occur throughout the day and are included in the overall site traffic volume forecast. Fuel delivery trucks are expected to make 2-3 trips to the site each week. These trips typically occur during time periods outside of peak commute hours. Other deliveries, typically of merchandise carried at the convenience store, would occur throughout the week and are typically made by single unit trucks. Delivery trucks are expected to make 5-6 trips per week.

Automobile trips generated by commercial projects fit into two categories. Some trips will be made by patrons who would not otherwise be on the local street system and who go out of their way to reach the site. These are **"New"** trips. Other trips will be made by patrons who are already in the roadway network, and are therefore not adding “new” trips to the overall system. **“Pass-by”** trips would be made by motorists who are already driving by the site as part of another trip and simply interrupt a trip already being made to another destination. Peak hour pass-by trips are common on commuter routes as motorists stop on their way home.

ITE research has suggested typical "pass-by" percentages for various retail land uses where appreciable background traffic occurs. The share of project trips falling into each category can varies over the day. Table 8 presents the “pass-by” reductions used for this study. Application of these rates yields a total of 1,369 daily ‘pass-by’ trips, 117 ‘pass-by’ a.m. peak hour trips and 124 ‘pass-by’ p.m. peak hour trips. After accounting for this traffic, the project is expected to generate 1,076 ‘new’ daily trips, 72 ‘new’ a.m. peak hour trips and 98 ‘new’ p.m. peak hour trips.

TABLE 8
PROJECT TRIP GENERATION

Land Use	Amount	Trip Rate: Daily	Trip Rate: AM Peak Hour		Trip Rate: PM Peak Hour		Trips: Daily	Trips: AM Peak Hour		Trips: PM Peak Hour	
Gas Station with Convenience Store and Car Wash (LU 946)	16 FP	152.84	11.84		13.86		2,445	189		222	
			In	**Out**	**In**	**Out**		**In**	**Out**	**In**	**Out**
Gas Station with Convenience Store and Car Wash (LU 946)			0.51	0.49	0.51	0.49		97	92	113	109
Pass-By Trip Reduction – Gas Station1[1]							(1,369)	(60)	(57)	(63)	(61)
Net New Trips[2]							**1,076**	**37**	**35**	**50**	**48**

FP is fueling position
[1] Pass-by rates – 56% Daily, 62% AM, 56% PM
[2] Numbers may not match due to rounding

Trip Distribution & Assignment. The distribution of project traffic was developed based on information derived from the current version of the County-wide travel demand forecasting model. The project was added to the model and a "select zone analysis" traced the path of project trips. This trip trace was the basis for the assignment of new trips.

As noted in Table 9, new project trips are expected to be oriented to the west, south and east in varying percentages, which is also illustrated in Figure 4.

The distribution of "pass-by trips" is shown in Table 10. As indicated, the directionality of those trips will vary based on the volume of background traffic on each road during different periods of the day.

Fuel delivery trucks are expected to reach the site via eastbound Green Valley Road and turn right via the Green Valley Road entrance. These trucks would exit onto Sophia Parkway and turn left or right onto Green Valley Road.

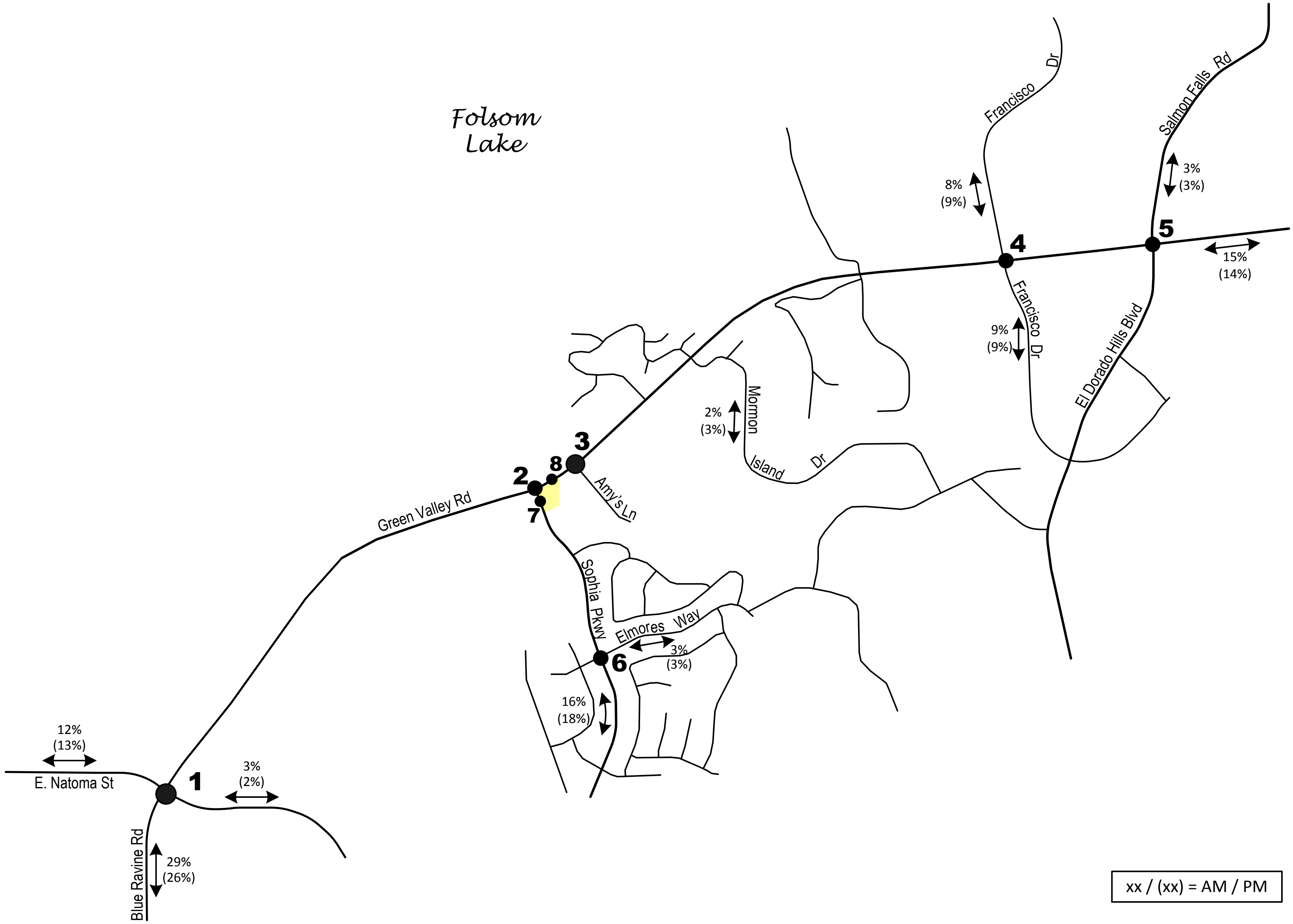
Figure 5 presents "project only" trips.

TABLE 9
PROJECT NEW TRIP DISTRIBUTION

Route	% of Total Trips	
	AM	**PM**
West on Green Valley Road to / from Folsom		
West on E. Natoma Street	12%	13%
East on E. Natoma Street	3%	2%
South on Blue Ravine Road	29%	26%
South to / from Sophia Parkway		
South on Sophia Parkway	16%	18%
East on Elmores Way	3%	3%
East to / from Green Valley Road		
North on Francisco Blvd	8%	9%
South on Francisco Blvd	9%	9%
North on Salmon Falls Road	3%	3%
East on Green Valley Road	15%	14%
South on Mormon Island Drive	2%	3%
Total	100%	100%

TABLE 10
PASS-BY TRIP DISTRIBUTION

Approach - Departure	Percent of Total Trips			
	AM Peak Hour		**PM Peak Hour**	
	In	**Out**	**In**	**Out**
Northbound Sophia Parkway	9%	-	10%	-
Southbound Sophia Parkway	0	8%	0	10%
Westbound Green Valley Road	65%	64%	37%	35%
Eastbound Green Valley Road	26%	28%	53%	55%
Total	100%	100%	100%	100%

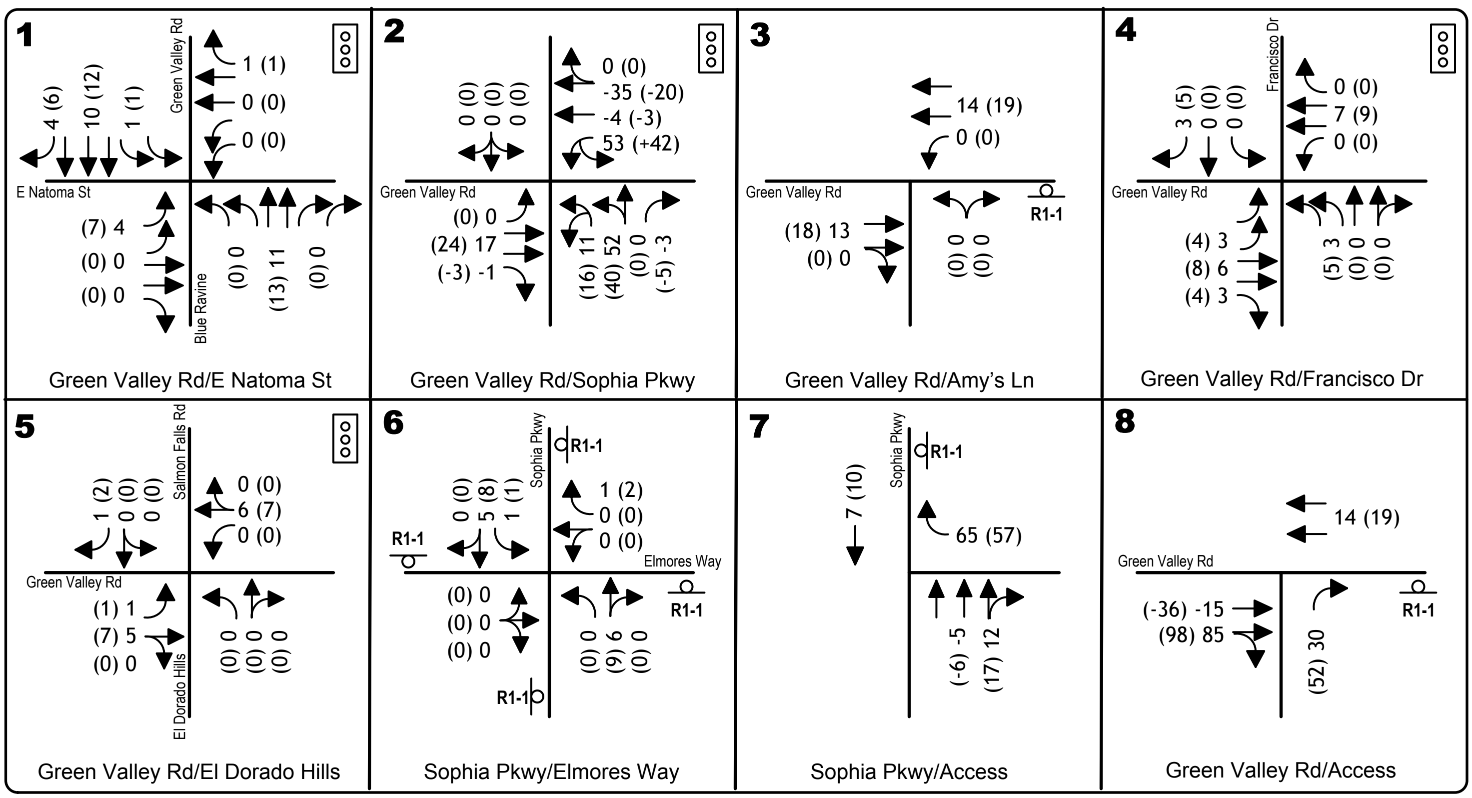


TRIP DISTRIBUTION

KD Anderson & Associates, Inc.
Transportation Engineers

1260-002 LT 8/12/2015

figure 4



PROJECT TRIPS

KD Anderson & Associates, Inc.
Transportation Engineers
1260-002 LT 8/12/2015

figure 5

Project Improvements

Improvements will be made to Green Valley Road and to its intersection with Sophia Parkway as part of the project. A raised median will be installed along the project's Green Valley Road frontage to limited access to right turns in and out only. The existing curb return in the southeast quadrant of the Green Valley Road / Sophia Drive intersection will be reconstructed to accommodate the turning requirements of vehicles making westbound to eastbound U-turns.

The project will install new driveways on Green Valley Road and on Sophia Parkway. The Green Valley Road driveway will replace an existing driveway that was constructed when Green Valley Road was widened to four lanes in this area. Today this driveway serves as an access to the El Dorado Irrigation District (EID) facilities. This driveway will be accompanied by an eastbound approach taper that provides spacing for turning vehicles. The adequacy of this design is considered later in this report section, along with evaluation of two design alternatives.

The General Plans of both El Dorado County and the City of Folsom indicate that Sophia Parkway consists of primarily residential neighborhoods with limited commercial development to the far south. With the proposed land uses there are likely to be few instances when a single-unit truck or 40' truck will deliver goods along Sophia Parkway. It is recommended that all delivery vehicles approach the project site from either Green Valley Road to the west or Sophia Parkway to the south. No U-turns will therefore be required for these vehicles. Commercial vehicles exiting the site can use the driveway along Green Valley Road to travel east or use the Sophia Parkway driveway to travel west.

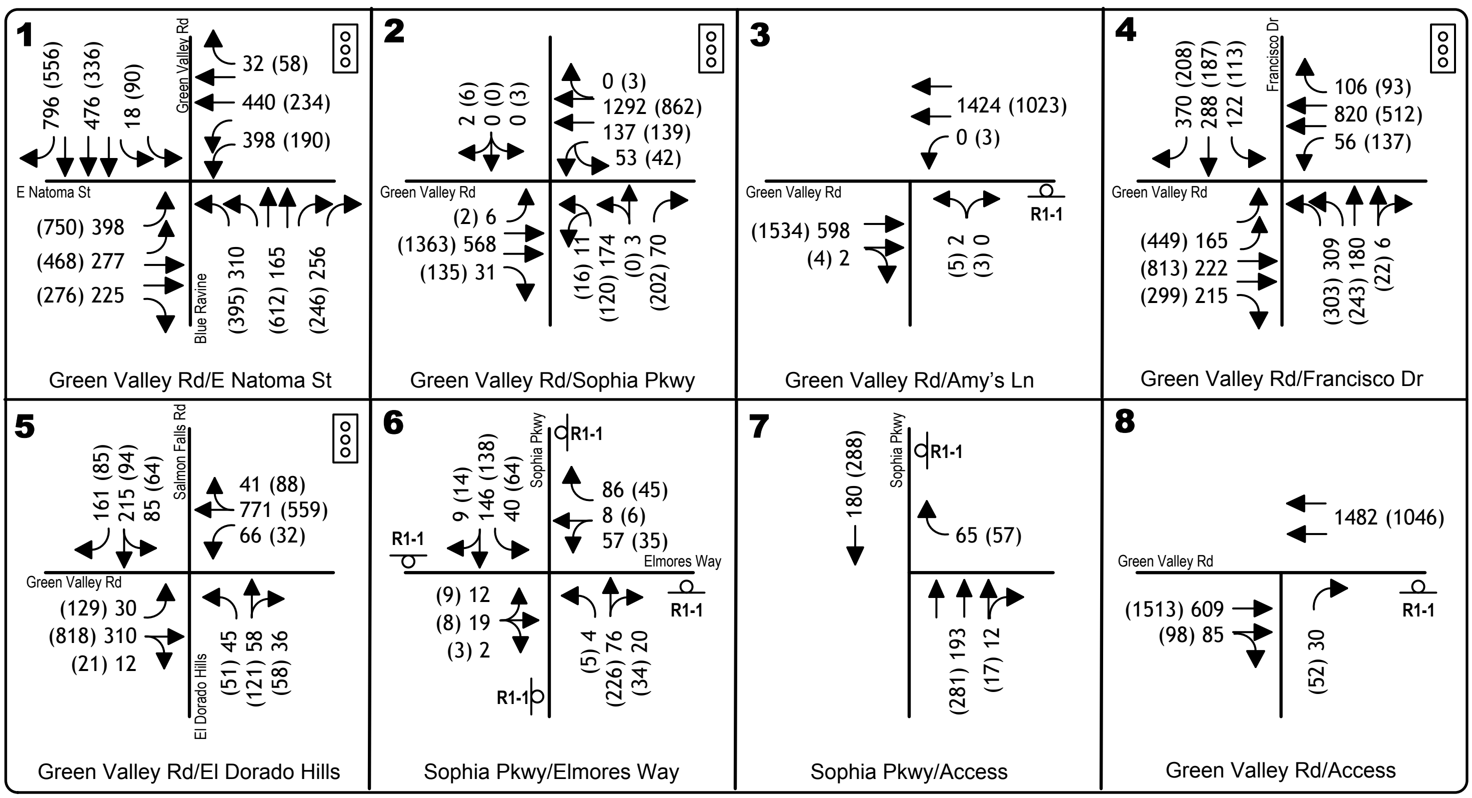
Existing Plus Project Conditions

The impacts of developing and operating the project uses on the site have been identified by superimposing project traffic onto background conditions. Figure 6 displays the "Existing Plus Project" condition for each study intersection in both a.m. and p.m. peak hours. Resulting intersection Levels of Service were then calculated and used as the basis for evaluating potential project impacts.

Intersection Levels of Service. Table 11 displays the peak hour Levels of Service at each study intersection comparing the existing Levels of Service with the Levels of Service occurring with this project. As indicated, the average delays at study intersections will increase slightly, but all intersections will continue to operate within the minimum County and City thresholds (i.e., LOS E or better within the County and LOS C within Folsom).

The Level of Service for motorists waiting to exit the site via the two right-in, right-out driveways on Green Valley Road and Sophia Parkway has also been calculated. The volume of traffic anticipated at each driveway is relatively low, and LOS C or better conditions are forecast at each location during both time periods.

KDA



EXISTING PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

1260-002 LT 8/12/2015

figure 6

TABLE 11
PEAK HOUR INTERSECTION LEVELS OF SERVICE
EXISTING PLUS PROJECT CONDITIONS

<table>
<tr><th rowspan="3">Location</th><th rowspan="3">Control</th><th colspan="4">Existing</th><th colspan="5">Existing Plus Project</th></tr>
<tr><th colspan="2">AM Peak Hour</th><th colspan="2">PM Peak Hour</th><th colspan="2">AM Peak Hour</th><th colspan="2">PM Peak Hour</th><th rowspan="2">Traffic Signal Warranted?</th></tr>
<tr><th>LOS</th><th>Average Delay</th><th>LOS</th><th>Average Delay</th><th>LOS</th><th>Average Delay</th><th>LOS</th><th>Average Delay</th></tr>
<tr><td>1. Green Valley Rd / Blue Ravine Rd/
E. Natoma St</td><td>Signal</td><td>C</td><td>28.3</td><td>C</td><td>32.1</td><td>C</td><td>28.0</td><td>C</td><td>32.6</td><td>N/A</td></tr>
<tr><td>2. Green Valley Rd / Sophia Parkway</td><td>Signal</td><td>B</td><td>16.5</td><td>C</td><td>22.8</td><td>C</td><td>25.6</td><td>C</td><td>29.3</td><td>N/A</td></tr>
<tr><td>3. Green Valley Rd / Amy's Lane</td><td>NB Stop</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>No</td></tr>
<tr><td>NB approach</td><td></td><td>C</td><td>18.7</td><td>D</td><td>30.7</td><td>C</td><td>19.0</td><td>D</td><td>31.4</td><td></td></tr>
<tr><td>WB left turn</td><td></td><td>---</td><td>---</td><td>B</td><td>14.4</td><td>---</td><td>---</td><td>B</td><td>14.6</td><td></td></tr>
<tr><td>4. Green Valley Rd / Francisco Dr</td><td>Signal</td><td>D</td><td>45.1</td><td>D</td><td>40.3</td><td>D</td><td>45.6</td><td>D</td><td>40.8</td><td>N/A</td></tr>
<tr><td>5. Green Valley Rd / El Dorado Hills Blvd –
Salmon Falls Rd</td><td>Signal</td><td>E</td><td>66.2</td><td>E</td><td>57.4</td><td>E</td><td>67.8</td><td>E</td><td>59.0</td><td>N/A</td></tr>
<tr><td>6. Sophia Parkway / Elmores Way</td><td>AWS</td><td>A</td><td>8.9</td><td>A</td><td>9.8</td><td>A</td><td>9.0</td><td>A</td><td>9.9</td><td>No</td></tr>
<tr><td>7. Sophia Parkway / Gas Station Access
WB right turn</td><td>WB Stop</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>B</td><td>10.3</td><td>B</td><td>10.4</td><td>No</td></tr>
<tr><td>8. Green Valley Rd / Gas Station Access
NB right turn</td><td>NB Stop</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>B</td><td>10.7</td><td>C</td><td>18.8</td><td>No</td></tr>
</table>

AWS – all way stop
N/A – not applicable

Roadway Levels of Service. Table 12 summarizes Levels of Service under Existing plus Project conditions along the two roadway segments. The segment west of Sophia Parkway will continue to operate at LOS E conditions in both directions while the segment east of Sophia Parkway will continue to operate at LOS B or better conditions.

TABLE 12
EXISTING PLUS PROJECT
ROADWAY SEGMENT LEVELS OF SERVICE

Location	Facility Classification	LOS Threshold	Eastbound PTSF or Density	Eastbound LOS	Westbound PTSF or Density	Westbound LOS
West of Sophia Parkway	Class II Two-Lane	E	96.1%	E	88.2%	E
East of Sophia Parkway	Multi-lane	E	15.9	B	10.6	A

PTSF expressed as a percentage; density expressed in passenger cars per mile per lane

Queue Impacts. Synchro-SimTraffic software was again used to determine 95th percentile queue lengths at the two study locations under Existing Plus Project condition. Because this software is a stochastic model (i.e., random variation is present when running the simulations) results will vary within each scenario and between scenarios. Table 13 presents the simulation queuing results for eastbound Green Valley Road at Sophia Parkway and for the three left turn lanes. As shown, the 95th percentile queue at the Green Valley Road / El Dorado Hills Blvd / Salmon Falls already exceeds the available queue length in both the a.m. and p.m. peak hours. At this location the project will add 13 a.m. vehicles and 17 p.m. vehicles to the intersection. The resulting queue forecasts will continue to exceed the available storage.

The project is projected to lengthen the stopped queue on the eastbound Green Valley Road approach to the Sophia Parkway intersection. In this instance there is no lane "length" for comparison, and this additional queueing is not significant under County guidelines. The project will extend the queue in the westbound left turn lane.

The project will be installing a raised median on Green Valley Road along the project frontage that will extend beyond the project driveway to prevent left turning movements across Green Valley Road. The median length will be 350'. The westbound left turn lane area can be striped as a dedicated left turn lane or can be some combination of a dedicated left turn lane and the existing continuous left turn lane existing east of the project site. This improvement will increase the available storage for left turns, but under current signal operations the queue would exceed the raised median length.

TABLE 13
PROJECTED 95th PERCENTILE QUEUES

Location	Lane Length (feet)	95th Percentile Queue (feet)			
		Existing		Existing Plus Project	
		AM	PM	AM	PM
2. Green Valley Rd / Sophia Parkway					
Eastbound Green Valley through lanes	-	137	288*	147	292
Westbound left turn lane	230**	**356**	**293**	**387**	**399**
Northbound left turn lanes	200	117	89	78	75
5. Green Valley Rd / El Dorado Hills Blvd / Salmon Falls Road					
Eastbound left turn lane	85	**96**	**219**	**101**	**221**

* observed queue length of 225'±
Bold indicates turn lane length exceeded
** lane will be lengthened to 350 feet with project
Length indicated is worst case for multiple lane movements

Non-Automotive Transportation Impacts. Development of the project may result in a few pedestrians or bicyclists traveling to the site. Pedestrians my walk to the project from the neighborhoods along Sophia Parkway to the south, and it is likely that some pedestrians using the trail system would stop at the project as part of their trip. Similarly, some cyclists using Green Valley Road could be expected to stop at the project as part of ride with origin and destination elsewhere. However, as the number of pedestrians and cyclists attracted specifically to the site is not large, the project's impact on regional pedestrian and bicycle facilities is not significant.

Locally, the project will introduce potential vehicular / pedestrian / bicycle conflicts at its access. This impact condition results at any business with vehicular access to streets where pedestrians and bicyclists are present. Conflicts are minimized by correct driveway access design that minimizes high speed traffic, avoids queuing in driveways and provides adequate sight distance for all transportation modes.

The project will increase the volume of traffic through the Green Valley Road / Sophia Parkway intersection where pedestrian activity can be appreciable, particularly on weekends. Due to the configuration of the site, it is unlikely that the project will add an appreciable number of northbound right turning vehicles on the Sophia Parkway approach to Green Valley Road. However, it would be beneficial to incorporate a Leading Pedestrian Interval (LPI) into the operation of the intersection. This may be accomplished when intersection improvements are constructed.

Emergency Vehicle Access. All project access driveways will be right-in, right-out access. Emergency vehicle response may require a U-turn depending on the direction of approach. The primary access for fire and medical response would be from El Dorado Hills Station 84 located along Francisco Drive, northeast of the project. Secondary response could be from the City of Folsom's Station 38 along Blue Ravine Road (Green Valley Road), west of the project site. Review of truck turning requirements indicates that fire apparatus can complete a U-turn along westbound Green Valley Road. In addition, if fire apparatus had to respond to a call along Sophia Parkway, they can complete a U-turn from northbound Sophia Parkway. Secondary access from Folsom and access from either the north or south approaches of the intersection will be via a right turn into the site along Green Valley Road or Sophia Parkway.

Driveway Operational Analysis

The adequacy of the site access design was evaluated within the context of three factors:

- Sight Distance
- Throat Depth
- Relationship to through traffic

The assessment also considers two alternative access configurations:

Alternative A: Access further east on Green Valley Road
Alternative B: Access via Amy's Lane.

Sight Distance. A sight distance analysis was completed at each project driveway to determine whether adequate sight distance will be present with the project completed. Available sight distance was evaluated using the standards documented in the Caltrans *Highway Design Manual* (HDM). The most significant evaluation parameter is the availability of "**Minimum Safe Stopping Distance**" (MSSD). This criterion is documented in Table 201.1 of the Highway Design Manual and suggests the minimum sight distance that must be available for a motorist to perceive a hazard in the road and come to a stop. This criterion was used to evaluate the project driveways.

The posted speed along Green Valley Road and Sophia Parkway is 50 mph. The corresponding minimum sight distance standard for this speed is 430'.

Green Valley Road has generally a slight uphill grade (4%±) from west of Sophia Parkway to east of the project site. The proposed driveways are located at the far east and south sides of the site, along Green Valley Road and Sophia Parkway. The project frontage is located on the outside edge of a horizontal curve with a radius of about 2,800'. As the driveway is limited to right-in, right-out movements, only sight distance to the west is a consideration. The view from the proposed Green Valley Road driveway looking to the west appears unobstructed with a line of sight of over 600'. That distance includes the view through the Sophia Parkway intersection. Because the available distance exceeds the minimum standard, the sight distance is adequate.

Vehicles turning right or left onto Green Valley Road at Sophia Parkway would also pass through the area of the driveway. Turning vehicles would be traveling at 20-25 mph as they turn onto Green Valley Road, and the available sight distance meets the minimum safe stopping sight distance at that speed (i.e., 150 feet).

Under Alternative A, a driveway would be created roughly 140 feet further east. This driveway would also likely be limited to right turns only. The view looking west from this location is similar to that achieved from the proposed driveway but because of the curve in Green Valley Road may be limited by vehicles queuing in the westbound left turn lane approaching the Sophia Parkway intersection. Looking along a line that avoids the turn lane, the view is roughly 525 feet, which satisfies the minimum standard.

Under Alternative B the existing Amy's Lane intersection on Green Valley Road would be used for project access. Because of the curve in Green Valley Road, the view looking west could also be limited by vehicles queuing in the westbound left turn lane approaching Sophia Parkway. However, the distance available outside of any queue is roughly 600 feet, which satisfies the minimum requirement. Because full access might be perpetuated at Amy's Lane, the view to the east is also a consideration. However, Green Valley Road is straight in this area and the view is unobstructed.

The grade along Sophia Parkway is relatively flat adjacent to the project but transitions into an uphill grade of about 8% about 400' south of the project site. The roadway also includes a reverse curve with the project frontage along the inside of the curve. Due to the road curvature the line of sight needed to meet the MSSD of 430 feet is about 20' behind the sidewalk at the widest point. The topography behind the back of sidewalk consists of a side slope down to existing fallow land. Adequate sight distance will be available with the project.

Vehicle Throat Depth. Adequately designed driveways provide space for entering motorists to maneuver before need to stop to wait for an exiting vehicle to move. This on-site area is called the driveway "throat". An inadequate throat could result in vehicles stopping in the entrance and thereby creating a queue that extends back onto the main street.

The available throat depth at each driveway has been identified. At the Sophia Parkway driveway the distance from Sophia Parkway to the first parking space in the aisle adjoining the store is roughly 60 feet. There is room for two vehicles to wait between the parking area and the street without encroaching onto the sidewalk. At the Green Valley Road driveway the distance between the street and potential stopping points is greater. Assuming travel from the pumps in either direction, roughly 100 feet of queueing area would be available for waiting vehicles before the possibility of conflict with inbound traffic occurred.

The adequacy of throat depth is determined based on the length of the waiting queue anticipated 95% of the time. Under standard queue theory the 95th percentile queue is estimated based on the relationship between average vehicular demand and approach capacity and is a byproduct of the intersection Level of Service analysis. As noted in Table 14, all queues are projected to be one vehicle or less with a 95% confidence interval. Because the available throat exceeds the queue, the throat is adequate.

TABLE 14
DRIVEWAY THROAT DEPTH

Driveway Location	Throat (feet)	AM Peak Hour		PM Peak Hour	
		95th queue (feet)	Adequate?	95th queue (feet)	Adequate?
Green Valley Road	100	25	Yes	25	Yes
Sophia Parkway	60	25	Yes	25	Yes

Relationship to Through Traffic on Eastbound Green Valley Road. Motorists entering and exiting the site will slow to enter the project's driveways. The relationship between vehicles entering the site and through traffic has been evaluated based on Caltrans standards for deceleration, the distance traveled while decelerating and the difference between the speed of through and turning traffic at the point they begin to leave the through travel lane. The relative difference between access under the proposed project and under the access alternatives has been evaluated.

The HDM describes the area available for a vehicle to slow as the Deceleration Lane Length. The HDM notes that the design speed of the roadway approaching the intersection should be the basis for determining deceleration lane length and that it is desirable that deceleration take place out of the through traffic lanes. As noted in Table 15, deceleration lane lengths are given in Table HDM 405.2B, and the transition area / bay taper length is included. The HDM notes that where partial deceleration is permitted on the through lanes, design speeds in Table 405.2B may be reduced 10 miles per hour to 20 miles per hour for a lower entry speed.

HDM deceleration guidelines assume that a turning motorist will come to a complete stop. This is the case for design of right turn lanes at intersections. This represents a "worst case" condition for commercial driveways since most vehicles would be able to turn into a driveway without stopping at a speed of 10 to 15 mph.

TABLE 15
HDM DECELERATION LANE LENGTH

Deceleration Lane Length	
Design Speed (mph)	Length to Stop (feet)
30	235
40	315
50	435
60	530
Source : HDM Table 405.2b	

El Dorado County staff has considered available information regarding the travel speed on Green Valley Road to identify an applicable entry speed. While the posted speed limit is 50 mph, speed surveys note that the 85th percentile speed is 55 mph. After discounting 20 mph for deceleration in the through lanes, a 35 mph entry design is applicable. A 35 mph design would require 275 feet to come to a stop.

The actual distance required to slow a vehicle and turn into a driveway is less than the Caltrans deceleration lane length. Few arriving vehicles would actually stop in Green Valley Road, and a right turn into the project driveway can be made at 10 to 15 mph. Assuming a standard deceleration rate (i.e., 10'/sec2) a vehicle traveling at 55 mph would take 315 feet to slow to 10 mph.

Proposed Access. The proposed project provides a right turn taper along Green Valley Road that is 135 feet long and 8 feet wide. An approaching motorist would begin to move into the 4' bike lane prior to the beginning of the taper and the distance from this point to the driveway is 200 feet. Under this plan a motorist intending to turn into the driveway at 10 mph would slow to 44 mph as they begin to move into the bike lane. A motorist would slow to 43 mph at this point to stop on Green Valley Road. Deceleration will begin within the Sophia Parkway intersection with vehicles slowing from 55 mph to 44 mph. This is within the deceleration guidelines identified in the Highway Design Manual.

Alternative A. Under Alternative A the driveway would be moved off site to a location further east on Green Valley Road. Under this alternative the total length of bay taper and right turn lane is 275 feet. This distance satisfies the Caltrans guideline. At standard deceleration rates a motorist could be traveling at 56 mph when entering the bike lane if the turn into the site was made without stopping. An approaching vehicle would be traveling at 53 mph to decelerate prior to stopping. Under this alternative a motorist will begin slowing as they are leaving the Sophia Parkway intersection.

Alternative B. Alternative B eliminates the project's new access to Green Valley Road and uses Amy's Lane for access. This alternative presents a 450 foot long combination of bay taper and right turn lane. This distance meets Caltrans guideline. At standard deceleration rates a motorist could be traveling greater than 55 mph as it crosses the bike lane before turning into Amy's Lane at 10 mph or greater than 55 mph before coming to a stop.

Evaluation. All three alternatives provide room for eastbound vehicles to decelerate in the area outside of the through travel lanes as they approach the driveway on Green Valley Road. It is important to note that the project's traffic entering at the Green Valley Road driveway will be split between vehicles arriving on westbound Green Valley Road from east of Sophia Parkway and vehicles arriving on eastbound Green Valley Road. During the p.m. peak hour 42 (43%) of the 98 vehicles expected to enter would be making U-turns from westbound Green Valley Road. Because eastbound traffic on Green Valley Road is stopped by the signal when U-turns occur, these vehicles would have no impact on eastbound through traffic.

The longest deceleration opportunity (i.e., Alternative B) would create the least amount of potential interference with through traffic on Green Valley Road since the speed of decelerating vehicle and through traffic would be similar where exiting traffic begins to leave the through lane. With the proposed right turn taper the proposed access does not represent a significant safety hazard for eastbound traffic on Green Valley Road and no further improvements are required.

EXISTING PLUS APPROVED PROJECTS IMPACTS (2019)

Basis for Traffic Volume Forecasts

The analysis of the near term 2019 cumulative condition is intended to consider the impact of this project within the context of the "Existing Plus Approved Projects" (EPAP) conditions by 2019. Under El Dorado County guidelines two alternative approaches are taken to identify Year 2019 volumes and the approach producing the greater volumes was employed.

Forecasts based on Growth Rates. First, Year 2019 traffic volumes based on growth rates derived from the Countywide traffic model were created. Year 2035 forecasts were identified and compared to current volumes to yield annual average growth rates that can be assumed over the short term. Per County guidelines, peak hour roadway segment volumes for 2019 were calculated using straight-line interpolation between current and year 2035 data.

Forecasts based on other Approved / Pending Projects. The second approach involved identification of the specific traffic contributions of other approved and pending development proposals and superimposing those trips onto existing volumes. Seven (7) projects in the vicinity were identified by County staff:

- Wilson Estates
- Green Valley Center
- Dixon Ranch
- Alto
- Summer Brook
- Silver Springs
- The Springs Equestrian Center

The traffic contribution for each of these projects was identified from its traffic study, summed and added to current background volumes to create Existing Plus Approved Projects (EPAP) volumes.

The resulting year 2019 volumes created by growth rates were compared to the EPAP volumes to identify the greater forecast at each intersection. The EPAP volume projections govern at all locations.

Year 2019 Improvements

Lane Configurations. The configuration of study area streets and intersections will remain as they exist today along Green Valley Road except for the two lane portion of Green Valley Road west of Sophia Parkway to the E. Natoma / Blue Ravine Road intersection in Folsom. The City of Folsom will be widening the road to a four-lane roadway, and this work will connect to the existing four-lane section in El Dorado County just west of Sophia Parkway. This widening project is scheduled to be ready for construction in Fiscal Year 2016/2017. The *Final Corridor Analysis Report - Green Valley Road* identified that the County is currently processing a project

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to modify the alignment of the northbound and southbound approaches of the Green Valley Road / El Dorado Hills Boulevard - Salmon Falls Road intersection that allow for protected left-turn phasing at these approaches. This improvement is assumed to be completed by 2019.

EPAP Intersection Levels of Service. Figure 7 displays the EPAP traffic volumes for each study intersection assuming the proposed project is not completed. Table 16 displays the a.m. and p.m. peak hour Levels of Service at each study intersection in the Existing Plus Approved Project (EPAP) conditions. Without completion of the proposed project five of the intersections will operate within County and City of Folsom minimum LOS thresholds, operating at LOS E or better. The Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection will decline to an LOS F condition in the a.m. peak hour. This Level of Service will exceed the El Dorado County LOS E minimum.

Improvements to the intersection are part of the County's CIP projects GP 178 and GP 159 which will widen Green Valley Road to a four lane roadway with left turn lanes. The County has identified the project construction of these projects between Fiscal Year (FY) 2024/25 and FY 2033/34.

Roadway Levels of Service. Table 17 summarizes Levels of Service under 2019 conditions along the two roadway segments. Both roadway segments will operate at LOS B or better conditions.

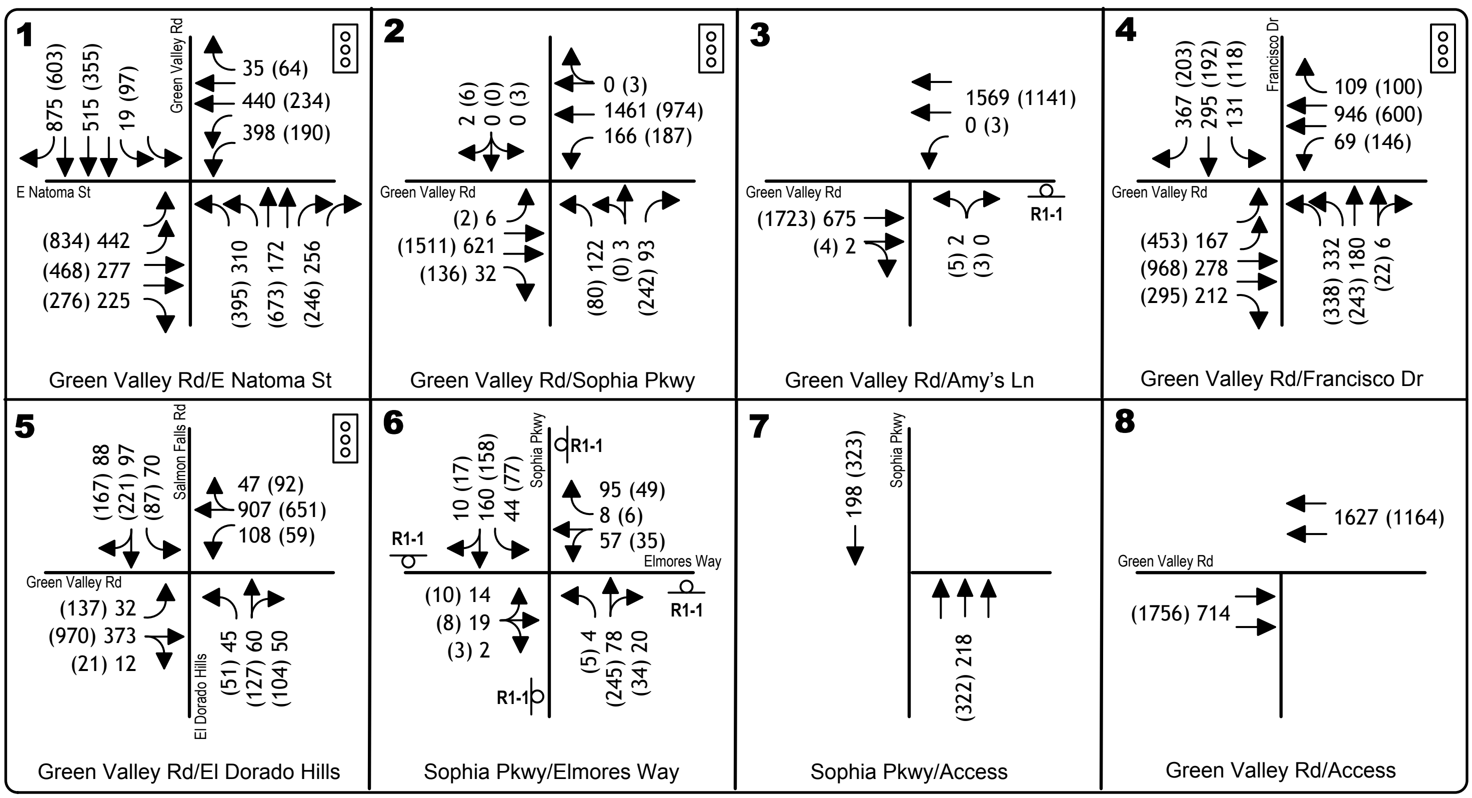
EPAP Plus Project Intersection Levels of Service. Figure 8 displays the "Existing Plus Approved Projects (2019) plus Project" traffic volumes and lane configurations at each study intersection. Table 16 displays the a.m. and p.m. peak hour Levels of Service at each study intersection in this scenario. The same five study intersections that operated within minimum standards without the project will do so if the project is developed. The two project access intersections will operate at acceptable Levels of Service than meet minimum County standards. The Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection will continue to operate at an LOS F condition in the a.m. peak hour.

Worsening the operation of existing facilities already operating at unacceptable Levels of Service is also considered a significant impact. The County's General Plan Policy TC-Xe defines "worsen" as any of the following conditions:

a. A 2% increase in traffic during the a.m. peak hour, p.m. peak hour or daily trips. The project adds 13 trips in the a.m. peak hour and 17 trips in the p.m. peak hour. This represents an increase of 0.6% in the a.m. and 0.7% in the p.m. peak hour. Because the increase is less than the 2.0% threshold, project impact is not significant under this threshold.
b. the addition of 100 or more daily trips , or
c. the addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour. The number of trips added during the a.m. peak hour and the p.m. peak hour exceeds the 10 trip per hour threshold. Thus, the project's incremental impact is significant under this criteria

As noted above, improvements to the Green Valley Road / El Dorado Hills / Salmon Falls Road intersection are included in the CIP. It is beyond the capability of a single development proposal to widen Green Valley Road.

Roadway Levels of Service. Table 17 summarizes Levels of Service under 2019 plus Project conditions along the two roadway segments. Both roadway segments will continue to operate at LOS B or better conditions.



EXISTING PLUS APPROVED PROJECTS (EPAP) - 2019
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

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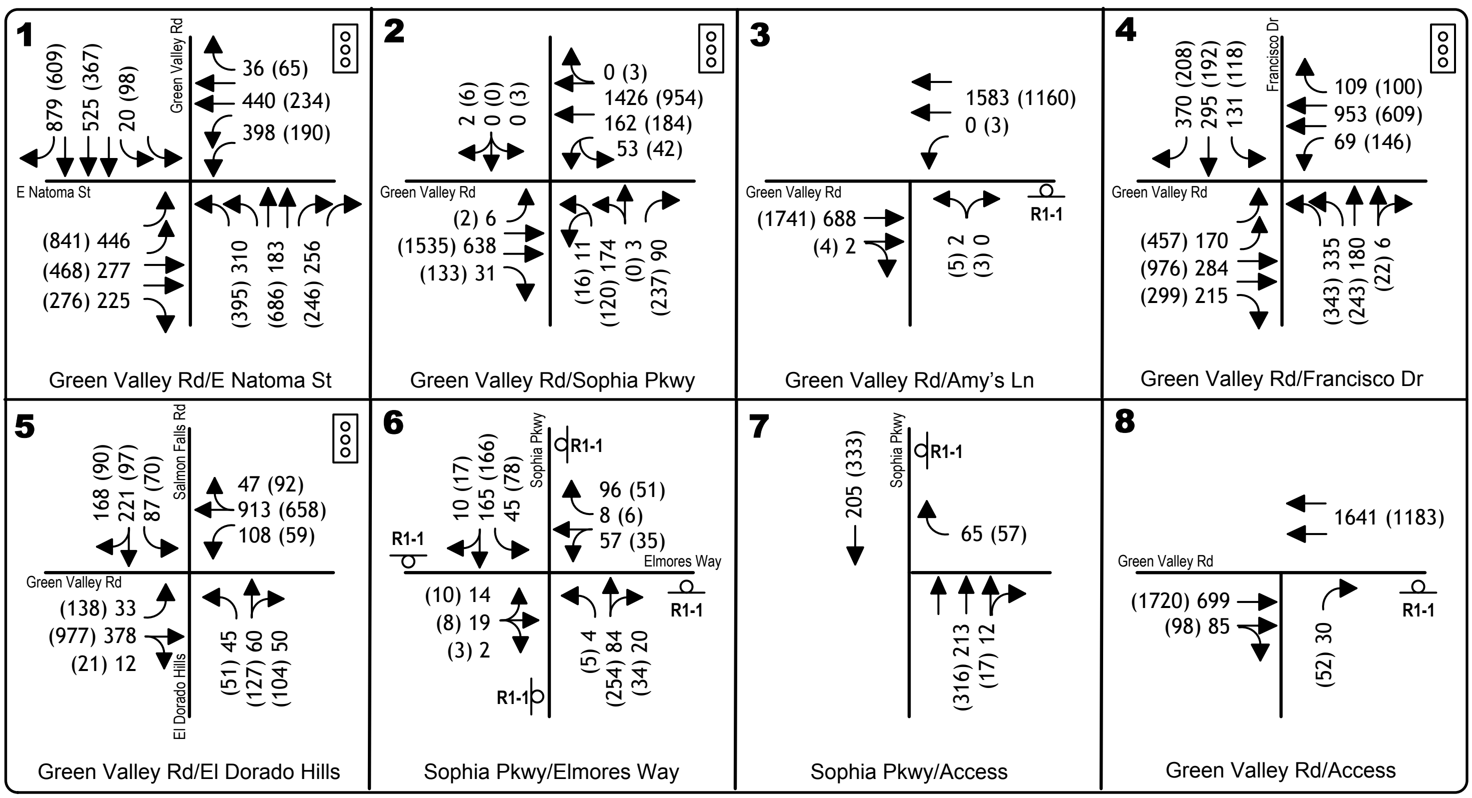

EPAP (2019) PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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TABLE 16
AM / PM PEAK HOUR INTERSECTION LEVELS OF SERVICE
EXISTING PLUS APPROVED PROJECTS (2019) PLUS PROJECT CONDITIONS

		Year 2019 Base				Year 2019 Plus Project				
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Traffic Signal Warranted?
Location	**Control**	**LOS**	**Average Delay**	**LOS**	**Average Delay**	**LOS**	**Average Delay**	**LOS**	**Average Delay**	
1. Green Valley Rd / Blue Ravine Rd/ E. Natoma St	Signal	C	29.3	D	35.6	C	29.6	D	36.3	N/A
2. Green Valley Rd / Sophia Parkway	Signal	C	23.1	D	36.6	C	34.6	D	48.0	N/A
3. Green Valley Rd / Amy's Lane	NB Stop									No
NB		C	20.8	E	38.8	C	21.1	E	39.5	
WB left		---	---	C	16.5	---	---	C	16.7	
4. Green Valley Rd / Francisco Dr	Signal	D	46.9	D	42.0	D	47.9	D	42.5	N/A
5. Green Valley Rd / El Dorado Hills Blvd – Salmon Falls Rd	Signal	**F**	**85.6**	E	67.2	**F**	**87.1**	E	68.5	N/A
6. Sophia Parkway / Elmores Way	AWS	A	9.1	B	10.3	A	9.2	B	10.5	No
7. Sophia Parkway / Gas Station Access										
WB right	NB Stop	N/A	N/A	N/A	N/A	B	10.4	B	10.6	No
8. Green Valley Rd / Gas Station Access										
NB right	WB Stop	N/A	N/A	N/A	N/A	B	11.1	C	22.1	No

AWS is All-way stop
N/A is not applicable
Red Text indicates minimum LOS threshold is exceeded
Highlighted values are a significant impact.

TABLE 17
PEAK HOUR ROADWAY LEVELS OF SERVICE
EXISTING PLUS APPROVED PROJECTS (2019) PLUS PROJECT CONDITIONS

Location	Facility Classification	LOS Threshold	2019 Conditions				2019 plus Project Conditions			
			Eastbound		Westbound		Eastbound		Westbound	
			Density	LOS	Density	LOS	Density	LOS	Density	LOS
West of Sophia Parkway	Multi-lane	E	16.7	B	10.7	A	16.9	B	10.9	A
East of Sophia Parkway	Multi-lane	E	17.8	B	11.8	A	18.0	B	12.0	B
density expressed in passenger cars per mile per lane										

Queue Impacts. Synchro-SimTraffic software was again used to determine 95th percentile queue lengths at the two study locations under EPAP Plus Project condition. Table 18 presents the simulation queuing results for eastbound Green Valley Road at Sophia Parkway and for the three left turn lanes. As shown, without the project the 95th percentile queue at the Green Valley Road / El Dorado Hills Blvd / Salmon Falls will continue to exceed the available queue length in both the a.m. and p.m. peak hours. At this location the project will add a small amount of traffic to the intersection and the resulting queue forecasts are similar to those occurring under the no project condition.

The planned widening of Green Valley Road in the area from Folsom to Sophia Parkway will have an effect on the flow of traffic during commute hours. The bottleneck that is created by the lane drop east of E. Natoma Street will be eliminated, and eastbound vehicles will be able to maintain travel speed from Folsom to the Sophia Parkway intersection. Because the distance is relatively long, some dissipation of the platoons created at the E. Natoma Street / Blue Ravine Road intersection will occur and the rolling queues that are present today will be reduced or eliminated.

In the eastbound through lanes along Green Valley Road approaching Sophia Parkway the queues resulting from the Plus Project condition will add 25' to the a.m. peak hour queue while the p.m. peak hour queue may decline by about 4'. Queues in the westbound left turn lane along Green Valley Road will increase under existing signal operations to over 600' in both peak periods. This would result in queues extending past the Amy's Lane intersection. Queues along northbound Sophia Parkway will not change appreciably, about 104' in the a.m. peak hour.

Queues along Green Valley Road in the eastbound left turn lane at El Dorado Hills Blvd – Salmon Falls Road will decrease by 3' in the a.m. peak hour and increase by 7' in the p.m. peak hour. This is not considered significant as this is less than a car length.

TABLE 18
PROJECTED 95th PERCENTILE QUEUES

Location	Lane Length (feet)	95th Percentile Queue (feet)			
		Existing Plus Approved Projects		EPAP Plus Project	
		AM	PM	AM	PM
2. Green Valley Rd / Sophia Parkway					
Eastbound Green Valley through lanes	-	153	287	178	283
Westbound left turn lane	230	**357**	**339**	**655**	**666**
Northbound left turn lanes	200	126	91	104	92
5. Green Valley Rd / El Dorado Hills Blvd / Salmon Falls Road					
Eastbound left turn lane	85	**131**	**204**	**128**	**211**

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CUMULATIVE IMPACTS (2035)

The analysis of the long term cumulative impact analysis is intended to consider the impact of this project within the context of conditions occurring under the El Dorado County General Plan in the Year 2035.

Basis for Analysis - Regional Traffic Growth. The recently updated countywide regional travel demand forecasting model was used as the basis for developing future volumes forecasts in the study area. As directed by staff, the model's land use set was updated by adding projects such as Dixon Ranch that were not entirely in the model. Regional circulation system improvements are also included including two new interchanges that will be completed to provide additional access to US 50. These are the US 50 / Silva Valley Road interchange that is currently under construction and the US 50 / Empire Ranch Road – Sophia Parkway interchange in the City of Folsom. With the development of regional circulation system improvements the forecasting model suggests that traffic volumes in this area could be expected to increase moderately in the future.

The approach identified under El Dorado County traffic study guidelines as employed to create turning movement forecasts at study intersections. Adjusted future and baseline model volumes were compared and used to create approach growth rates for each intersection. The rates were applied to current a.m. and p.m. peak hour turning movements, and the results were balanced using the techniques contained in the Transportation Research Board's (TRB's) National Cooperative Highway Research Program (NCHRP) Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design*. The NCHRP 255 method applies the individual growth rates to the intersection turning movement volumes and uses an iterative process to balance and adjust the resulting forecasts to match total inbound and outbound flows.

Year 2035 Lane Configurations. The cumulative analysis assumes local improvements. Green Valley Road between Francisco Drive and Deer Valley Road is identified to be widened from two to four lanes by 2035. Intersection configurations in the widened segment are assumed to include a left turn lane, a though lane and a through-right lane. As noted earlier Green Valley Road in the City of Folsom will also be widened to a four-lane roadway.

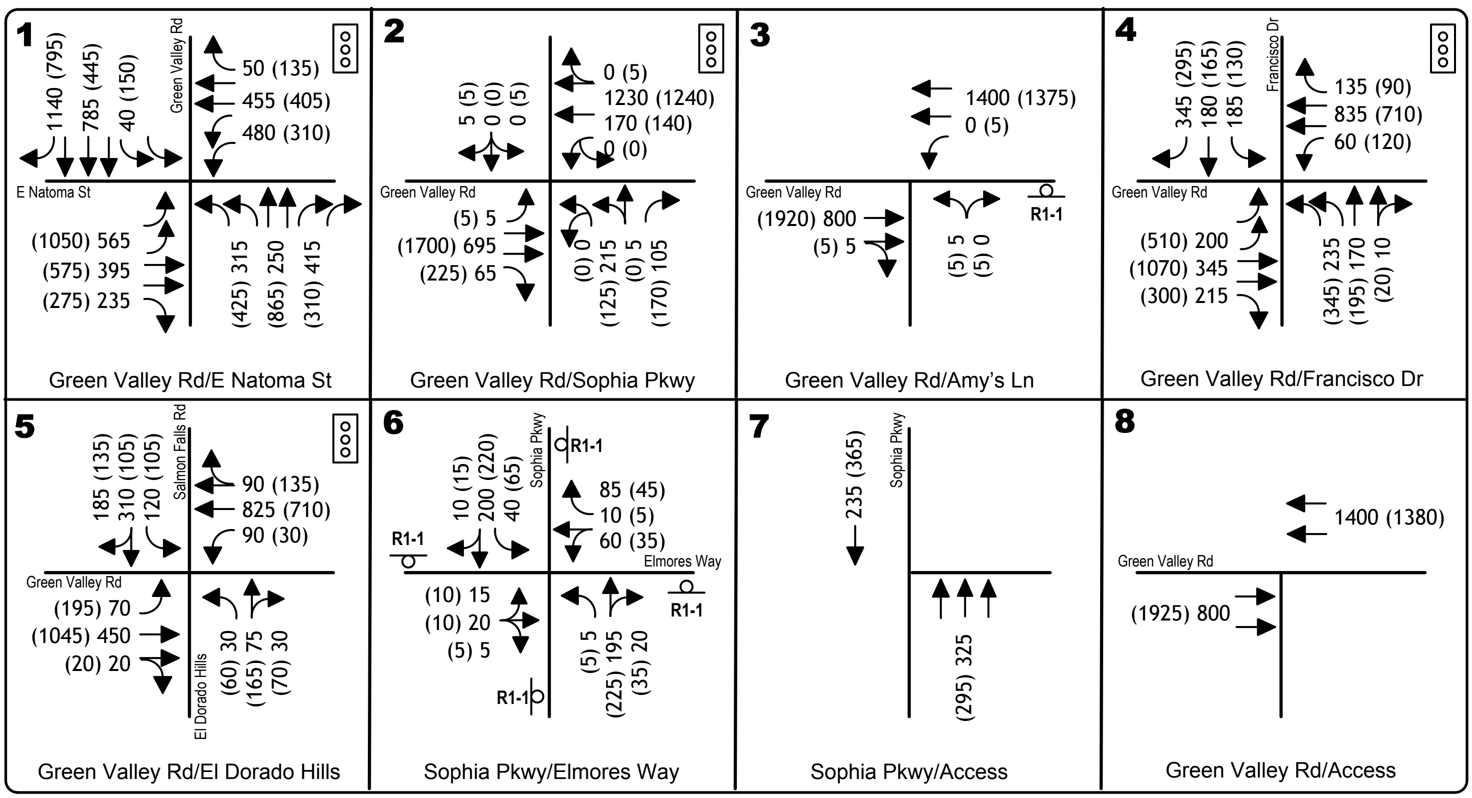
Year 2035 Intersection Levels of Service. Figure 9 displays the Cumulative traffic volumes with lane configurations for each study intersection. Table 19 displays the a.m. and p.m. peak hour Levels of Service for the Year 2035 conditions with and without the project. The five study intersections will operate within County LOS thresholds while the Green Valley Road - Blue Ravine Road / E. Natoma Street intersection in the City of Folsom will decline to LOS D in the a.m. peak hour and LOS E in the p.m. peak hour.

Roadway Levels of Service. Table 20 summarizes Levels of Service under 2035 conditions along the two roadway segments. Both roadway segments will operate at LOS C or better conditions.

Year 2035 Plus Project Intersection Levels of Service. Figure 19 displays the Year 2035 plus Project volumes and lane configurations at each study intersection. All five study intersections in El Dorado County and both of the project access intersections will continue to operate within the minimum County LOS thresholds. The Green Valley Road - Blue Ravine Road / E. Natoma Street intersection in the City of Folsom will continue to operate at an LOS D condition in the a.m. peak hour and an LOS E condition in the p.m. peak hour.

Under Folsom guidelines, if an intersection is operating at an unacceptable LOS without the project, a project is not considered to have a significant impact if the increase in delay is 5.0 seconds or less or the increase in the volume to capacity (v/c) ratio is 0.05. In this case the incremental change in delay is 2.4 seconds which is below the threshold. Thus, the project's impact is not significant.

Roadway Levels of Service. Table 20 summarizes Levels of Service under 2035 plus Project conditions along the two roadway segments. Both roadway segments will continue to operate at LOS C or better conditions.



CUMULATIVE (2035) NO PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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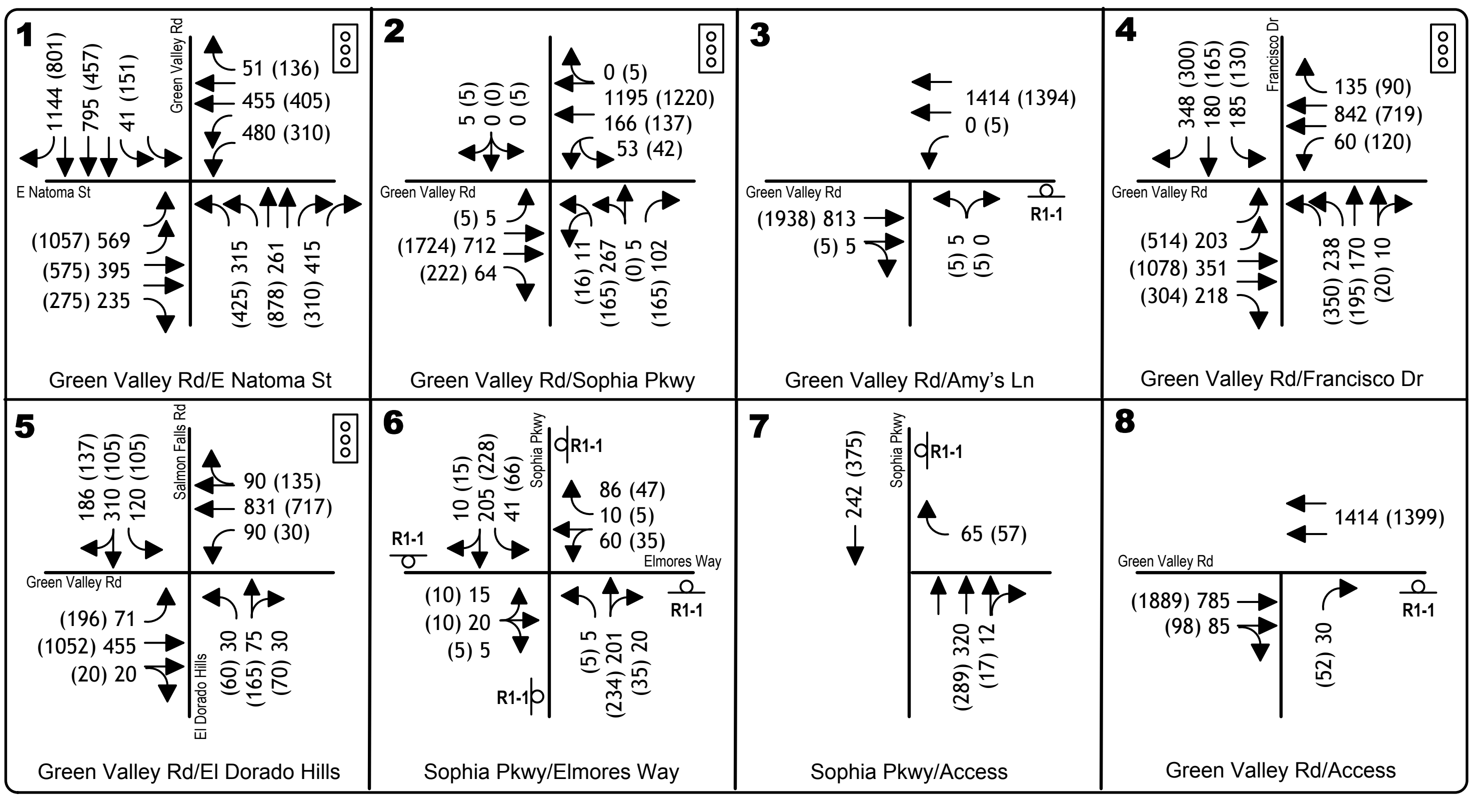
figure 9



CUMULATIVE (2035) PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 10

TABLE 19
AM / PM PEAK HOUR INTERSECTION LEVELS OF SERVICE
YEAR 2035 PLUS PROJECT CONDITIONS

Location	Control	2035 Base				2035 Plus Project				
		AM Peak Hour		PM Peak Hour		2035 AM Peak Hour Plus Project		2035 PM Peak Hour Plus Project		Traffic Signal Warranted?
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	
1. Green Valley Rd / Blue Ravine Rd/ E. Natoma St	Signal	D	40.4	E	71.5	D	40.9	E	73.9	N/A
2. Green Valley Rd / Sophia Parkway	Signal	C	22.8	C	27.6	D	36.2	C	33.9	N/A
3. Green Valley Rd / Amy's Lane	NB Stop									No
NB		C	21.7	E	44.9	C	21.9	E	45.8	
WB left		---	---	C	19.1	---	---	C	19.4	
4. Green Valley Rd / Francisco Dr	Signal	D	42.7	D	51.0	D	43.4	D	52.1	N/A
5. Green Valley Rd / El Dorado Hills Blvd – Salmon Falls Rd	Signal	D	46.0	C	30.9	D	45.8	C	31.1	N/A
6. Sophia Parkway / Elmores Way	AWS	B	10.3	B	10.5	B	10.4	B	10.7	No
7. Sophia Parkway / Gas Station Access										
WB right	NB Stop	N/A	N/A	N/A	N/A	B	11.0	B	10.4	No
8. Green Valley Rd / Gas Station Access										
NB right	WB Stop	N/A	N/A	N/A	N/A	B	11.6	D	25.4	No

AWS – all way stop
N/A – not applicable
LOS threshold exceeded

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TABLE 20
PEAK HOUR ROADWAY LEVELS OF SERVICE
YEAR 2035 PLUS PROJECT CONDITIONS

Location	Facility Classification	LOS Threshold	2035 Conditions				2035 plus Project Conditions			
			Eastbound		Westbound		Eastbound		Westbound	
			Density	LOS	Density	LOS	Density	LOS	Density	LOS
West of Sophia Parkway	Multi-lane	E	19.5	C	13.9	B	19.7	C	14.1	B
East of Sophia Parkway	Multi-lane	E	19.0	C	14.0	B	19.2	C	14.2	B

density expressed in passenger cars per mile per lane

Queue Impacts. Synchro-SimTraffic software was again used to determine 95th percentile queue lengths at the two study locations under Cumulative Plus Project condition. Table 21 presents the simulation queuing results for eastbound Green Valley Road at Sophia Parkway and for the three left turn lanes. As shown, with implementation of the planned four lane widening of Green Valley Road, the existing eastbound left turn lane at the El Dorado Hills Blvd – Salmon Falls Road intersection will be lengthened, although the exact distance is unknown. Thus, the 95th percentile queues at this location will no longer exceed the available queue length in both the a.m. and p.m. peak hours.

Queues along westbound Green Valley Road will exceed 300' under existing signal operations in both peak periods while queues along the eastbound approach will be under 350'. The left turn lane along Sophia Parkway will be about 100' in both peak hours.

TABLE 21
PROJECTED CUMULATIVE 95th PERCENTILE QUEUES

Location	Lane Length (feet)	95th Percentile Queue (feet)			
		Cumulative		Cumulative Plus Project	
		AM	PM	AM	PM
2. Green Valley Rd / Sophia Parkway					
Eastbound Green Valley through lanes	-	217	340	229	336
Westbound left turn lane	230	**252**	217	**333**	**308**
Northbound left turn lanes	200	119	88	115	96
5. Green Valley Rd / El Dorado Hills Blvd / Salmon Falls Rd					
Eastbound left turn lane	>200	131	207	140	202

Bold indicates turn lane length exceeded
Length indicated is worst case for multiple lane movements

FINDINGS / RECOMMENDATIONS / MITIGATIONS

The preceding analysis has identified project impacts that may occur without mitigation. The text that follows identifies a strategy for mitigating the impacts of the proposed project. Recommendations are identified for improving facilities that have deficiencies in the roadway network without the project. If the project causes a significant impact, mitigations are identified for the facility.

Existing Conditions

All study intersections with El Dorado County will operate at LOS E or better. The Green Valley Road – Blue Ravine Road / E. Natoma Street intersection in the City of Folsom will operate at LOS C.

All study roadway segments will operate at LOS E or better with the two-lane segment west of Sophia Parkway operating at LOS E in both directions and the four-lane roadway east of Sophia Parkway operating at LOS B or better in both directions.

The existing 85' eastbound left turn lane at the Green Valley Road / El Dorado Hills Blvd is inadequate to service left turns and is an existing deficiency. This will be improved with the County's CIP Project GP 178 which will widen Green Valley Road to four lanes with turn lanes between Francisco Drive and El Dorado Hills Blvd- Salmon Falls Road.

Rolling queues occur on eastbound Green Valley Road in the two lane segment from the E. Natoma Street intersection in Folsom to the Sophia Parkway intersection. This queueing results from the lane-drop just east of the E. Natoma Street intersection. This segment will be widened by the City of Folsom to a four-lane roadway that will connect to the existing four-lane section just west of Sophia Parkway. This widening project is scheduled to be ready for construction in Fiscal Year 2016/2017.

Appreciable pedestrian activity occurs at the Green Valley Road / Sophia Parkway intersection, particularly on weekends when visitors park along Sophia Parkway and walk to the trail system north of Green Valley Road. The County may want to consider enhancing the crossing to address weekend conditions by adding a Leading Pedestrian Interval (LPI) to the traffic signal's northbound phase.

No other recommendations have been made.

Mitigations for Existing + Project Conditions

The proposed project will contribute to the traffic volumes along Green Valley Road and Sophia Parkway. However, all study intersections will continue to operate at acceptable Levels of Service (i.e., LOS E or better at El Dorado County intersections and at LOS C or better at City of Folsom intersections). Based on Level of Service, the project's impacts are not significant.

The project shall install improvements to restrict project access to right turns only and to facilitate westbound to eastbound U-turns on Green Valley Road. A 350 foot long raised median will be installed on Green Valley Road along the project frontage that will extend beyond the project driveway. To provide the maximum left turn storage for traffic turning onto Sophia Parkway the left turn lane can be striped as a dedicated left turn lane or, can be a combination of a dedicated left turn lane and the existing continuous left turn lane existing east of the project site. The project applicant shall also modify the southeast quadrant of the Green Valley Road / Sophia Parkway intersection to allow westbound U-turn movements. Improvements shall include modifications necessary to maintain the existing traffic signal system.

The westbound Green Valley Road left turn lane at Sophia Parkway will extend to beyond the proposed 350' long raised median under existing traffic signal operation. The traffic signal timing should be adjusted to provide a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 250' in the a.m. peak hour and 203' in the p.m. peak hour.

The existing 85' eastbound left turn lane at the Green Valley Road / El Dorado Hills Blvd is currently inadequate to service left turns. The simulation analysis indicates that the queues projected in the p.m. peak period will be 221' long, about the same as currently experienced. The project shall pay their TIM fees to improve this intersection.

The project applicant shall identify approach and departure routes for delivery vehicles as single unit trucks and larger cannot make a U-turn along westbound Green Valley Road or along northbound Sophia Parkway. All delivery vehicles shall approach the site from either Green Valley Road west of Sophia Parkway or northbound along Sophia Parkway. Outbound delivery vehicles can proceed either east or west on Green Valley Road.

Locally, the project will introduce potential vehicular / pedestrian / bicycle conflicts at its access and the project may increase traffic through the Green Valley Road / Sophia Parkway intersection during periods of high pedestrian activity. A portion of the curb along Sophia Parkway adjoining the project driveway should be marked as "No Parking". This action would allow motorists to see approaching vehicles well in advance and can then focus their attention on pedestrians. As noted in the Existing Conditions the County should consider incorporating a Leading Pedestrian Interval (LPI) into the operation of the intersection. This may be accomplished when intersection improvements under Existing plus Project are constructed.

Driveway Operational Analysis. The adequacy of the site access design was evaluated within the context of three factors:

- Sight Distance
- Throat Depth
- Relationship to through traffic

The assessment also considers two alternative access configurations:

Alternative A: Access further east on Green Valley Road
Alternative B: Access via Amy's Lane.

The proposed access and the two access alternatives will provide sight distance that meets the minimum requirements of the Caltrans *Highway Design Manual* (HDM) Table 201.1 "Minimum Safe Stopping Distance" per the 50 mph posted speed.

The Sophia Parkway driveway has a 60 foot throat, and at the Green Valley Road driveway roughly 100 feet of queueing area would be available for waiting vehicles before the possibility of conflict with inbound traffic occurred. The 95^{th} percentile queue at each location is one vehicle or less (i.e., <25 feet), and the available throat is adequate.

Motorists entering and exiting the site will slow to enter the project's driveways. The relationship between vehicles entering the site and through traffic has been evaluated based on Caltrans standards for deceleration, and the relative difference between access under the proposed project and under the access alternatives has been evaluated.

The HDM describes the area available for a vehicle to slow as the Deceleration Lane Length. El Dorado County staff has considered available information regarding the travel speed Green Valley Road to identify an applicable entry speed. While the posted speed limit is 50 mph, speed surveys note that the 85^{th} percentile speed is 55 mph. After discounting 20 mph for deceleration in the through lanes, a 35 mph entry design is applicable. A 35 mph design would require 275 feet to come to a stop.

The proposed project provides a right turn taper along Green Valley Road that is 135 feet long and 8 feet wide. An approaching motorist would begin to move into the 4' bike lane prior to the beginning of the taper and the distance from this point to the driveway is 200 feet. Under this plan a motorist intending to turn into the driveway at 10 mph would slow to 44 mph as they begin to move into the bike lane. A motorist would slow to 43 mph at this point to stop on Green Valley Road. Deceleration will begin within the Sophia Parkway intersection with vehicles slowing from 55 mph to 44 mph. This is within the deceleration guidelines identified in the Highway Design Manual.

Under Alternative A the driveway would be moved off site to a location further east on Green Valley Road. Under this alternative the total length of bay taper and right turn lane is 275 feet. This distance satisfies the Caltrans guideline. At standard deceleration rates a motorist could be traveling at 56 mph when entering the bike lane if the turn into the site was made without stopping. An approaching vehicle would be traveling at 53 mph to decelerate prior to stopping. Under this alternative a motorist will begin slowing as they are leaving the Sophia Parkway intersection.

Alternative B. Alternative B eliminates the project's new access to Green Valley Road and uses Amy's Lane for access. This alternative presents a 450 foot long combination of bay taper and right turn lane. This distance meets Caltrans guideline. At standard deceleration rates a motorist could be traveling greater than 55 mph as it crosses the bike lane before turning into Amy's Lane at 10 mph or greater than 55 mph before coming to a stop.

The longest deceleration opportunity (i.e., Alternative B) would create the least amount of potential interference with through traffic on Green Valley Road since the speed of decelerating vehicle and through traffic would be similar where exiting traffic begins to leave the through lane. With the proposed right turn taper the proposed access does not represent a significant safety hazard for eastbound traffic on Green Valley Road and no further improvements are required.

The project shall contribute its fair share to the cost of regional circulation improvements via the existing countywide traffic impact mitigation (TIM) fee program, and no other mitigations are identified.

2019 Conditions

Recommendations. All intersections, except the Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection will continue to operate at acceptable Levels of Service. This intersection will decline to an LOS F condition in the a.m. peak hour. This intersection is part of the County's CIP projects GP 178 and GP 159 which will widen Green Valley Road to a four lane roadway with left turn lanes. The County has identified the project construction of these projects between Fiscal Year (FY) 2024/25 and FY 2033/34.

No other improvements are recommended for this background condition.

Mitigations for 2019 + Project Conditions

All intersections, except the Green Valley Road / El Dorado Hills Blvd – Salmon Falls Road intersection will continue to operate at acceptable Levels of Service. This intersection will continue to operate at LOS F in the a.m. peak hour. The project will add 13 vehicles to the intersection in the a.m. peak hour and 17 during the p.m. peak hour. As this increment exceeds the 10 vehicles threshold employed by El Dorado County, the impact is significant. The County has two identified projects in the project vicinity in the next 20 years. The project shall pay their traffic impact fees which will reduce this impact to less than significant.

The westbound Green Valley Road left turn lane at Sophia Parkway will extend beyond Amy's Lane under existing traffic signal operation. The traffic signal timing should be adjusted to provide a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 282' in the a.m. peak hour and 249' in the p.m. peak hour.

No other mitigations are required.

2035 Conditions

Recommendations. All intersections in El Dorado County will operate at acceptable Levels of Service. The Green Valley Road – Blue Ravine Road / E. Natoma Street intersection will

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decline to LOS D (40.4 seconds) in the a.m. peak hour and LOS E (71.5 seconds) in the p.m. peak hour. The City normally has a maximum accepted intersection geometry of dual left lanes, three through lanes and a free right lane on any given approach. Under this geometry the a.m. peak hour can operate at LOS C, however, the p.m. peak hour will operate at LOS D.

No other improvement recommendations have been made.

Mitigations for 2035 + Project Conditions

All intersections in El Dorado County will operate at acceptable Levels of Service. The Green Valley Road – Blue Ravine Road / E. Natoma Street intersection will decline to LOS D (40.9 seconds) in the a.m. peak hour and LOS E (73.9 seconds) in the p.m. peak hour. Since the incremental change in delay of 2.4 seconds is less than the 5.0 second threshold employed by the City of Folsom, the project's impact is not significant.

As identified earlier adjusting the traffic signal timing will result in a longer green cycle for the westbound left turn. This will result in a reduction of the left turn lane to 224' in the a.m. peak hour and 246' in the p.m. peak hour.

No mitigations are necessary.

REFERENCES

1. Transportation Research Board, *Highway Capacity Manual*, 2010
2. Transportation Research Board, Special Report 209, *Highway Capacity Manual*, 2000
3. Caltrans *Highway Design Manual*, 2012
4. El Dorado County Department of Transportation*, 2012 West Slope Road / Bridge Capital Improvement Program*, http://www.edcgov.us/Government/DOT/CIP.aspx
5. California *Manual of Uniform Traffic Control Devices*, 2014
6. Institute of Transportation Engineers. 2013. *Trip Generation*, 9th Edition. Washington, D.C.
7. Transportation Research Board. 1982. National Cooperative Highway Research Program (NCHRP) Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design.* Washington, D.C.
8. Telephone and E-mail correspondence, Natalie Porter, El Dorado County, January-February, 2015
9. Telephone and E-mail correspondence, Mark Rackovan, City of Folsom, February-March, 2015
10. Telephone and E-mail correspondence, Chirag Safi, Kittelson & Associates, Inc., January-February, 2015
11. *Final Corridor Analysis Report, Green Valley Road*, by Kittelson & Associates, Inc., October, 2014
12. Wilson Estates Final Traffic Impact Analysis (WO#38), by Kimley-Horn and Associates, Inc., March 3, 2011
13. *Green Valley Center Final Traffic Impact Analysis (WO#39)*, by Kimley-Horn and Associates, Inc., March 3, 2011
14. *Dixon Ranch Final Traffic Impact Analysis (WO#41)*, by Kimley-Horn and Associates, Inc., May 9, 2012
15. *Sparks Property (Alto) Draft Traffic Impact & Operations Analysis*, by Kimley-Horn and Associates, Inc., March 7, 2006
16. *Summer Brook Draft Traffic Impact & Operations Analysis*, by Kimley-Horn and Associates, Inc., April, 2007
17. *The Springs Equestrian Center Traffic Impact Assessment*, by KD Anderson and Associates, Inc., August, 2014
18. Institute of Transportation Engineers. 2014. *Trip Generation Handbook*, 3rd Edition. Washington, D.C.

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APPENDICES

TECHNICAL APPENDIX

FOR

ARCO AM/PM GAS STATION & CONVENIENCE MARKET SITE
TRAFFIC IMPACT STUDY

Green Valley Road at Sophia Parkway
El Dorado Hills, El Dorado County CA

Prepared For:

THE STRAUCH COMPANIES
301 Natomas Street, Suite 202
Folsom, CA 95630

Prepared By:

KDAnderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, California 95650
(916) 660-1555

August 12, 2015

1260-002

ALL TRAFFIC DATA

1260-002

(916) 771-8700
orders@atdtraffic.com

City of El Dorado Hills
Peds & Bikes on Unshifted
Nothing on Bank 1
Nothing on Bank 2

File Name : 15-7178-001 Sophia Parkway-Green Valley Road.ppd
Date : 3/1/2015

Unshifted Count = Peds & Bikes

	Access Road Southbound					Green Valley Road Westbound					Sophia Parkway Northbound					Green Valley Road Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Ped Total
11:00	0	2	0	0	2	0	7	0	20	7	2	0	1	14	3	0	1	1	0	2	14	34
11:15	0	0	0	0	0	0	11	0	33	11	0	0	0	6	0	0	5	0	0	5	16	39
11:30	0	0	0	0	0	0	2	0	21	2	0	1	2	3	3	0	5	0	0	5	10	24
11:45	0	0	0	0	0	0	1	0	26	1	0	0	0	12	0	1	5	0	0	6	7	38
Total	0	2	0	0	2	0	21	0	100	21	2	1	3	35	6	1	16	1	0	18	47	135
12:00	0	0	0	0	0	0	9	0	23	9	2	0	0	3	2	3	2	0	0	5	16	26
12:15	0	0	0	0	0	0	5	0	27	5	0	3	3	10	6	0	5	2	0	7	18	37
12:30	0	0	0	0	0	4	3	0	19	7	0	0	0	2	0	0	3	1	0	4	11	21
12:45	0	0	0	0	0	0	7	0	23	7	0	0	0	8	0	0	1	0	0	1	8	31
Total	0	0	0	0	0	4	24	0	92	28	2	3	3	23	8	3	11	3	0	17	53	115
13:00	0	0	0	0	0	0	4	0	36	4	2	3	1	9	6	0	7	0	0	7	17	45
13:15	0	0	0	0	0	0	3	0	20	3	0	0	1	0	1	0	5	1	0	6	10	20
13:30	0	0	0	0	0	0	3	0	22	3	1	0	0	3	1	2	1	0	0	3	7	25
13:45	0	1	0	0	1	1	1	0	27	2	1	0	0	9	1	0	1	0	0	1	5	36
Total	0	1	0	0	1	1	11	0	105	12	4	3	2	21	9	2	14	1	0	17	39	126
14:00	0	2	0	0	2	1	8	0	24	9	0	0	0	8	0	0	1	2	0	3	14	32
14:15	0	0	0	0	0	4	9	0	19	13	0	2	0	8	2	0	1	2	0	3	18	27
14:30	0	0	0	0	0	1	4	0	32	5	2	0	0	11	2	0	1	0	0	1	8	43
14:45	0	1	0	0	1	2	7	0	23	9	0	1	0	7	1	0	1	1	0	2	13	30
Total	0	3	0	0	3	8	28	0	98	36	2	3	0	34	5	0	4	5	0	9	53	132
Grand Total	0	6	0	0	6	13	84	0	395	97	10	10	8	113	28	6	45	10	0	61	192	508
Apprch %	0.0%	100.0%	0.0%			13.4%	86.6%	0.0%			35.7%	35.7%	28.6%			9.8%	73.8%	16.4%				
Total %	0.0%	3.1%	0.0%		3.1%	6.8%	43.8%	0.0%		50.5%	5.2%	5.2%	4.2%		14.6%	3.1%	23.4%	5.2%		31.8%	100.0%	

PM PEAK HOUR	Access Road Southbound					Green Valley Road Westbound					Sophia Parkway Northbound					Green Valley Road Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 12:15 to 13:15																					
Peak Hour For Entire Intersection Begins at 12:15																					
12:15	0	0	0	0	0	0	5	0	27	5	0	3	3	10	6	0	5	2	0	7	18
12:30	0	0	0	0	0	4	3	0	19	7	0	0	0	2	0	0	3	1	0	4	11
12:45	0	0	0	0	0	0	7	0	23	7	0	0	0	8	0	0	1	0	0	1	8
13:00	0	0	0	0	0	0	4	0	36	4	2	3	1	9	6	0	7	0	0	7	17
Total Volume	0	0	0	0	0	4	19	0	105	23	2	6	4	29	12	0	16	3	0	19	54
% App Total	0.0%	0.0%	0.0%			17.4%	82.6%	0.0%			16.7%	50.0%	33.3%			0.0%	84.2%	15.8%			
PHF	.000	.000	.000		.000	.250	.679	.000		.821	.250	.500	.333		.500	.000	.571	.375		.679	.750

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	394	277	225	398	440	31	310	154	256	17	466	792
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	428	301	245	433	478	34	337	167	278	18	507	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	565	859	384	554	848	379	453	1118	880	35	988	308
Arrive On Green	0.16	0.24	0.24	0.16	0.24	0.24	0.13	0.32	0.32	0.01	0.19	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	428	301	245	433	478	34	337	167	278	18	507	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	9.1	5.4	10.6	9.2	9.1	1.3	7.2	2.6	5.8	0.4	6.8	0.0
Cycle Q Clear(g_c), s	9.1	5.4	10.6	9.2	9.1	1.3	7.2	2.6	5.8	0.4	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	565	859	384	554	848	379	453	1118	880	35	988	308
V/C Ratio(X)	0.76	0.35	0.64	0.78	0.56	0.09	0.74	0.15	0.32	0.52	0.51	0.00
Avail Cap(c_a), veh/h	1596	1586	709	922	1595	714	922	2936	2312	922	4185	1303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	24.0	26.0	30.8	25.6	22.6	32.0	18.8	19.9	37.7	27.6	0.0
Incr Delay (d2), s/veh	2.1	0.2	1.8	2.4	0.6	0.1	2.4	0.1	0.2	11.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.4	2.7	4.8	4.6	4.5	0.6	3.6	1.3	2.2	0.2	3.2	0.0
LnGrp Delay(d),s/veh	32.6	24.2	27.7	33.3	26.2	22.7	34.4	18.9	20.1	49.3	28.0	0.0
LnGrp LOS	C	C	C	C	C	C	C	B	C	D	C	
Approach Vol, veh/h		974			945			782			525	
Approach Delay, s/veh		28.8			29.3			26.0			28.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	20.9	16.8	24.3	5.3	30.2	17.1	24.0
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	9.2	8.8	11.2	12.6	2.4	7.8	11.1	11.1
Green Ext Time (p_c), s	0.9	6.0	1.1	6.0	0.0	6.0	1.5	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	28.3
HCM 2010 LOS	C

Notes
User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	551	32	141	1327	0	122	3	73	0	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	7	619	36	178	1680	0	164	0	96	0	0	4
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	84	1915	779	205	2165	0	353	0	151	0	0	9
Arrive On Green	0.05	0.55	0.55	0.11	0.61	0.00	0.10	0.00	0.10	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	7	619	36	178	1680	0	164	0	96	0	0	4
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	7.1	0.9	7.2	25.7	0.0	3.1	0.0	4.4	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	7.1	0.9	7.2	25.7	0.0	3.1	0.0	4.4	0.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	84	1915	779	205	2165	0	353	0	151	0	0	9
V/C Ratio(X)	0.08	0.32	0.05	0.87	0.78	0.00	0.46	0.00	0.63	0.00	0.00	0.46
Avail Cap(c_a), veh/h	177	1915	779	205	2624	0	1186	0	509	0	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	9.0	7.6	31.9	10.5	0.0	31.2	0.0	31.8	0.0	0.0	36.3
Incr Delay (d2), s/veh	0.2	0.1	0.0	29.2	1.3	0.0	1.0	0.0	4.5	0.0	0.0	35.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	3.4	0.3	5.2	12.8	0.0	1.6	0.0	2.1	0.0	0.0	0.2
LnGrp Delay(d),s/veh	33.1	9.1	7.6	61.0	11.8	0.0	32.2	0.0	36.3	0.0	0.0	71.9
LnGrp LOS	C	A	A	E	B		C		D			E
Approach Vol, veh/h		662			1858			260			4	
Approach Delay, s/veh		9.2			16.5			33.7			71.9	
Approach LOS		A			B			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	46.1		4.2	7.6	50.5		10.9
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	9.2	9.1		2.2	2.3	27.7		6.4
Green Ext Time (p_c), s	0.0	16.6		0.0	0.0	17.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	162	216	212	56	813	93	306	180	6	122	288	367
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	200	267	262	64	934	107	364	214	6	158	374	477
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	259	1197	555	83	1154	510	426	1108	31	187	558	466
Arrive On Green	0.08	0.35	0.35	0.05	0.32	0.32	0.12	0.32	0.32	0.11	0.30	0.30
Sat Flow, veh/h	3343	3374	1564	1810	3574	1580	3408	3518	98	1757	1881	1572
Grp Volume(v), veh/h	200	267	262	64	934	107	364	107	113	158	374	477
Grp Sat Flow(s),veh/h/ln	1672	1687	1564	1810	1787	1580	1704	1771	1846	1757	1881	1572
Q Serve(g_s), s	6.5	6.1	14.3	3.8	26.3	5.4	11.5	4.9	4.9	9.7	19.2	32.6
Cycle Q Clear(g_c), s	6.5	6.1	14.3	3.8	26.3	5.4	11.5	4.9	4.9	9.7	19.2	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	259	1197	555	83	1154	510	426	558	581	187	558	466
V/C Ratio(X)	0.77	0.22	0.47	0.77	0.81	0.21	0.85	0.19	0.19	0.85	0.67	1.02
Avail Cap(c_a), veh/h	365	1197	555	148	1154	510	558	558	581	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	24.9	27.5	51.9	34.1	27.0	47.1	27.5	27.5	48.3	34.0	38.7
Incr Delay (d2), s/veh	3.8	0.4	2.9	1.3	1.4	0.2	8.0	0.1	0.1	5.8	3.0	47.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.1	2.9	6.6	1.9	13.2	2.4	5.9	2.4	2.5	5.0	10.4	20.4
LnGrp Delay(d),s/veh	53.6	25.3	30.4	53.2	35.5	27.2	55.1	27.6	27.6	54.0	37.0	86.5
LnGrp LOS	D	C	C	D	D	C	E	C	C	D	D	F
Approach Vol, veh/h		729			1105			584			1009	
Approach Delay, s/veh		34.9			35.7			44.8			63.1	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	44.7	17.7	38.5	12.5	41.2	15.7	40.6
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	5.8	16.3	13.5	34.6	8.5	28.3	11.7	6.9
Green Ext Time (p_c), s	0.0	7.5	0.2	0.0	0.1	0.0	0.1	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	29	305	12	66	765	41	45	58	36	85	215	160
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1813	1900	1792	1858	1900	1900	1769	1900	1900	1860	1881
Adj Flow Rate, veh/h	35	372	15	76	879	47	70	91	56	100	253	188
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	1	1	1
Cap, veh/h	42	751	30	96	812	43	206	117	72	93	236	287
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.11	0.11	0.11	0.18	0.18	0.18
Sat Flow, veh/h	1645	1731	70	1707	1748	93	1810	1024	630	520	1315	1596
Grp Volume(v), veh/h	35	0	387	76	0	926	70	0	147	353	0	188
Grp Sat Flow(s),veh/h/ln	1645	0	1801	1707	0	1842	1810	0	1655	1834	0	1596
Q Serve(g_s), s	2.0	0.0	14.7	4.2	0.0	44.0	3.4	0.0	8.2	17.0	0.0	10.4
Cycle Q Clear(g_c), s	2.0	0.0	14.7	4.2	0.0	44.0	3.4	0.0	8.2	17.0	0.0	10.4
Prop In Lane	1.00		0.04	1.00		0.05	1.00		0.38	0.28		1.00
Lane Grp Cap(c), veh/h	42	0	781	96	0	856	206	0	188	329	0	287
V/C Ratio(X)	0.83	0.00	0.50	0.79	0.00	1.08	0.34	0.00	0.78	1.07	0.00	0.66
Avail Cap(c_a), veh/h	148	0	781	153	0	856	420	0	385	329	0	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	19.3	44.1	0.0	25.3	38.7	0.0	40.8	38.8	0.0	36.1
Incr Delay (d2), s/veh	25.6	0.0	1.0	10.1	0.0	55.4	0.4	0.0	2.7	70.0	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.2	0.0	7.5	2.2	0.0	35.3	1.7	0.0	3.9	14.9	0.0	4.9
LnGrp Delay(d),s/veh	71.6	0.0	20.4	54.2	0.0	80.7	39.0	0.0	43.5	108.8	0.0	40.4
LnGrp LOS	E		C	D		F	D		D	F		D
Approach Vol, veh/h		422			1002			217			541	
Approach Delay, s/veh		24.6			78.7			42.0			85.1	
Approach LOS		C			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	47.1		22.5	5.9	50.0		16.3
Change Period (Y+Rc), s	3.5	6.0		5.5	3.5	6.0		5.5
Max Green Setting (Gmax), s	8.5	34.0		17.0	8.5	44.0		22.0
Max Q Clear Time (g_c+I1), s	6.2	16.7		19.0	4.0	46.0		10.2
Green Ext Time (p_c), s	0.0	13.4		0.0	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	66.2
HCM 2010 LOS	E

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	12	19	2	0	57	8	85	0	4	70	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	21	2	0	62	9	92	0	4	76	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	8.9	8.6	8.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	36%	88%	0%	100%	0%
Vol Thru, %	0%	78%	58%	12%	0%	0%	94%
Vol Right, %	0%	22%	6%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	90	33	65	85	39	150
LT Vol	4	0	12	57	0	39	0
Through Vol	0	70	19	8	0	0	141
RT Vol	0	20	2	0	85	0	9
Lane Flow Rate	4	98	36	71	92	42	163
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.007	0.138	0.055	0.114	0.119	0.066	0.231
Departure Headway (Hd)	5.756	5.096	5.553	5.788	4.644	5.647	5.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	621	702	643	619	771	634	703
Service Time	3.497	2.837	3.6	3.524	2.38	3.382	2.837
HCM Lane V/C Ratio	0.006	0.14	0.056	0.115	0.119	0.066	0.232
HCM Control Delay	8.5	8.7	8.9	9.3	8	8.8	9.4
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.5	0.2	0.4	0.4	0.2	0.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	39	141	9
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	42	153	10
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	2	0	585	2	0	1410
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	636	2	0	1533

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1403	319	0	0	638	0
Stage 1	637	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	131	677	-	-	942	-
Stage 1	489	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	131	677	-	-	942	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	18.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	265	942	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s)	-	-	18.7	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	743	468	276	190	234	57	395	599	246	89	324	550
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	808	509	300	207	254	62	429	651	267	97	352	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	943	1231	551	295	565	253	527	1029	810	163	941	293
Arrive On Green	0.27	0.35	0.35	0.09	0.16	0.16	0.15	0.29	0.29	0.05	0.19	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	808	509	300	207	254	62	429	651	267	97	352	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	20.2	9.9	13.8	5.3	5.9	3.1	10.9	14.5	6.8	2.5	5.5	0.0
Cycle Q Clear(g_c), s	20.2	9.9	13.8	5.3	5.9	3.1	10.9	14.5	6.8	2.5	5.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	943	1231	551	295	565	253	527	1029	810	163	941	293
V/C Ratio(X)	0.86	0.41	0.54	0.70	0.45	0.25	0.81	0.63	0.33	0.59	0.37	0.00
Avail Cap(c_a), veh/h	1347	1339	599	778	1347	602	778	2478	1951	778	3533	1100
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.2	22.5	23.8	40.3	34.5	33.3	37.2	28.0	25.2	42.3	32.3	0.0
Incr Delay (d2), s/veh	4.0	0.2	0.8	3.0	0.6	0.5	4.2	0.6	0.2	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	10.1	4.8	6.1	2.7	2.9	1.4	5.5	7.1	2.6	1.3	2.6	0.0
LnGrp Delay(d),s/veh	35.2	22.7	24.6	43.3	35.1	33.8	41.4	28.6	25.5	45.7	32.6	0.0
LnGrp LOS	D	C	C	D	D	C	D	C	C	D	C	
Approach Vol, veh/h		1617			523			1347			449	
Approach Delay, s/veh		29.3			38.2			32.1			35.4	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	22.8	12.3	37.2	8.8	32.4	29.4	20.2
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	12.9	7.5	7.3	15.8	4.5	16.5	22.2	7.9
Green Ext Time (p_c), s	0.9	9.3	0.5	5.9	0.2	9.2	2.7	6.6

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1339	136	142	882	3	80	0	207	3	0	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.91
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1879	1900	1881	1881	1881	1900	1712	1900
Adj Flow Rate, veh/h	2	1455	148	161	1002	3	89	0	230	6	0	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	83	1784	776	174	2006	6	687	0	299	10	0	18
Arrive On Green	0.05	0.50	0.50	0.10	0.55	0.55	0.19	0.00	0.19	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1555	1810	3652	11	3583	0	1556	501	0	918
Grp Volume(v), veh/h	2	1455	148	161	490	515	89	0	230	17	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1555	1810	1785	1877	1792	0	1556	1419	0	0
Q Serve(g_s), s	0.1	30.0	4.6	7.7	14.9	14.9	1.8	0.0	12.2	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	30.0	4.6	7.7	14.9	14.9	1.8	0.0	12.2	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.35		0.65
Lane Grp Cap(c), veh/h	83	1784	776	174	981	1031	687	0	299	27	0	0
V/C Ratio(X)	0.02	0.82	0.19	0.92	0.50	0.50	0.13	0.00	0.77	0.62	0.00	0.00
Avail Cap(c_a), veh/h	174	2223	967	174	981	1031	985	0	428	182	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.8	18.5	12.1	39.1	12.2	12.2	29.2	0.0	33.4	42.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.1	0.1	46.4	0.4	0.4	0.1	0.0	5.4	21.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	15.3	2.0	6.1	7.3	7.7	0.9	0.0	5.7	0.6	0.0	0.0
LnGrp Delay(d),s/veh	39.8	20.5	12.2	85.5	12.6	12.6	29.3	0.0	38.9	63.8	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	C		D	E		
Approach Vol, veh/h		1605			1166			319			17	
Approach Delay, s/veh		19.8			22.7			36.2			63.8	
Approach LOS		B			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	49.3		5.5	7.6	53.7		20.5
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	9.7	32.0		3.0	2.1	16.9		14.2
Green Ext Time (p_c), s	0.0	11.5		0.0	0.0	15.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	445	805	295	137	503	93	298	243	22	113	187	203
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	468	847	311	156	572	106	324	264	24	131	217	236
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1510	661	185	1360	594	386	697	63	159	350	292
Arrive On Green	0.14	0.42	0.42	0.10	0.38	0.38	0.11	0.21	0.21	0.09	0.19	0.19
Sat Flow, veh/h	3510	3574	1564	1810	3574	1560	3476	3316	299	1792	1863	1553
Grp Volume(v), veh/h	468	847	311	156	572	106	324	141	147	131	217	236
Grp Sat Flow(s),veh/h/ln	1755	1787	1564	1810	1787	1560	1738	1789	1827	1792	1863	1553
Q Serve(g_s), s	14.6	19.9	15.9	9.4	13.1	5.0	10.1	7.5	7.6	8.0	11.9	16.2
Cycle Q Clear(g_c), s	14.6	19.9	15.9	9.4	13.1	5.0	10.1	7.5	7.6	8.0	11.9	16.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	506	1510	661	185	1360	594	386	376	384	159	350	292
V/C Ratio(X)	0.92	0.56	0.47	0.84	0.42	0.18	0.84	0.38	0.38	0.82	0.62	0.81
Avail Cap(c_a), veh/h	506	1510	661	212	1360	594	501	516	527	226	497	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	24.3	23.1	49.0	25.4	22.9	48.4	37.6	37.6	49.7	41.4	43.2
Incr Delay (d2), s/veh	22.6	1.5	2.4	11.9	0.5	0.3	7.7	0.5	0.5	10.7	1.5	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	8.7	10.1	7.3	5.3	6.5	2.2	5.3	3.8	3.9	4.4	6.2	7.5
LnGrp Delay(d),s/veh	69.5	25.8	25.5	60.9	25.9	23.2	56.1	38.1	38.2	60.4	43.0	50.4
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1626			834			612			584	
Approach Delay, s/veh		38.3			32.1			47.6			49.9	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	52.6	16.3	26.7	20.0	47.9	13.8	29.2
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	11.4	21.9	12.1	18.2	16.6	15.1	10.0	9.6
Green Ext Time (p_c), s	0.0	6.7	0.2	2.7	0.0	8.4	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	128	811	21	32	552	88	51	121	58	64	94	83
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1884	1900	1863	1875	1900	1900	1900	1900
Adj Flow Rate, veh/h	138	872	23	36	627	100	57	136	65	69	101	89
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	165	809	21	45	675	108	255	172	82	90	131	189
Arrive On Green	0.09	0.49	0.49	0.03	0.43	0.43	0.14	0.14	0.14	0.12	0.12	0.12
Sat Flow, veh/h	1810	1641	43	1810	1580	252	1774	1193	570	756	1106	1595
Grp Volume(v), veh/h	138	0	895	36	0	727	57	0	201	170	0	89
Grp Sat Flow(s),veh/h/ln	1810	0	1685	1810	0	1832	1774	0	1763	1862	0	1595
Q Serve(g_s), s	7.0	0.0	46.1	1.8	0.0	35.2	2.7	0.0	10.3	8.3	0.0	4.9
Cycle Q Clear(g_c), s	7.0	0.0	46.1	1.8	0.0	35.2	2.7	0.0	10.3	8.3	0.0	4.9
Prop In Lane	1.00		0.03	1.00		0.14	1.00		0.32	0.41		1.00
Lane Grp Cap(c), veh/h	165	0	831	45	0	783	255	0	254	221	0	189
V/C Ratio(X)	0.84	0.00	1.08	0.79	0.00	0.93	0.22	0.00	0.79	0.77	0.00	0.47
Avail Cap(c_a), veh/h	165	0	831	165	0	863	418	0	415	339	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.8	0.0	23.7	45.3	0.0	25.4	35.4	0.0	38.7	39.9	0.0	38.4
Incr Delay (d2), s/veh	29.4	0.0	54.2	20.0	0.0	16.5	0.2	0.0	2.1	2.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.8	0.0	33.7	1.2	0.0	21.4	1.3	0.0	5.2	4.4	0.0	2.2
LnGrp Delay(d),s/veh	71.2	0.0	77.9	65.4	0.0	41.9	35.5	0.0	40.8	42.2	0.0	39.1
LnGrp LOS	E		F	E		D	D		D	D		D
Approach Vol, veh/h		1033			763			258			259	
Approach Delay, s/veh		77.0			43.0			39.6			41.1	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	52.1		16.6	12.0	45.9		18.9
Change Period (Y+Rc), s	3.5	6.0		5.5	3.5	6.0		5.5
Max Green Setting (Gmax), s	8.5	34.0		17.0	8.5	44.0		22.0
Max Q Clear Time (g_c+I1), s	3.8	48.1		10.3	9.0	37.2		12.3
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	2.7		0.6

Intersection Summary		
HCM 2010 Ctrl Delay		57.6
HCM 2010 LOS		E

Notes

User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	9	8	3	0	35	6	43	0	5	217	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	10	9	3	0	38	7	47	0	5	236	37
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.2	8.8	10.7
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	45%	85%	0%	100%	0%
Vol Thru, %	0%	86%	40%	15%	0%	0%	90%
Vol Right, %	0%	14%	15%	0%	100%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	251	20	41	43	63	144
LT Vol	5	0	9	35	0	63	0
Through Vol	0	217	8	6	0	0	130
RT Vol	0	34	3	0	43	0	14
Lane Flow Rate	5	273	22	45	47	68	157
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.008	0.376	0.036	0.077	0.066	0.106	0.218
Departure Headway (Hd)	5.563	4.965	5.891	6.204	5.068	5.593	5.022
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	643	723	605	576	704	640	714
Service Time	3.298	2.701	3.95	3.954	2.818	3.33	2.759
HCM Lane V/C Ratio	0.008	0.378	0.036	0.078	0.067	0.106	0.22
HCM Control Delay	8.3	10.7	9.2	9.5	8.2	9	9.2
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0	1.8	0.1	0.2	0.2	0.4	0.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	63	130	14
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	68	141	15
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.1
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	3	1516	4	3	1004
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	1648	4	3	1091

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2202	826	0	0	1652	0
Stage 1	1650	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	38	315	-	-	387	-
Stage 1	142	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	38	315	-	-	387	-
Mov Cap-2 Maneuver	113	-	-	-	-	-
Stage 1	142	-	-	-	-	-
Stage 2	537	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	30.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	149	387	-
HCM Lane V/C Ratio	-	-	0.058	0.008	-
HCM Control Delay (s)	-	-	30.7	14.4	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	398	277	225	398	440	32	310	165	256	18	476	796
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	433	301	245	433	478	35	337	179	278	20	517	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	571	861	385	555	844	377	454	1131	890	38	1011	315
Arrive On Green	0.17	0.24	0.24	0.16	0.24	0.24	0.13	0.32	0.32	0.01	0.20	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	433	301	245	433	478	35	337	179	278	20	517	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	9.1	5.4	10.6	9.2	9.1	1.3	7.2	2.8	5.7	0.4	6.9	0.0
Cycle Q Clear(g_c), s	9.1	5.4	10.6	9.2	9.1	1.3	7.2	2.8	5.7	0.4	6.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	571	861	385	555	844	377	454	1131	890	38	1011	315
V/C Ratio(X)	0.76	0.35	0.64	0.78	0.57	0.09	0.74	0.16	0.31	0.52	0.51	0.00
Avail Cap(c_a), veh/h	1603	1593	713	926	1602	717	926	2949	2322	926	4237	1319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.3	23.9	25.8	30.7	25.6	22.6	31.8	18.6	19.6	37.5	27.2	0.0
Incr Delay (d2), s/veh	2.1	0.2	1.7	2.4	0.6	0.1	2.4	0.1	0.2	10.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.5	2.6	4.8	4.6	4.5	0.6	3.6	1.4	2.2	0.3	3.2	0.0
LnGrp Delay(d),s/veh	32.4	24.1	27.6	33.1	26.2	22.7	34.3	18.7	19.8	48.0	27.6	0.0
LnGrp LOS	C	C	C	C	C	C	C	B	B	D	C	
Approach Vol, veh/h		979			946			794			537	
Approach Delay, s/veh		28.6			29.2			25.7			28.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	20.6	16.8	24.2	5.3	29.8	17.1	23.9
Change Period (Y+Rc), s	4.5	5.5	4.5	5.7	4.5	5.5	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.5	20.5	34.3	20.5	63.5	35.5	* 35
Max Q Clear Time (g_c+I1), s	9.2	8.9	11.2	12.6	2.4	7.7	11.1	11.1
Green Ext Time (p_c), s	0.9	6.2	1.1	6.0	0.0	6.2	1.5	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	568	31	190	1292	0	185	3	70	0	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	7	638	35	241	1635	0	246	0	92	0	0	4
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	84	1885	766	205	2133	0	388	0	167	0	0	9
Arrive On Green	0.05	0.54	0.54	0.11	0.60	0.00	0.11	0.00	0.11	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	7	638	35	241	1635	0	246	0	92	0	0	4
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	7.6	0.9	8.4	25.1	0.0	4.8	0.0	4.1	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	7.6	0.9	8.4	25.1	0.0	4.8	0.0	4.1	0.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	84	1885	766	205	2133	0	388	0	167	0	0	9
V/C Ratio(X)	0.08	0.34	0.05	1.18	0.77	0.00	0.63	0.00	0.55	0.00	0.00	0.46
Avail Cap(c_a), veh/h	177	1885	766	205	2616	0	1182	0	507	0	0	246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	33.0	9.4	7.9	32.5	10.8	0.0	31.4	0.0	31.1	0.0	0.0	36.4
Incr Delay (d2), s/veh	0.2	0.1	0.0	118.6	1.2	0.0	1.8	0.0	3.0	0.0	0.0	35.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	3.6	0.3	10.8	12.4	0.0	2.5	0.0	1.9	0.0	0.0	0.2
LnGrp Delay(d),s/veh	33.2	9.5	7.9	151.1	11.9	0.0	33.2	0.0	34.1	0.0	0.0	72.0
LnGrp LOS	C	A	A	F	B		C		C			E
Approach Vol, veh/h		680			1876			338			4	
Approach Delay, s/veh		9.7			29.8			33.4			72.0	
Approach LOS		A			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	45.6		4.2	7.6	50.0		11.7
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	9.6		2.2	2.3	27.1		6.8
Green Ext Time (p_c), s	0.0	16.1		0.0	0.0	17.2		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	165	222	215	56	820	106	309	180	6	122	288	370
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	204	274	265	64	943	122	368	214	6	158	374	481
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	263	1193	553	83	1146	507	430	1112	31	187	558	466
Arrive On Green	0.08	0.35	0.35	0.05	0.32	0.32	0.13	0.32	0.32	0.11	0.30	0.30
Sat Flow, veh/h	3343	3374	1564	1810	3574	1580	3408	3518	98	1757	1881	1572
Grp Volume(v), veh/h	204	274	265	64	943	122	368	107	113	158	374	481
Grp Sat Flow(s),veh/h/ln	1672	1687	1564	1810	1787	1580	1704	1771	1846	1757	1881	1572
Q Serve(g_s), s	6.6	6.3	14.5	3.8	26.8	6.3	11.6	4.9	4.9	9.7	19.2	32.6
Cycle Q Clear(g_c), s	6.6	6.3	14.5	3.8	26.8	6.3	11.6	4.9	4.9	9.7	19.2	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	263	1193	553	83	1146	507	430	560	584	187	558	466
V/C Ratio(X)	0.78	0.23	0.48	0.77	0.82	0.24	0.86	0.19	0.19	0.85	0.67	1.03
Avail Cap(c_a), veh/h	365	1193	553	148	1146	507	558	560	584	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.20	0.20	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	25.0	27.7	51.9	34.5	27.5	47.1	27.4	27.4	48.3	34.0	38.7
Incr Delay (d2), s/veh	4.3	0.4	3.0	1.2	1.4	0.2	8.3	0.1	0.1	5.8	3.0	50.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.2	3.0	6.7	1.9	13.5	2.8	6.0	2.4	2.5	5.0	10.4	20.7
LnGrp Delay(d),s/veh	54.0	25.5	30.6	53.1	35.9	27.7	55.4	27.5	27.5	54.0	37.0	88.9
LnGrp LOS	D	C	C	D	D	C	E	C	C	D	D	F
Approach Vol, veh/h		743			1129			588			1013	
Approach Delay, s/veh		35.1			36.0			44.9			64.3	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	44.6	17.9	38.5	12.7	41.0	15.7	40.7
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	5.8	16.5	13.6	34.6	8.6	28.8	11.7	6.9
Green Ext Time (p_c), s	0.0	7.6	0.2	0.0	0.1	0.0	0.1	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	310	12	66	771	41	45	58	36	85	215	161
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1813	1900	1792	1858	1900	1900	1769	1900	1900	1860	1881
Adj Flow Rate, veh/h	37	378	15	76	886	47	70	91	56	100	253	189
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	1	1	1
Cap, veh/h	45	753	30	96	811	43	206	116	72	93	236	286
Arrive On Green	0.03	0.43	0.43	0.06	0.46	0.46	0.11	0.11	0.11	0.18	0.18	0.18
Sat Flow, veh/h	1645	1732	69	1707	1749	93	1810	1024	630	520	1315	1596
Grp Volume(v), veh/h	37	0	393	76	0	933	70	0	147	353	0	189
Grp Sat Flow(s),veh/h/ln	1645	0	1801	1707	0	1842	1810	0	1655	1834	0	1596
Q Serve(g_s), s	2.1	0.0	15.0	4.2	0.0	44.0	3.4	0.0	8.2	17.0	0.0	10.5
Cycle Q Clear(g_c), s	2.1	0.0	15.0	4.2	0.0	44.0	3.4	0.0	8.2	17.0	0.0	10.5
Prop In Lane	1.00		0.04	1.00		0.05	1.00		0.38	0.28		1.00
Lane Grp Cap(c), veh/h	45	0	782	96	0	854	206	0	188	329	0	286
V/C Ratio(X)	0.83	0.00	0.50	0.79	0.00	1.09	0.34	0.00	0.78	1.07	0.00	0.66
Avail Cap(c_a), veh/h	147	0	782	153	0	854	420	0	384	329	0	286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	19.4	44.2	0.0	25.4	38.8	0.0	40.9	38.9	0.0	36.2
Incr Delay (d2), s/veh	23.8	0.0	1.1	10.1	0.0	59.0	0.4	0.0	2.7	70.7	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	1.5	0.0	7.7	2.2	0.0	36.1	1.7	0.0	3.9	14.9	0.0	5.0
LnGrp Delay(d),s/veh	69.8	0.0	20.5	54.3	0.0	84.4	39.1	0.0	43.6	109.6	0.0	40.7
LnGrp LOS	E		C	D		F	D		D	F		D
Approach Vol, veh/h		430			1009			217			542	
Approach Delay, s/veh		24.7			82.2			42.1			85.6	
Approach LOS		C			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	47.2		22.5	6.1	50.0		16.3
Change Period (Y+Rc), s	3.5	6.0		5.5	3.5	6.0		5.5
Max Green Setting (Gmax), s	8.5	34.0		17.0	8.5	44.0		22.0
Max Q Clear Time (g_c+I1), s	6.2	17.0		19.0	4.1	46.0		10.2
Green Ext Time (p_c), s	0.0	13.3		0.0	0.0	0.0		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		67.8
HCM 2010 LOS		E

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	12	19	2	0	57	8	86	0	4	76	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	21	2	0	62	9	93	0	4	83	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9	8.6	8.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	36%	88%	0%	100%	0%
Vol Thru, %	0%	79%	58%	12%	0%	0%	94%
Vol Right, %	0%	21%	6%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	96	33	65	86	40	155
LT Vol	4	0	12	57	0	40	0
Through Vol	0	76	19	8	0	0	146
RT Vol	0	20	2	0	86	0	9
Lane Flow Rate	4	104	36	71	93	43	168
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.007	0.148	0.056	0.114	0.121	0.068	0.239
Departure Headway (Hd)	5.768	5.117	5.592	5.823	4.679	5.658	5.114
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	620	699	639	615	765	633	701
Service Time	3.51	2.86	3.639	3.56	2.416	3.395	2.851
HCM Lane V/C Ratio	0.006	0.149	0.056	0.115	0.122	0.068	0.24
HCM Control Delay	8.6	8.8	9	9.3	8.1	8.8	9.5
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.5	0.2	0.4	0.4	0.2	0.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	40	146	9
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	43	159	10
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.4
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	2	0	598	2	0	1424
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	650	2	0	1548

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1425	326	0	0	652	0
Stage 1	651	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	126	670	-	-	930	-
Stage 1	481	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	126	670	-	-	930	-
Mov Cap-2 Maneuver	260	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	19	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	260	930	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s)	-	-	19	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	193	12	0	180
Conflicting Peds, #/hr	0	22	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	210	13	0	196

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	434	133	0	0	245	0
Stage 1	238	-	-	-	-	-
Stage 2	196	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	583	758	-	-	890	-
Stage 1	713	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	572	744	-	-	890	-
Mov Cap-2 Maneuver	572	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	744	890	-
HCM Lane V/C Ratio	-	-	0.095	-	-
HCM Control Delay (s)	-	-	10.3	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	609	85	0	1482	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	662	92	0	1611	0	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	662	0	1467	331
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	805	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	922	-	119	665
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	400	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	922	-	119	665
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	400	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	665	-	-	922	-
HCM Lane V/C Ratio	0.049	-	-	-	-
HCM Control Delay (s)	10.7	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	750	468	276	190	234	58	395	612	246	90	336	556
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	815	509	300	207	254	63	429	665	267	98	365	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	948	1232	551	294	560	251	525	1039	818	164	960	299
Arrive On Green	0.28	0.35	0.35	0.09	0.16	0.16	0.15	0.29	0.29	0.05	0.19	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	815	509	300	207	254	63	429	665	267	98	365	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	20.7	10.1	14.0	5.4	6.0	3.2	11.1	15.0	6.9	2.6	5.8	0.0
Cycle Q Clear(g_c), s	20.7	10.1	14.0	5.4	6.0	3.2	11.1	15.0	6.9	2.6	5.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	948	1232	551	294	560	251	525	1039	818	164	960	299
V/C Ratio(X)	0.86	0.41	0.54	0.70	0.45	0.25	0.82	0.64	0.33	0.60	0.38	0.00
Avail Cap(c_a), veh/h	1328	1320	590	767	1328	594	767	2443	1924	767	3483	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.6	22.8	24.1	40.9	35.1	33.9	37.7	28.3	25.4	42.9	32.6	0.0
Incr Delay (d2), s/veh	4.3	0.2	0.9	3.1	0.6	0.5	4.5	0.7	0.2	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	10.4	4.9	6.2	2.7	3.0	1.4	5.6	7.4	2.7	1.3	2.7	0.0
LnGrp Delay(d),s/veh	35.9	23.0	25.0	44.0	35.7	34.5	42.2	28.9	25.6	46.4	32.9	0.0
LnGrp LOS	D	C	C	D	D	C	D	C	C	D	C	
Approach Vol, veh/h		1624			524			1361			463	
Approach Delay, s/veh		29.9			38.8			32.5			35.7	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	23.4	12.4	37.7	8.9	33.0	29.8	20.3
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	13.1	7.8	7.4	16.0	4.6	17.0	22.7	8.0
Green Ext Time (p_c), s	0.9	9.6	0.5	5.8	0.2	9.5	2.6	6.6

Intersection Summary	
HCM 2010 Ctrl Delay	32.6
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1363	135	181	862	3	136	0	202	3	0	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.91
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1879	1900	1881	1881	1881	1900	1712	1900
Adj Flow Rate, veh/h	2	1482	147	206	980	3	151	0	224	6	0	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	82	1799	783	173	2020	6	681	0	296	10	0	18
Arrive On Green	0.05	0.50	0.50	0.10	0.55	0.55	0.19	0.00	0.19	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1555	1810	3651	11	3583	0	1556	501	0	918
Grp Volume(v), veh/h	2	1482	147	206	479	504	151	0	224	17	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1555	1810	1785	1877	1792	0	1556	1418	0	0
Q Serve(g_s), s	0.1	31.0	4.6	8.4	14.4	14.4	3.1	0.0	12.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	31.0	4.6	8.4	14.4	14.4	3.1	0.0	12.0	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.35		0.65
Lane Grp Cap(c), veh/h	82	1799	783	173	988	1038	681	0	296	27	0	0
V/C Ratio(X)	0.02	0.82	0.19	1.19	0.49	0.49	0.22	0.00	0.76	0.62	0.00	0.00
Avail Cap(c_a), veh/h	173	2205	959	173	988	1038	977	0	424	181	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.1	18.5	12.0	39.8	12.0	12.0	30.1	0.0	33.7	42.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.3	0.1	129.8	0.4	0.4	0.2	0.0	4.9	21.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.0	15.8	2.0	10.4	7.2	7.5	1.6	0.0	5.5	0.6	0.0	0.0
LnGrp Delay(d),s/veh	40.2	20.8	12.1	169.6	12.4	12.4	30.3	0.0	38.6	64.3	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	C		D	E		
Approach Vol, veh/h		1631			1189			375			17	
Approach Delay, s/veh		20.1			39.6			35.3			64.3	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	50.0		5.5	7.6	54.4		20.5
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	33.0		3.0	2.1	16.4		14.0
Green Ext Time (p_c), s	0.0	11.3		0.0	0.0	15.5		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	449	813	299	137	512	93	303	243	22	113	187	208
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	473	856	315	156	582	106	329	264	24	131	217	242
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1493	653	185	1342	586	391	713	64	159	356	297
Arrive On Green	0.14	0.42	0.42	0.10	0.38	0.38	0.11	0.22	0.22	0.09	0.19	0.19
Sat Flow, veh/h	3510	3574	1564	1810	3574	1560	3476	3316	299	1792	1863	1553
Grp Volume(v), veh/h	473	856	315	156	582	106	329	141	147	131	217	242
Grp Sat Flow(s),veh/h/ln	1755	1787	1564	1810	1787	1560	1738	1789	1827	1792	1863	1553
Q Serve(g_s), s	14.8	20.4	16.3	9.4	13.5	5.1	10.3	7.5	7.6	8.0	11.8	16.6
Cycle Q Clear(g_c), s	14.8	20.4	16.3	9.4	13.5	5.1	10.3	7.5	7.6	8.0	11.8	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	506	1493	653	185	1342	586	391	385	393	159	356	297
V/C Ratio(X)	0.93	0.57	0.48	0.84	0.43	0.18	0.84	0.37	0.37	0.82	0.61	0.81
Avail Cap(c_a), veh/h	506	1493	653	212	1342	586	501	516	527	226	497	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	24.8	23.6	49.0	25.8	23.2	48.3	37.1	37.2	49.7	41.1	43.0
Incr Delay (d2), s/veh	24.5	1.6	2.5	11.6	0.5	0.3	8.1	0.5	0.5	10.7	1.4	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	8.9	10.3	7.5	5.3	6.7	2.2	5.4	3.7	3.9	4.4	6.2	7.8
LnGrp Delay(d),s/veh	71.4	26.4	26.1	60.6	26.4	23.6	56.4	37.6	37.7	60.4	42.5	50.9
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1644			844			617			590	
Approach Delay, s/veh		39.3			32.3			47.7			49.9	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	52.1	16.5	27.1	20.0	47.4	13.8	29.8
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	11.4	22.4	12.3	18.6	16.8	15.5	10.0	9.6
Green Ext Time (p_c), s	0.0	6.6	0.2	2.7	0.0	8.3	0.0	3.4

Intersection Summary		
HCM 2010 Ctrl Delay		40.8
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	129	818	21	32	559	88	51	121	58	64	94	85
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1884	1900	1863	1875	1900	1900	1900	1900
Adj Flow Rate, veh/h	139	880	23	36	635	100	57	136	65	69	101	91
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	164	812	21	45	680	107	255	171	82	90	131	189
Arrive On Green	0.09	0.49	0.49	0.03	0.43	0.43	0.14	0.14	0.14	0.12	0.12	0.12
Sat Flow, veh/h	1810	1642	43	1810	1583	249	1774	1193	570	756	1106	1595
Grp Volume(v), veh/h	139	0	903	36	0	735	57	0	201	170	0	91
Grp Sat Flow(s),veh/h/ln	1810	0	1685	1810	0	1833	1774	0	1763	1862	0	1595
Q Serve(g_s), s	7.1	0.0	46.5	1.9	0.0	35.9	2.7	0.0	10.4	8.3	0.0	5.0
Cycle Q Clear(g_c), s	7.1	0.0	46.5	1.9	0.0	35.9	2.7	0.0	10.4	8.3	0.0	5.0
Prop In Lane	1.00		0.03	1.00		0.14	1.00		0.32	0.41		1.00
Lane Grp Cap(c), veh/h	164	0	833	45	0	787	255	0	253	221	0	189
V/C Ratio(X)	0.85	0.00	1.08	0.79	0.00	0.93	0.22	0.00	0.79	0.77	0.00	0.48
Avail Cap(c_a), veh/h	164	0	833	164	0	858	415	0	413	337	0	288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	23.8	45.6	0.0	25.6	35.6	0.0	38.9	40.2	0.0	38.7
Incr Delay (d2), s/veh	31.6	0.0	56.3	20.0	0.0	17.3	0.2	0.0	2.1	2.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.0	0.0	34.6	1.2	0.0	21.8	1.3	0.0	5.2	4.4	0.0	2.2
LnGrp Delay(d),s/veh	73.8	0.0	80.0	65.6	0.0	42.9	35.8	0.0	41.1	42.6	0.0	39.4
LnGrp LOS	E		F	E		D	D		D	D		D
Approach Vol, veh/h		1042			771			258			261	
Approach Delay, s/veh		79.2			43.9			39.9			41.5	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	52.5		16.6	12.0	46.4		19.0
Change Period (Y+Rc), s	3.5	6.0		5.5	3.5	6.0		5.5
Max Green Setting (Gmax), s	8.5	34.0		17.0	8.5	44.0		22.0
Max Q Clear Time (g_c+I1), s	3.9	48.5		10.3	9.1	37.9		12.4
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	2.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	59.0
HCM 2010 LOS	E

Notes
User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	9	8	3	0	35	6	45	0	5	226	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	10	9	3	0	38	7	49	0	5	246	37
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.2	8.8	10.9
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	45%	85%	0%	100%	0%
Vol Thru, %	0%	87%	40%	15%	0%	0%	91%
Vol Right, %	0%	13%	15%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	260	20	41	45	64	152
LT Vol	5	0	9	35	0	64	0
Through Vol	0	226	8	6	0	0	138
RT Vol	0	34	3	0	45	0	14
Lane Flow Rate	5	283	22	45	49	70	165
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.008	0.391	0.036	0.077	0.069	0.108	0.231
Departure Headway (Hd)	5.578	4.984	5.941	6.249	5.113	5.608	5.04
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	641	721	600	572	698	639	712
Service Time	3.315	2.721	4.005	4.003	2.867	3.347	2.779
HCM Lane V/C Ratio	0.008	0.393	0.037	0.079	0.07	0.11	0.232
HCM Control Delay	8.4	10.9	9.2	9.5	8.2	9	9.3
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0	1.9	0.1	0.2	0.2	0.4	0.9

Intersection				
Intersection Delay, s/veh				
Intersection LOS				

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	64	138	14
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	70	150	15
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.2
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	3	1534	4	3	1023
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	1667	4	3	1112

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2233	836	0	0	1672	0
Stage 1	1670	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	36	310	-	-	380	-
Stage 1	138	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	36	310	-	-	380	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	138	-	-	-	-	-
Stage 2	530	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	31.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	145	380	-
HCM Lane V/C Ratio	-	-	0.06	0.009	-
HCM Control Delay (s)	-	-	31.4	14.6	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	57	281	17	0	288
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	62	305	18	0	313

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	628	162	0	0	324	0
Stage 1	315	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	460	727	-	-	818	-
Stage 1	642	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	460	727	-	-	818	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	727	818	-
HCM Lane V/C Ratio	-	-	0.085	-	-
HCM Control Delay (s)	-	-	10.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1513	98	0	1046	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1645	107	0	1137	0	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1645	0	2213	822
Stage 1	-	-	-	-	1645	-
Stage 2	-	-	-	-	568	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	389	-	37	317
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	389	-	37	317
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	530	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	317	-	-	389	-
HCM Lane V/C Ratio	0.178	-	-	-	-
HCM Control Delay (s)	18.8	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	442	277	225	398	440	35	310	172	256	19	515	875
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	480	301	245	433	478	38	337	187	278	21	560	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	617	859	384	549	789	353	448	1154	909	40	1055	329
Arrive On Green	0.18	0.24	0.24	0.16	0.22	0.22	0.13	0.33	0.33	0.01	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	480	301	245	433	478	38	337	187	278	21	560	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	10.6	5.6	11.0	9.6	9.7	1.5	7.5	3.0	5.9	0.5	7.8	0.0
Cycle Q Clear(g_c), s	10.6	5.6	11.0	9.6	9.7	1.5	7.5	3.0	5.9	0.5	7.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	617	859	384	549	789	353	448	1154	909	40	1055	329
V/C Ratio(X)	0.78	0.35	0.64	0.79	0.61	0.11	0.75	0.16	0.31	0.52	0.53	0.00
Avail Cap(c_a), veh/h	1536	1526	683	887	1535	687	887	2825	2224	887	4027	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.1	24.9	27.0	32.1	27.8	24.6	33.4	19.1	20.1	39.1	28.1	0.0
Incr Delay (d2), s/veh	2.2	0.2	1.8	2.6	0.8	0.1	2.6	0.1	0.2	10.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.2	2.7	5.0	4.8	4.8	0.7	3.7	1.5	2.3	0.3	3.7	0.0
LnGrp Delay(d),s/veh	33.3	25.2	28.8	34.7	28.5	24.7	35.9	19.1	20.3	49.2	28.5	0.0
LnGrp LOS	C	C	C	C	C	C	D	B	C	D	C	
Approach Vol, veh/h		1026			949			802			581	
Approach Delay, s/veh		29.8			31.2			26.6			29.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	22.5	17.2	25.0	5.4	31.9	18.8	23.4				
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7				
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35				
Max Q Clear Time (g_c+I1), s	9.5	9.8	11.6	13.0	2.5	7.9	12.6	11.7				
Green Ext Time (p_c), s	0.9	6.7	1.1	5.9	0.0	6.7	1.7	6.1				
Intersection Summary												
HCM 2010 Ctrl Delay			29.3									
HCM 2010 LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	621	32	166	1461	0	122	3	93	0	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	7	698	36	210	1849	0	164	0	122	0	0	4
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	80	1931	785	194	2169	0	408	0	175	0	0	9
Arrive On Green	0.05	0.56	0.56	0.11	0.61	0.00	0.11	0.00	0.11	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	7	698	36	210	1849	0	164	0	122	0	0	4
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	8.7	0.9	8.4	32.9	0.0	3.3	0.0	5.9	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	8.7	0.9	8.4	32.9	0.0	3.3	0.0	5.9	0.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	80	1931	785	194	2169	0	408	0	175	0	0	9
V/C Ratio(X)	0.09	0.36	0.05	1.08	0.85	0.00	0.40	0.00	0.70	0.00	0.00	0.47
Avail Cap(c_a), veh/h	167	1931	785	194	2475	0	1119	0	480	0	0	233
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	35.1	9.6	7.8	34.6	12.2	0.0	32.0	0.0	33.2	0.0	0.0	38.5
Incr Delay (d2), s/veh	0.3	0.1	0.0	88.6	2.8	0.0	0.7	0.0	5.2	0.0	0.0	35.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	4.1	0.4	8.9	16.5	0.0	1.7	0.0	2.8	0.0	0.0	0.2
LnGrp Delay(d),s/veh	35.3	9.7	7.9	123.2	15.0	0.0	32.7	0.0	38.3	0.0	0.0	74.3
LnGrp LOS	D	A	A	F	B		C		D			E
Approach Vol, veh/h		741			2059			286			4	
Approach Delay, s/veh		9.8			26.0			35.1			74.3	
Approach LOS		A			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	48.9		4.2	7.6	53.3		12.5
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	10.7		2.2	2.3	34.9		7.9
Green Ext Time (p_c), s	0.0	16.3		0.0	0.0	12.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	278	212	69	946	109	332	180	6	131	295	367
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	206	343	262	79	1087	125	395	214	6	170	383	477
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	265	1133	525	101	1117	494	456	1115	31	199	558	466
Arrive On Green	0.08	0.34	0.34	0.06	0.31	0.31	0.13	0.32	0.32	0.11	0.30	0.30
Sat Flow, veh/h	3343	3374	1563	1810	3574	1580	3408	3518	98	1757	1881	1572
Grp Volume(v), veh/h	206	343	262	79	1087	125	395	107	113	170	383	477
Grp Sat Flow(s),veh/h/ln	1672	1687	1563	1810	1787	1580	1704	1771	1846	1757	1881	1572
Q Serve(g_s), s	6.7	8.3	14.7	4.7	33.1	6.5	12.5	4.9	4.9	10.4	19.8	32.6
Cycle Q Clear(g_c), s	6.7	8.3	14.7	4.7	33.1	6.5	12.5	4.9	4.9	10.4	19.8	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	265	1133	525	101	1117	494	456	561	585	199	558	466
V/C Ratio(X)	0.78	0.30	0.50	0.78	0.97	0.25	0.87	0.19	0.19	0.85	0.69	1.02
Avail Cap(c_a), veh/h	365	1133	525	148	1117	494	558	561	585	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	27.0	29.1	51.3	37.4	28.2	46.7	27.3	27.3	47.9	34.2	38.7
Incr Delay (d2), s/veh	4.5	0.7	3.4	0.8	4.0	0.1	10.1	0.1	0.1	8.9	3.4	47.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.2	4.0	6.8	2.4	16.9	2.8	6.5	2.4	2.5	5.5	10.7	20.4
LnGrp Delay(d),s/veh	54.2	27.7	32.5	52.1	41.4	28.3	56.8	27.5	27.5	56.8	37.6	86.5
LnGrp LOS	D	C	C	D	D	C	E	C	C	E	D	F
Approach Vol, veh/h		811			1291			615			1030	
Approach Delay, s/veh		36.0			40.8			46.3			63.4	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	42.6	18.7	38.5	12.7	40.1	16.5	40.8
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	6.7	16.7	14.5	34.6	8.7	35.1	12.4	6.9
Green Ext Time (p_c), s	0.0	8.6	0.2	0.0	0.1	0.0	0.1	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	46.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	373	12	108	907	47	45	60	50	87	221	167
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1812	1900	1792	1858	1900	1900	1768	1900	1810	1881	1900
Adj Flow Rate, veh/h	39	455	15	124	1043	54	70	94	78	102	260	196
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	5	1	1
Cap, veh/h	44	829	27	148	936	48	98	185	153	128	226	170
Arrive On Green	0.03	0.48	0.48	0.09	0.53	0.53	0.05	0.21	0.21	0.07	0.23	0.23
Sat Flow, veh/h	1645	1745	58	1707	1752	91	1810	894	742	1723	996	751
Grp Volume(v), veh/h	39	0	470	124	0	1097	70	0	172	102	0	456
Grp Sat Flow(s),veh/h/ln	1645	0	1802	1707	0	1842	1810	0	1635	1723	0	1747
Q Serve(g_s), s	3.1	0.0	24.1	9.3	0.0	69.5	4.9	0.0	12.1	7.6	0.0	29.5
Cycle Q Clear(g_c), s	3.1	0.0	24.1	9.3	0.0	69.5	4.9	0.0	12.1	7.6	0.0	29.5
Prop In Lane	1.00		0.03	1.00		0.05	1.00		0.45	1.00		0.43
Lane Grp Cap(c), veh/h	44	0	856	148	0	985	98	0	338	128	0	397
V/C Ratio(X)	0.88	0.00	0.55	0.84	0.00	1.11	0.72	0.00	0.51	0.80	0.00	1.15
Avail Cap(c_a), veh/h	44	0	856	196	0	985	306	0	433	227	0	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.0	0.0	24.2	58.5	0.0	30.3	60.5	0.0	45.7	59.2	0.0	50.3
Incr Delay (d2), s/veh	89.8	0.0	1.3	19.4	0.0	65.3	3.7	0.0	0.4	4.3	0.0	92.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.5	0.0	12.3	5.2	0.0	53.1	2.6	0.0	5.5	3.8	0.0	24.4
LnGrp Delay(d),s/veh	152.8	0.0	25.5	77.9	0.0	95.5	64.2	0.0	46.2	63.5	0.0	143.1
LnGrp LOS	F		C	E		F	E		D	E		F
Approach Vol, veh/h		509			1221			242			558	
Approach Delay, s/veh		35.3			93.7			51.4			128.5	
Approach LOS		D			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	67.8	12.5	35.0	7.0	75.5	15.1	32.4
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	14.9	58.1	22.0	29.5	3.5	69.5	17.1	34.4
Max Q Clear Time (g_c+I1), s	11.3	26.1	6.9	31.5	5.1	71.5	9.6	14.1
Green Ext Time (p_c), s	0.1	25.9	0.1	0.0	0.0	0.0	0.1	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	85.6
HCM 2010 LOS	F

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	14	19	2	0	57	8	95	0	4	78	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	21	2	0	62	9	103	0	4	85	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.1	8.7	8.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	40%	88%	0%	100%	0%
Vol Thru, %	0%	80%	54%	12%	0%	0%	94%
Vol Right, %	0%	20%	6%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	98	35	65	95	44	170
LT Vol	4	0	14	57	0	44	0
Through Vol	0	78	19	8	0	0	160
RT Vol	0	20	2	0	95	0	10
Lane Flow Rate	4	107	38	71	103	48	185
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.007	0.153	0.06	0.116	0.136	0.076	0.264
Departure Headway (Hd)	5.826	5.178	5.675	5.886	4.741	5.695	5.151
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	690	629	608	754	628	697
Service Time	3.577	2.929	3.731	3.63	2.485	3.439	2.894
HCM Lane V/C Ratio	0.007	0.155	0.06	0.117	0.137	0.076	0.265
HCM Control Delay	8.6	8.9	9.1	9.4	8.2	8.9	9.7
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.5	0.2	0.4	0.5	0.2	1.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	44	160	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	48	174	11
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.5
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	2	0	675	2	0	1569
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	734	2	0	1705

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1588	368	0	0	736	0
Stage 1	735	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	99	629	-	-	865	-
Stage 1	435	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	99	629	-	-	865	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	378	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	230	865	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s)	-	-	20.8	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	834	468	276	190	234	64	395	673	246	97	355	603
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	907	509	300	207	254	70	429	732	267	105	386	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1021	1245	557	288	491	220	516	1083	853	170	1046	326
Arrive On Green	0.30	0.35	0.35	0.08	0.14	0.14	0.15	0.31	0.31	0.05	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	907	509	300	207	254	70	429	732	267	105	386	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	24.9	10.8	15.0	5.8	6.6	3.9	12.0	17.9	7.3	3.0	6.5	0.0
Cycle Q Clear(g_c), s	24.9	10.8	15.0	5.8	6.6	3.9	12.0	17.9	7.3	3.0	6.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1021	1245	557	288	491	220	516	1083	853	170	1046	326
V/C Ratio(X)	0.89	0.41	0.54	0.72	0.52	0.32	0.83	0.68	0.31	0.62	0.37	0.00
Avail Cap(c_a), veh/h	1233	1245	557	712	1233	551	712	2269	1786	712	3234	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.3	24.3	25.7	44.2	39.6	38.4	40.9	30.1	26.4	46.2	33.8	0.0
Incr Delay (d2), s/veh	7.2	0.2	1.0	3.4	0.8	0.8	6.0	0.7	0.2	3.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	12.9	5.3	6.7	2.9	3.3	1.8	6.2	8.9	2.8	1.5	3.1	0.0
LnGrp Delay(d),s/veh	40.4	24.5	26.7	47.6	40.4	39.3	46.9	30.8	26.6	49.7	34.0	0.0
LnGrp LOS	D	C	C	D	D	D	D	C	C	D	C	
Approach Vol, veh/h		1716			531			1428			491	
Approach Delay, s/veh		33.3			43.1			34.9			37.4	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	26.4	12.8	40.6	9.4	36.3	33.9	19.4
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	14.0	8.5	7.8	17.0	5.0	19.9	26.9	8.6
Green Ext Time (p_c), s	0.9	10.7	0.5	5.7	0.2	10.4	2.5	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1511	136	187	974	3	80	0	242	3	0	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.90
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1880	1900	1881	1881	1881	1900	1712	1900
Adj Flow Rate, veh/h	2	1642	148	212	1107	3	89	0	269	6	0	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	76	1828	795	159	2036	6	737	0	321	9	0	17
Arrive On Green	0.04	0.51	0.51	0.09	0.56	0.56	0.21	0.00	0.21	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1555	1810	3653	10	3583	0	1559	498	0	912
Grp Volume(v), veh/h	2	1642	148	212	541	569	89	0	269	17	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1555	1810	1786	1878	1792	0	1559	1410	0	0
Q Serve(g_s), s	0.1	39.8	4.9	8.4	18.4	18.4	1.9	0.0	15.9	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	39.8	4.9	8.4	18.4	18.4	1.9	0.0	15.9	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.35		0.65
Lane Grp Cap(c), veh/h	76	1828	795	159	995	1046	737	0	321	27	0	0
V/C Ratio(X)	0.03	0.90	0.19	1.34	0.54	0.54	0.12	0.00	0.84	0.64	0.00	0.00
Avail Cap(c_a), veh/h	159	2025	881	159	995	1046	897	0	391	165	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.0	21.2	12.6	43.7	13.5	13.5	31.0	0.0	36.5	46.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	5.5	0.1	187.8	0.6	0.6	0.1	0.0	12.9	23.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	20.8	2.1	12.4	9.2	9.7	1.0	0.0	8.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	44.1	26.7	12.8	231.5	14.1	14.1	31.1	0.0	49.4	69.8	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	C		D	E		
Approach Vol, veh/h		1792			1322			358			17	
Approach Delay, s/veh		25.5			49.0			44.9			69.8	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	54.7		5.6	7.6	59.1		23.5
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	41.8		3.1	2.1	20.4		17.9
Green Ext Time (p_c), s	0.0	7.2		0.0	0.0	12.8		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	453	968	295	146	600	100	338	243	22	118	192	203
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	477	1019	311	166	682	114	367	264	24	137	223	236
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1447	633	195	1316	575	427	726	65	165	350	292
Arrive On Green	0.14	0.40	0.40	0.11	0.37	0.37	0.12	0.22	0.22	0.09	0.19	0.19
Sat Flow, veh/h	3510	3574	1564	1810	3574	1560	3476	3316	299	1792	1863	1553
Grp Volume(v), veh/h	477	1019	311	166	682	114	367	141	147	137	223	236
Grp Sat Flow(s),veh/h/ln	1755	1787	1564	1810	1787	1560	1738	1789	1827	1792	1863	1553
Q Serve(g_s), s	14.9	26.3	16.4	10.0	16.5	5.5	11.5	7.4	7.6	8.3	12.3	16.2
Cycle Q Clear(g_c), s	14.9	26.3	16.4	10.0	16.5	5.5	11.5	7.4	7.6	8.3	12.3	16.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	506	1447	633	195	1316	575	427	391	400	165	350	292
V/C Ratio(X)	0.94	0.70	0.49	0.85	0.52	0.20	0.86	0.36	0.37	0.83	0.64	0.81
Avail Cap(c_a), veh/h	506	1447	633	212	1316	575	501	516	527	226	497	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.46	0.46	0.46	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	27.5	24.5	48.7	27.4	23.9	47.7	36.8	36.8	49.5	41.6	43.1
Incr Delay (d2), s/veh	26.0	2.9	2.7	12.3	0.7	0.4	11.1	0.5	0.5	12.6	1.6	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.1	13.6	7.6	5.7	8.3	2.4	6.2	3.7	3.9	4.7	6.5	7.5
LnGrp Delay(d),s/veh	73.1	30.4	27.3	61.0	28.0	24.2	58.8	37.3	37.3	62.1	43.2	50.3
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1807			962			655			596	
Approach Delay, s/veh		41.1			33.3			49.3			50.4	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	50.6	17.6	26.8	20.0	46.6	14.2	30.2
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	12.0	28.3	13.5	18.2	16.9	18.5	10.3	9.6
Green Ext Time (p_c), s	0.0	3.3	0.2	2.7	0.0	7.8	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	137	970	21	59	651	92	51	127	104	70	97	88
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1884	1900	1863	1873	1900	1900	1900	1900
Adj Flow Rate, veh/h	147	1043	23	67	740	105	57	143	117	75	104	95
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	171	959	21	86	859	122	83	155	127	101	158	144
Arrive On Green	0.09	0.58	0.58	0.05	0.53	0.53	0.05	0.16	0.16	0.06	0.17	0.17
Sat Flow, veh/h	1810	1650	36	1810	1609	228	1774	947	775	1810	912	833
Grp Volume(v), veh/h	147	0	1066	67	0	845	57	0	260	75	0	199
Grp Sat Flow(s),veh/h/ln	1810	0	1686	1810	0	1837	1774	0	1722	1810	0	1744
Q Serve(g_s), s	10.8	0.0	78.6	5.0	0.0	53.7	4.3	0.0	20.1	5.5	0.0	14.4
Cycle Q Clear(g_c), s	10.8	0.0	78.6	5.0	0.0	53.7	4.3	0.0	20.1	5.5	0.0	14.4
Prop In Lane	1.00		0.02	1.00		0.12	1.00		0.45	1.00		0.48
Lane Grp Cap(c), veh/h	171	0	980	86	0	981	83	0	282	101	0	302
V/C Ratio(X)	0.86	0.00	1.09	0.78	0.00	0.86	0.69	0.00	0.92	0.74	0.00	0.66
Avail Cap(c_a), veh/h	181	0	980	87	0	981	290	0	284	229	0	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.3	0.0	28.3	63.7	0.0	27.2	63.5	0.0	55.7	62.8	0.0	52.2
Incr Delay (d2), s/veh	29.9	0.0	55.5	34.5	0.0	8.5	3.7	0.0	32.9	3.9	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.9	0.0	51.3	3.3	0.0	29.3	2.2	0.0	12.2	2.9	0.0	7.3
LnGrp Delay(d),s/veh	90.2	0.0	83.8	98.2	0.0	35.7	67.2	0.0	88.6	66.8	0.0	56.4
LnGrp LOS	F		F	F		D	E		F	E		E
Approach Vol, veh/h		1213			912			317			274	
Approach Delay, s/veh		84.6			40.3			84.8			59.2	
Approach LOS		F			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	84.6	11.8	28.9	16.3	78.2	13.1	27.6
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	6.5	78.6	22.1	17.3	13.5	71.6	17.1	22.3
Max Q Clear Time (g_c+I1), s	7.0	80.6	6.3	16.4	12.8	55.7	7.5	22.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	15.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.2
HCM 2010 LOS	E

Notes

User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	8	3	0	35	6	49	0	5	245	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	9	3	0	38	7	53	0	5	266	37
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.4	9	11.4
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	48%	85%	0%	100%	0%
Vol Thru, %	0%	88%	38%	15%	0%	0%	90%
Vol Right, %	0%	12%	14%	0%	100%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	279	21	41	49	77	175
LT Vol	5	0	10	35	0	77	0
Through Vol	0	245	8	6	0	0	158
RT Vol	0	34	3	0	49	0	17
Lane Flow Rate	5	303	23	45	53	84	190
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.425	0.039	0.079	0.078	0.131	0.268
Departure Headway (Hd)	5.64	5.051	6.102	6.391	5.254	5.65	5.078
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	633	710	583	558	677	633	704
Service Time	3.388	2.799	4.18	4.157	3.019	3.4	2.829
HCM Lane V/C Ratio	0.008	0.427	0.039	0.081	0.078	0.133	0.27
HCM Control Delay	8.4	11.5	9.4	9.7	8.5	9.3	9.7
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0	2.1	0.1	0.3	0.3	0.4	1.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	77	158	17
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	84	172	18
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.6
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	3	1723	4	3	1141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	1873	4	3	1240

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2502	939	0	0	1877	0
Stage 1	1875	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	24	265	-	-	316	-
Stage 1	107	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	265	-	-	316	-
Mov Cap-2 Maneuver	86	-	-	-	-	-
Stage 1	107	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	38.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	115	316	-
HCM Lane V/C Ratio	-	-	0.076	0.01	-
HCM Control Delay (s)	-	-	38.8	16.5	-
HCM Lane LOS	-	-	E	C	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	446	277	225	398	440	36	310	183	256	20	525	879
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	485	301	245	433	478	39	337	199	278	22	571	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	620	860	385	547	785	351	447	1162	915	42	1072	334
Arrive On Green	0.18	0.24	0.24	0.16	0.22	0.22	0.13	0.33	0.33	0.01	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	485	301	245	433	478	39	337	199	278	22	571	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	10.8	5.7	11.1	9.7	9.8	1.6	7.6	3.2	6.0	0.5	8.0	0.0
Cycle Q Clear(g_c), s	10.8	5.7	11.1	9.7	9.8	1.6	7.6	3.2	6.0	0.5	8.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	620	860	385	547	785	351	447	1162	915	42	1072	334
V/C Ratio(X)	0.78	0.35	0.64	0.79	0.61	0.11	0.75	0.17	0.30	0.52	0.53	0.00
Avail Cap(c_a), veh/h	1519	1509	675	877	1518	679	877	2794	2200	877	3982	1240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.5	25.2	27.3	32.5	28.2	25.0	33.8	19.2	20.2	39.5	28.2	0.0
Incr Delay (d2), s/veh	2.2	0.2	1.8	2.6	0.8	0.1	2.6	0.1	0.2	9.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	5.3	2.8	5.0	4.8	4.9	0.7	3.8	1.6	2.3	0.3	3.8	0.0
LnGrp Delay(d),s/veh	33.7	25.4	29.0	35.2	28.9	25.1	36.4	19.3	20.3	49.1	28.6	0.0
LnGrp LOS	C	C	C	D	C	C	D	B	C	D	C	
Approach Vol, veh/h		1031			950			814			593	
Approach Delay, s/veh		30.1			31.6			26.7			29.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	23.0	17.3	25.3	5.5	32.4	19.0	23.5
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	9.6	10.0	11.7	13.1	2.5	8.0	12.8	11.8
Green Ext Time (p_c), s	0.9	6.9	1.1	5.9	0.0	6.9	1.7	6.1

Intersection Summary		
HCM 2010 Ctrl Delay		29.6
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	638	31	215	1426	0	185	3	90	0	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	7	717	35	272	1805	0	246	0	118	0	0	4
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	81	1912	777	196	2152	0	414	0	177	0	0	9
Arrive On Green	0.05	0.55	0.55	0.11	0.61	0.00	0.11	0.00	0.11	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	7	717	35	272	1805	0	246	0	118	0	0	4
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	9.0	0.9	8.4	31.3	0.0	5.0	0.0	5.6	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	9.0	0.9	8.4	31.3	0.0	5.0	0.0	5.6	0.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	81	1912	777	196	2152	0	414	0	177	0	0	9
V/C Ratio(X)	0.09	0.38	0.05	1.39	0.84	0.00	0.59	0.00	0.66	0.00	0.00	0.47
Avail Cap(c_a), veh/h	169	1912	777	196	2504	0	1132	0	486	0	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	34.6	9.8	7.9	34.2	12.0	0.0	32.3	0.0	32.6	0.0	0.0	38.1
Incr Delay (d2), s/veh	0.2	0.1	0.0	202.4	2.4	0.0	1.4	0.0	4.4	0.0	0.0	35.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	4.3	0.3	15.1	15.8	0.0	2.5	0.0	2.6	0.0	0.0	0.2
LnGrp Delay(d),s/veh	34.9	9.9	8.0	236.6	14.4	0.0	33.7	0.0	37.0	0.0	0.0	73.8
LnGrp LOS	C	A	A	F	B		C		D			E
Approach Vol, veh/h		759			2077			364			4	
Approach Delay, s/veh		10.0			43.5			34.8			73.8	
Approach LOS		B			D			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	48.0		4.2	7.6	52.4		12.6
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	11.0		2.2	2.3	33.3		7.6
Green Ext Time (p_c), s	0.0	16.0		0.0	0.0	13.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	170	284	215	69	953	109	335	180	6	131	295	370
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	210	351	265	79	1095	125	399	214	6	170	383	481
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	269	1129	523	101	1108	490	460	1119	31	199	558	466
Arrive On Green	0.08	0.33	0.33	0.06	0.31	0.31	0.13	0.32	0.32	0.11	0.30	0.30
Sat Flow, veh/h	3343	3374	1563	1810	3574	1580	3408	3518	98	1757	1881	1572
Grp Volume(v), veh/h	210	351	265	79	1095	125	399	107	113	170	383	481
Grp Sat Flow(s),veh/h/ln	1672	1687	1563	1810	1787	1580	1704	1771	1846	1757	1881	1572
Q Serve(g_s), s	6.8	8.5	14.9	4.7	33.5	6.5	12.6	4.8	4.9	10.4	19.8	32.6
Cycle Q Clear(g_c), s	6.8	8.5	14.9	4.7	33.5	6.5	12.6	4.8	4.9	10.4	19.8	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	269	1129	523	101	1108	490	460	563	587	199	558	466
V/C Ratio(X)	0.78	0.31	0.51	0.78	0.99	0.26	0.87	0.19	0.19	0.85	0.69	1.03
Avail Cap(c_a), veh/h	365	1129	523	148	1108	490	558	563	587	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	27.2	29.3	51.3	37.7	28.4	46.6	27.2	27.2	47.9	34.2	38.7
Incr Delay (d2), s/veh	5.0	0.7	3.5	0.8	5.8	0.1	10.4	0.1	0.1	8.9	3.4	50.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.3	4.1	6.9	2.4	17.3	2.9	6.6	2.4	2.5	5.5	10.7	20.7
LnGrp Delay(d),s/veh	54.6	27.9	32.8	52.1	43.5	28.5	57.0	27.4	27.4	56.8	37.6	88.9
LnGrp LOS	D	C	C	D	D	C	E	C	C	E	D	F
Approach Vol, veh/h		826			1299			619			1034	
Approach Delay, s/veh		36.3			42.6			46.5			64.6	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	42.5	18.8	38.5	12.9	39.8	16.5	40.9
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	6.7	16.9	14.6	34.6	8.8	35.5	12.4	6.9
Green Ext Time (p_c), s	0.0	8.6	0.2	0.0	0.1	0.0	0.1	5.1

Intersection Summary		
HCM 2010 Ctrl Delay		47.9
HCM 2010 LOS		D

Notes
User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	378	12	108	913	47	45	60	50	87	221	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1812	1900	1792	1858	1900	1900	1768	1900	1810	1881	1900
Adj Flow Rate, veh/h	40	461	15	124	1049	54	70	94	78	102	260	198
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	5	1	1
Cap, veh/h	44	829	27	148	937	48	98	185	153	128	225	171
Arrive On Green	0.03	0.48	0.48	0.09	0.53	0.53	0.05	0.21	0.21	0.07	0.23	0.23
Sat Flow, veh/h	1645	1745	57	1707	1752	90	1810	894	742	1723	992	755
Grp Volume(v), veh/h	40	0	476	124	0	1103	70	0	172	102	0	458
Grp Sat Flow(s),veh/h/ln	1645	0	1802	1707	0	1842	1810	0	1635	1723	0	1747
Q Serve(g_s), s	3.2	0.0	24.5	9.3	0.0	69.5	4.9	0.0	12.1	7.6	0.0	29.5
Cycle Q Clear(g_c), s	3.2	0.0	24.5	9.3	0.0	69.5	4.9	0.0	12.1	7.6	0.0	29.5
Prop In Lane	1.00		0.03	1.00		0.05	1.00		0.45	1.00		0.43
Lane Grp Cap(c), veh/h	44	0	856	148	0	985	98	0	338	128	0	396
V/C Ratio(X)	0.90	0.00	0.56	0.84	0.00	1.12	0.72	0.00	0.51	0.80	0.00	1.16
Avail Cap(c_a), veh/h	44	0	856	193	0	985	306	0	433	227	0	396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.1	0.0	24.3	58.5	0.0	30.3	60.5	0.0	45.7	59.2	0.0	50.3
Incr Delay (d2), s/veh	97.8	0.0	1.4	20.0	0.0	67.6	3.7	0.0	0.4	4.3	0.0	94.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	2.6	0.0	12.5	5.2	0.0	53.8	2.6	0.0	5.5	3.8	0.0	24.6
LnGrp Delay(d),s/veh	160.9	0.0	25.7	78.5	0.0	97.8	64.2	0.0	46.2	63.5	0.0	145.1
LnGrp LOS	F		C	E		F	E		D	E		F
Approach Vol, veh/h		516			1227			242			560	
Approach Delay, s/veh		36.2			95.9			51.4			130.3	
Approach LOS		D			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	67.8	12.5	35.0	7.0	75.5	15.1	32.4
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	14.7	58.3	22.0	29.5	3.5	69.5	17.1	34.4
Max Q Clear Time (g_c+I1), s	11.3	26.5	6.9	31.5	5.2	71.5	9.6	14.1
Green Ext Time (p_c), s	0.1	25.9	0.1	0.0	0.0	0.0	0.1	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	87.1
HCM 2010 LOS	F

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	14	19	2	0	57	8	96	0	4	84	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	21	2	0	62	9	104	0	4	91	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.1	8.7	9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	40%	88%	0%	100%	0%
Vol Thru, %	0%	81%	54%	12%	0%	0%	94%
Vol Right, %	0%	19%	6%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	104	35	65	96	45	175
LT Vol	4	0	14	57	0	45	0
Through Vol	0	84	19	8	0	0	165
RT Vol	0	20	2	0	96	0	10
Lane Flow Rate	4	113	38	71	104	49	190
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.007	0.163	0.06	0.116	0.138	0.078	0.273
Departure Headway (Hd)	5.839	5.199	5.711	5.917	4.773	5.707	5.164
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	611	687	624	605	748	627	694
Service Time	3.59	2.95	3.772	3.666	2.521	3.45	2.907
HCM Lane V/C Ratio	0.007	0.164	0.061	0.117	0.139	0.078	0.274
HCM Control Delay	8.6	9	9.1	9.4	8.3	8.9	9.9
HCM Lane LOS	A	A	A	A	A	A	A
HCM 95th-tile Q	0	0.6	0.2	0.4	0.5	0.3	1.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	45	165	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	49	179	11
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.7
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	2	0	688	2	0	1583
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	748	2	0	1721

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1609	375	0	0	750	0
Stage 1	749	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	95	623	-	-	855	-
Stage 1	428	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	95	623	-	-	855	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	21.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	226	855	-
HCM Lane V/C Ratio	-	-	0.01	-	-
HCM Control Delay (s)	-	-	21.1	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	213	12	0	205
Conflicting Peds, #/hr	0	22	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	232	13	0	223

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	483	144	0	0	267	0
Stage 1	260	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	550	746	-	-	870	-
Stage 1	692	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	540	732	-	-	870	-
Mov Cap-2 Maneuver	540	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	784	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	732	870	-
HCM Lane V/C Ratio	-	-	0.097	-	-
HCM Control Delay (s)	-	-	10.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	699	85	0	1641	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	760	92	0	1784	0	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	760	0	1652	380
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	892	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	848	-	89	618
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	89	618
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	618	-	-	848	-
HCM Lane V/C Ratio	0.053	-	-	-	-
HCM Control Delay (s)	11.1	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	841	468	276	190	234	65	395	686	246	98	367	609
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	914	509	300	207	254	71	429	746	267	107	399	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1023	1246	557	286	488	218	514	1097	863	172	1071	333
Arrive On Green	0.30	0.35	0.35	0.08	0.14	0.14	0.15	0.31	0.31	0.05	0.21	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	914	509	300	207	254	71	429	746	267	107	399	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	25.7	11.0	15.3	5.9	6.7	4.1	12.2	18.6	7.4	3.1	6.8	0.0
Cycle Q Clear(g_c), s	25.7	11.0	15.3	5.9	6.7	4.1	12.2	18.6	7.4	3.1	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1023	1246	557	286	488	218	514	1097	863	172	1071	333
V/C Ratio(X)	0.89	0.41	0.54	0.72	0.52	0.33	0.84	0.68	0.31	0.62	0.37	0.00
Avail Cap(c_a), veh/h	1209	1246	557	698	1261	564	698	2225	1752	698	3171	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	24.8	26.2	45.2	40.4	39.3	41.8	30.5	26.6	47.1	34.2	0.0
Incr Delay (d2), s/veh	7.8	0.2	1.0	3.4	0.9	0.9	6.5	0.8	0.2	3.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	13.0	5.4	6.9	3.0	3.3	1.8	6.3	9.2	2.9	1.6	3.2	0.0
LnGrp Delay(d),s/veh	41.8	25.0	27.2	48.6	41.3	40.2	48.2	31.2	26.8	50.7	34.4	0.0
LnGrp LOS	D	C	C	D	D	D	D	C	C	D	C	
Approach Vol, veh/h		1723			532			1442			506	
Approach Delay, s/veh		34.3			44.0			35.5			37.8	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	27.3	12.9	41.3	9.6	37.3	34.5	19.6
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	35.0	20.5	* 64	35.5	* 36
Max Q Clear Time (g_c+I1), s	14.2	8.8	7.9	17.3	5.1	20.6	27.7	8.7
Green Ext Time (p_c), s	0.8	11.0	0.5	5.8	0.2	10.7	2.4	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	36.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1535	133	226	954	3	136	0	237	3	0	6
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.90
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1880	1900	1881	1881	1881	1900	1712	1900
Adj Flow Rate, veh/h	2	1668	145	257	1084	3	151	0	263	6	0	11
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	75	1841	801	158	2048	6	729	0	317	9	0	17
Arrive On Green	0.04	0.51	0.51	0.09	0.56	0.56	0.20	0.00	0.20	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1555	1810	3653	10	3583	0	1559	497	0	912
Grp Volume(v), veh/h	2	1668	145	257	530	557	151	0	263	17	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1555	1810	1786	1877	1792	0	1559	1409	0	0
Q Serve(g_s), s	0.1	40.9	4.8	8.4	17.9	17.9	3.4	0.0	15.6	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.1	40.9	4.8	8.4	17.9	17.9	3.4	0.0	15.6	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.35		0.65
Lane Grp Cap(c), veh/h	75	1841	801	158	1001	1053	729	0	317	27	0	0
V/C Ratio(X)	0.03	0.91	0.18	1.63	0.53	0.53	0.21	0.00	0.83	0.64	0.00	0.00
Avail Cap(c_a), veh/h	158	2015	877	158	1001	1053	893	0	388	164	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.3	21.2	12.5	44.0	13.2	13.2	31.9	0.0	36.8	46.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	6.1	0.1	310.0	0.6	0.5	0.1	0.0	11.9	23.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	21.5	2.1	17.7	8.8	9.3	1.7	0.0	7.8	0.6	0.0	0.0
LnGrp Delay(d),s/veh	44.4	27.3	12.6	354.0	13.8	13.8	32.1	0.0	48.7	70.2	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	C		D	E		
Approach Vol, veh/h		1815			1344			414			17	
Approach Delay, s/veh		26.2			78.8			42.6			70.2	
Approach LOS		C			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	55.3		5.6	7.6	59.7		23.4
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	42.9		3.2	2.1	19.9		17.6
Green Ext Time (p_c), s	0.0	6.7		0.0	0.0	13.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	457	976	299	146	609	100	343	243	22	118	192	208
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	481	1027	315	166	692	114	373	264	24	137	223	242
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1429	625	195	1298	567	433	743	67	165	357	297
Arrive On Green	0.14	0.40	0.40	0.11	0.36	0.36	0.12	0.22	0.22	0.09	0.19	0.19
Sat Flow, veh/h	3510	3574	1564	1810	3574	1560	3476	3316	299	1792	1863	1553
Grp Volume(v), veh/h	481	1027	315	166	692	114	373	141	147	137	223	242
Grp Sat Flow(s),veh/h/ln	1755	1787	1564	1810	1787	1560	1738	1789	1827	1792	1863	1553
Q Serve(g_s), s	15.1	26.9	16.8	10.0	17.0	5.6	11.7	7.4	7.5	8.3	12.2	16.6
Cycle Q Clear(g_c), s	15.1	26.9	16.8	10.0	17.0	5.6	11.7	7.4	7.5	8.3	12.2	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	506	1429	625	195	1298	567	433	401	409	165	357	297
V/C Ratio(X)	0.95	0.72	0.50	0.85	0.53	0.20	0.86	0.35	0.36	0.83	0.63	0.81
Avail Cap(c_a), veh/h	506	1429	625	212	1298	567	501	516	527	226	497	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.41	0.41	0.41	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	28.1	25.0	48.7	27.9	24.3	47.6	36.3	36.3	49.5	41.2	43.0
Incr Delay (d2), s/veh	27.7	3.1	2.9	11.3	0.7	0.3	11.5	0.5	0.5	12.6	1.5	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.2	13.9	7.7	5.6	8.5	2.4	6.3	3.7	3.8	4.7	6.4	7.8
LnGrp Delay(d),s/veh	74.8	31.2	27.9	60.0	28.6	24.6	59.2	36.7	36.8	62.1	42.8	50.8
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1823			972			661			602	
Approach Delay, s/veh		42.1			33.5			49.4			50.4	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	50.1	17.8	27.2	20.0	46.0	14.2	30.8
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	12.0	28.9	13.7	18.6	17.1	19.0	10.3	9.5
Green Ext Time (p_c), s	0.0	2.9	0.1	2.7	0.0	7.6	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	138	977	21	59	658	92	51	127	104	70	97	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1883	1900	1863	1873	1900	1900	1900	1900
Adj Flow Rate, veh/h	148	1051	23	67	748	105	57	143	117	75	104	97
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	172	961	21	85	861	121	83	154	126	101	155	145
Arrive On Green	0.10	0.58	0.58	0.05	0.53	0.53	0.05	0.16	0.16	0.06	0.17	0.17
Sat Flow, veh/h	1810	1650	36	1810	1611	226	1774	947	775	1810	902	841
Grp Volume(v), veh/h	148	0	1074	67	0	853	57	0	260	75	0	201
Grp Sat Flow(s),veh/h/ln	1810	0	1686	1810	0	1837	1774	0	1722	1810	0	1743
Q Serve(g_s), s	10.9	0.0	78.9	5.0	0.0	54.7	4.3	0.0	20.2	5.5	0.0	14.6
Cycle Q Clear(g_c), s	10.9	0.0	78.9	5.0	0.0	54.7	4.3	0.0	20.2	5.5	0.0	14.6
Prop In Lane	1.00		0.02	1.00		0.12	1.00		0.45	1.00		0.48
Lane Grp Cap(c), veh/h	172	0	982	85	0	982	83	0	281	101	0	300
V/C Ratio(X)	0.86	0.00	1.09	0.78	0.00	0.87	0.69	0.00	0.93	0.74	0.00	0.67
Avail Cap(c_a), veh/h	180	0	982	85	0	982	289	0	281	228	0	300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	0.0	28.3	63.9	0.0	27.4	63.6	0.0	55.9	63.0	0.0	52.5
Incr Delay (d2), s/veh	30.3	0.0	57.8	35.6	0.0	9.0	3.7	0.0	34.1	3.9	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.9	0.0	52.3	3.3	0.0	29.9	2.2	0.0	12.3	2.9	0.0	7.4
LnGrp Delay(d),s/veh	90.7	0.0	86.1	99.4	0.0	36.4	67.3	0.0	90.0	66.9	0.0	57.1
LnGrp LOS	F		F	F		D	E		F	E		E
Approach Vol, veh/h		1222			920			317			276	
Approach Delay, s/veh		86.6			41.0			85.9			59.7	
Approach LOS		F			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	84.9	11.8	28.8	16.4	78.4	13.1	27.6
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	6.4	78.9	22.1	17.1	13.5	71.8	17.1	22.1
Max Q Clear Time (g_c+I1), s	7.0	80.9	6.3	16.6	12.9	56.7	7.5	22.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	14.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.5
HCM 2010 LOS	E

Notes

User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	8	3	0	35	6	51	0	5	254	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	9	3	0	38	7	55	0	5	276	37
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.5	9.1	11.7
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	48%	85%	0%	100%	0%
Vol Thru, %	0%	88%	38%	15%	0%	0%	91%
Vol Right, %	0%	12%	14%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	288	21	41	51	78	183
LT Vol	5	0	10	35	0	78	0
Through Vol	0	254	8	6	0	0	166
RT Vol	0	34	3	0	51	0	17
Lane Flow Rate	5	313	23	45	55	85	199
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.441	0.039	0.08	0.082	0.134	0.282
Departure Headway (Hd)	5.66	5.074	6.153	6.438	5.3	5.67	5.101
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	631	707	577	554	671	631	702
Service Time	3.41	2.824	4.241	4.21	3.071	3.422	2.853
HCM Lane V/C Ratio	0.008	0.443	0.04	0.081	0.082	0.135	0.283
HCM Control Delay	8.5	11.8	9.5	9.8	8.6	9.3	9.9
HCM Lane LOS	A	B	A	A	A	A	A
HCM 95th-tile Q	0	2.3	0.1	0.3	0.3	0.5	1.2

Intersection				
Intersection Delay, s/veh				
Intersection LOS				

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	78	166	17
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	85	180	18
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.7
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	0.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	3	1741	4	3	1160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	1892	4	3	1261

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2532	948	0	0	1897	0
Stage 1	1895	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	23	262	-	-	310	-
Stage 1	104	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	23	262	-	-	310	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	104	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	39.5	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	113	310	-
HCM Lane V/C Ratio	-	-	0.077	0.011	-
HCM Control Delay (s)	-	-	39.5	16.7	-
HCM Lane LOS	-	-	E	C	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	57	316	17	0	333
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	62	343	18	0	362

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	715	181	0	0	362	0
Stage 1	353	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	413	707	-	-	786	-
Stage 1	610	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	413	707	-	-	786	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	680	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	707	786	-
HCM Lane V/C Ratio	-	-	0.088	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1720	98	0	1183	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1870	107	0	1286	0	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1870	0	2513	935
Stage 1	-	-	-	-	1870	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	318	-	23	267
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	318	-	23	267
Mov Cap-2 Maneuver	-	-	-	-	86	-
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	485	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	267	-	-	318	-
HCM Lane V/C Ratio	0.212	-	-	-	-
HCM Control Delay (s)	22.1	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	565	395	235	480	455	50	315	250	415	40	785	1140
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	614	429	255	522	495	54	342	272	451	43	853	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	717	868	388	588	736	329	419	1319	1038	78	1392	433
Arrive On Green	0.21	0.25	0.25	0.17	0.21	0.21	0.12	0.37	0.37	0.02	0.27	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	614	429	255	522	495	54	342	272	451	43	853	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	18.9	11.4	15.9	16.3	14.1	3.1	10.6	5.7	13.3	1.4	16.1	0.0
Cycle Q Clear(g_c), s	18.9	11.4	15.9	16.3	14.1	3.1	10.6	5.7	13.3	1.4	16.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	717	868	388	588	736	329	419	1319	1038	78	1392	433
V/C Ratio(X)	0.86	0.49	0.66	0.89	0.67	0.16	0.82	0.21	0.43	0.55	0.61	0.00
Avail Cap(c_a), veh/h	1112	1105	494	642	1112	497	642	2046	1611	642	2917	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.9	35.6	37.3	44.5	40.1	35.7	47.0	23.4	25.8	53.1	34.8	0.0
Incr Delay (d2), s/veh	4.2	0.4	2.1	13.5	1.1	0.2	4.8	0.1	0.3	5.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.4	5.7	7.2	8.9	7.1	1.4	5.4	2.8	5.2	0.7	7.6	0.0
LnGrp Delay(d),s/veh	46.1	36.0	39.4	58.0	41.1	35.9	51.9	23.5	26.1	59.0	35.3	0.0
LnGrp LOS	D	D	D	E	D	D	D	C	C	E	D	
Approach Vol, veh/h		1298			1071			1065			896	
Approach Delay, s/veh		41.5			49.1			33.7			36.4	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	36.1	23.3	32.6	7.0	46.9	27.4	28.5
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	12.6	18.1	18.3	17.9	3.4	15.3	20.9	16.1
Green Ext Time (p_c), s	0.7	12.0	0.5	6.4	0.1	12.1	2.0	6.7

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	695	65	170	1230	0	215	5	105	0	0	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	6	781	73	215	1557	0	288	0	138	0	0	10
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	82	1808	735	200	2050	0	471	0	202	0	0	20
Arrive On Green	0.05	0.52	0.52	0.11	0.58	0.00	0.13	0.00	0.13	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	6	781	73	215	1557	0	288	0	138	0	0	10
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	10.5	2.0	8.4	24.8	0.0	5.7	0.0	6.4	0.0	0.0	0.5
Cycle Q Clear(g_c), s	0.3	10.5	2.0	8.4	24.8	0.0	5.7	0.0	6.4	0.0	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	82	1808	735	200	2050	0	471	0	202	0	0	20
V/C Ratio(X)	0.07	0.43	0.10	1.07	0.76	0.00	0.61	0.00	0.68	0.00	0.00	0.49
Avail Cap(c_a), veh/h	173	1808	735	200	2557	0	1156	0	496	0	0	241
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	33.8	11.1	9.1	33.4	11.9	0.0	30.9	0.0	31.2	0.0	0.0	36.9
Incr Delay (d2), s/veh	0.2	0.2	0.1	84.5	1.1	0.0	1.3	0.0	4.2	0.0	0.0	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	5.0	0.8	8.8	12.2	0.0	2.9	0.0	3.0	0.0	0.0	0.3
LnGrp Delay(d),s/veh	34.0	11.3	9.2	117.9	13.0	0.0	32.2	0.0	35.4	0.0	0.0	55.0
LnGrp LOS	C	B	A	F	B		C		D			D
Approach Vol, veh/h		860			1772			426			10	
Approach Delay, s/veh		11.3			25.7			33.3			55.0	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	44.8		4.7	7.6	49.2		13.6
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	12.5		2.5	2.3	26.8		8.4
Green Ext Time (p_c), s	0.0	14.2		0.0	0.0	16.7		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	200	345	215	60	835	135	235	170	10	185	180	345
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	247	426	265	69	960	155	280	202	10	240	234	448
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	305	1267	587	89	1192	527	343	840	41	268	558	466
Arrive On Green	0.09	0.38	0.38	0.05	0.33	0.33	0.10	0.24	0.24	0.15	0.30	0.30
Sat Flow, veh/h	3343	3374	1564	1810	3574	1580	3408	3436	169	1757	1881	1572
Grp Volume(v), veh/h	247	426	265	69	960	155	280	104	108	240	234	448
Grp Sat Flow(s),veh/h/ln	1672	1687	1564	1810	1787	1580	1704	1771	1834	1757	1881	1572
Q Serve(g_s), s	8.0	9.9	14.0	4.1	26.9	8.0	8.9	5.2	5.2	14.7	11.0	30.8
Cycle Q Clear(g_c), s	8.0	9.9	14.0	4.1	26.9	8.0	8.9	5.2	5.2	14.7	11.0	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	305	1267	587	89	1192	527	343	433	448	268	558	466
V/C Ratio(X)	0.81	0.34	0.45	0.78	0.81	0.29	0.82	0.24	0.24	0.89	0.42	0.96
Avail Cap(c_a), veh/h	365	1267	587	148	1192	527	558	501	518	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.31	0.31	0.31	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	24.5	25.8	51.7	33.4	27.1	48.5	33.4	33.4	45.7	31.1	38.1
Incr Delay (d2), s/veh	9.2	0.7	2.5	1.7	1.9	0.4	1.9	0.2	0.2	23.5	0.4	31.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.1	4.7	6.4	2.1	13.5	3.5	4.3	2.6	2.7	8.9	5.8	17.5
LnGrp Delay(d),s/veh	58.2	25.3	28.3	53.4	35.3	27.5	50.4	33.6	33.6	69.2	31.5	69.9
LnGrp LOS	E	C	C	D	D	C	D	C	C	E	C	E
Approach Vol, veh/h		938			1184			492			922	
Approach Delay, s/veh		34.8			35.3			43.1			60.0	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	47.0	15.1	38.5	14.0	42.4	20.8	32.8
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	6.1	16.0	10.9	32.8	10.0	28.9	16.7	7.2
Green Ext Time (p_c), s	0.0	8.7	0.2	0.0	0.1	0.0	0.1	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	42.7
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	450	20	90	825	90	30	75	30	120	310	185
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1813	1900	1792	1854	1900	1900	1771	1900	1810	1881	1900
Adj Flow Rate, veh/h	85	549	24	103	948	103	47	117	47	141	365	218
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	5	1	1
Cap, veh/h	106	1039	45	129	1026	112	86	351	141	177	383	229
Arrive On Green	0.06	0.31	0.31	0.08	0.32	0.32	0.05	0.29	0.29	0.10	0.35	0.35
Sat Flow, veh/h	1645	3363	147	1707	3205	348	1810	1202	483	1723	1104	660
Grp Volume(v), veh/h	85	281	292	103	521	530	47	0	164	141	0	583
Grp Sat Flow(s),veh/h/ln	1645	1722	1787	1707	1761	1792	1810	0	1685	1723	0	1764
Q Serve(g_s), s	4.7	12.5	12.5	5.5	26.5	26.5	2.4	0.0	7.1	7.4	0.0	29.9
Cycle Q Clear(g_c), s	4.7	12.5	12.5	5.5	26.5	26.5	2.4	0.0	7.1	7.4	0.0	29.9
Prop In Lane	1.00		0.08	1.00		0.19	1.00		0.29	1.00		0.37
Lane Grp Cap(c), veh/h	106	532	552	129	564	574	86	0	492	177	0	613
V/C Ratio(X)	0.80	0.53	0.53	0.80	0.92	0.92	0.55	0.00	0.33	0.80	0.00	0.95
Avail Cap(c_a), veh/h	112	532	552	186	579	589	429	0	682	317	0	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	26.5	26.5	42.2	30.5	30.5	43.3	0.0	25.8	40.7	0.0	29.5
Incr Delay (d2), s/veh	30.7	1.8	1.8	12.2	21.3	21.0	2.0	0.0	0.1	3.1	0.0	24.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.1	6.2	6.4	3.0	16.2	16.5	1.2	0.0	3.3	3.7	0.0	18.7
LnGrp Delay(d),s/veh	73.5	28.3	28.3	54.5	51.7	51.5	45.3	0.0	25.9	43.8	0.0	53.8
LnGrp LOS	E	C	C	D	D	D	D		C	D		D
Approach Vol, veh/h		658			1154			211			724	
Approach Delay, s/veh		34.1			51.9			30.2			51.9	
Approach LOS		C			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	34.7	9.9	37.7	9.5	35.7	15.0	32.6
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	10.1	26.7	22.0	32.7	6.3	30.5	17.1	37.6
Max Q Clear Time (g_c+I1), s	7.5	14.5	4.4	31.9	6.7	28.5	9.4	9.1
Green Ext Time (p_c), s	0.0	10.3	0.0	0.3	0.0	1.2	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	20	5	0	60	10	85	0	5	195	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	16	22	5	0	65	11	92	0	5	212	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.7	9.4	10.9
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	38%	86%	0%	100%	0%
Vol Thru, %	0%	91%	50%	14%	0%	0%	95%
Vol Right, %	0%	9%	12%	0%	100%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	215	40	70	85	40	210
LT Vol	5	0	15	60	0	40	0
Through Vol	0	195	20	10	0	0	200
RT Vol	0	20	5	0	85	0	10
Lane Flow Rate	5	234	43	76	92	43	228
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.346	0.075	0.133	0.133	0.071	0.338
Departure Headway (Hd)	5.907	5.337	6.193	6.306	5.167	5.865	5.327
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	601	668	582	564	686	607	669
Service Time	3.689	3.118	4.193	4.095	2.956	3.644	3.106
HCM Lane V/C Ratio	0.008	0.35	0.074	0.135	0.134	0.071	0.341
HCM Control Delay	8.7	11	9.7	10.1	8.8	9.1	10.8
HCM Lane LOS	A	B	A	B	A	A	B
HCM 95th-tile Q	0	1.5	0.2	0.5	0.5	0.2	1.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	40	200	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	43	217	11
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.5
HCM LOS	B

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	0	800	5	0	1400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	870	5	0	1522

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1633	438	0	0	875	0
Stage 1	872	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	92	567	-	-	767	-
Stage 1	369	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	92	567	-	-	767	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	369	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	21.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	221	767	-
HCM Lane V/C Ratio	-	-	0.025	-	-
HCM Control Delay (s)	-	-	21.7	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1050	575	275	310	405	135	425	865	310	150	445	795
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1141	625	299	337	440	147	462	940	337	163	484	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	929	1103	494	398	558	250	512	1241	977	221	1353	421
Arrive On Green	0.27	0.31	0.31	0.12	0.16	0.16	0.15	0.35	0.35	0.06	0.27	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	1141	625	299	337	440	147	462	940	337	163	484	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	35.5	19.4	21.1	12.6	15.7	11.3	17.4	30.9	11.7	6.1	10.2	0.0
Cycle Q Clear(g_c), s	35.5	19.4	21.1	12.6	15.7	11.3	17.4	30.9	11.7	6.1	10.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	929	1103	494	398	558	250	512	1241	977	221	1353	421
V/C Ratio(X)	1.23	0.57	0.61	0.85	0.79	0.59	0.90	0.76	0.34	0.74	0.36	0.00
Avail Cap(c_a), veh/h	929	1103	494	537	928	415	537	1709	1346	537	2436	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.0	37.8	38.4	57.0	53.3	51.4	55.0	37.7	31.5	60.4	39.1	0.0
Incr Delay (d2), s/veh	112.2	0.7	2.1	9.1	2.5	2.2	17.9	1.3	0.2	4.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	31.8	9.6	9.5	6.5	7.9	5.1	9.6	15.2	4.5	3.1	4.8	0.0
LnGrp Delay(d),s/veh	160.2	38.5	40.5	66.1	55.8	53.6	72.9	39.1	31.7	65.1	39.3	0.0
LnGrp LOS	F	D	D	E	E	D	E	D	C	E	D	
Approach Vol, veh/h		2065			924			1739			647	
Approach Delay, s/veh		106.0			59.2			46.6			45.8	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.1	41.0	19.7	46.7	13.0	52.1	40.0	26.4
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	19.4	12.2	14.6	23.1	8.1	32.9	37.5	17.7
Green Ext Time (p_c), s	0.2	15.5	0.6	6.1	0.4	13.2	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.5
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	1700	225	140	1240	5	125	0	170	5	0	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.90
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1879	1900	1881	1881	1881	1900	1751	1900
Adj Flow Rate, veh/h	5	1848	245	159	1409	6	139	0	189	9	0	9
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	76	1950	849	160	2157	9	602	0	260	15	0	15
Arrive On Green	0.04	0.55	0.55	0.09	0.59	0.59	0.17	0.00	0.17	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1556	1810	3645	16	3583	0	1550	744	0	744
Grp Volume(v), veh/h	5	1848	245	159	690	725	139	0	189	18	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1556	1810	1785	1875	1792	0	1550	1489	0	0
Q Serve(g_s), s	0.3	46.2	8.1	8.3	24.4	24.4	3.2	0.0	11.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	46.2	8.1	8.3	24.4	24.4	3.2	0.0	11.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	76	1950	849	160	1056	1110	602	0	260	30	0	0
V/C Ratio(X)	0.07	0.95	0.29	0.99	0.65	0.65	0.23	0.00	0.73	0.61	0.00	0.00
Avail Cap(c_a), veh/h	160	2046	891	160	1056	1110	907	0	392	176	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.6	20.3	11.6	43.2	12.9	12.9	34.2	0.0	37.4	46.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	10.0	0.2	68.6	1.5	1.4	0.2	0.0	4.0	19.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	25.3	3.5	7.2	12.3	12.9	1.6	0.0	5.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	43.8	30.3	11.8	111.8	14.4	14.3	34.4	0.0	41.4	65.2	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	C		D	E		
Approach Vol, veh/h		2098			1574			328			18	
Approach Delay, s/veh		28.2			24.2			38.4			65.2	
Approach LOS		C			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	57.4		5.7	7.6	61.8		19.7
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	10.3	48.2		3.1	2.3	26.4		13.0
Green Ext Time (p_c), s	0.0	3.6		0.0	0.0	7.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	27.6
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	510	1070	300	120	710	90	345	195	20	130	165	295
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	537	1126	316	136	807	102	375	212	22	151	192	343
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1300	569	164	1109	484	435	880	90	179	454	379
Arrive On Green	0.14	0.36	0.36	0.09	0.31	0.31	0.13	0.27	0.27	0.10	0.24	0.24
Sat Flow, veh/h	3510	3574	1563	1810	3574	1559	3476	3274	336	1792	1863	1555
Grp Volume(v), veh/h	537	1126	316	136	807	102	375	115	119	151	192	343
Grp Sat Flow(s),veh/h/ln	1755	1787	1563	1810	1787	1559	1738	1789	1822	1792	1863	1555
Q Serve(g_s), s	16.0	32.5	17.9	8.2	22.3	5.4	11.7	5.6	5.7	9.2	9.6	23.7
Cycle Q Clear(g_c), s	16.0	32.5	17.9	8.2	22.3	5.4	11.7	5.6	5.7	9.2	9.6	23.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	506	1300	569	164	1109	484	435	481	490	179	454	379
V/C Ratio(X)	1.06	0.87	0.56	0.83	0.73	0.21	0.86	0.24	0.24	0.84	0.42	0.90
Avail Cap(c_a), veh/h	506	1300	569	212	1109	484	501	516	525	226	497	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	32.8	28.2	49.6	34.1	28.2	47.6	31.7	31.8	49.1	35.4	40.7
Incr Delay (d2), s/veh	57.2	7.9	3.9	8.9	2.3	0.5	11.7	0.2	0.2	16.8	0.5	21.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	11.8	17.4	8.3	4.5	11.3	2.4	6.3	2.8	2.9	5.4	5.0	12.5
LnGrp Delay(d),s/veh	104.7	40.7	32.0	58.5	36.4	28.8	59.3	31.9	32.0	65.8	35.9	62.2
LnGrp LOS	F	D	C	E	D	C	E	C	C	E	D	E
Approach Vol, veh/h		1979			1045			609			686	
Approach Delay, s/veh		56.7			38.6			48.8			55.7	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	46.1	17.9	33.0	20.0	40.1	15.1	35.7
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	10.2	34.5	13.7	25.7	18.0	24.3	11.2	7.7
Green Ext Time (p_c), s	0.0	0.0	0.1	1.3	0.0	4.3	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	195	1045	20	30	710	135	60	165	70	105	105	135
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1884	1900	1863	1876	1900	1900	1900	1900
Adj Flow Rate, veh/h	210	1124	22	34	807	153	67	185	79	113	113	145
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	247	1650	32	42	1114	211	105	228	97	152	156	201
Arrive On Green	0.14	0.49	0.49	0.02	0.37	0.37	0.06	0.18	0.18	0.08	0.21	0.21
Sat Flow, veh/h	1810	3401	67	1810	2990	567	1774	1245	532	1810	754	967
Grp Volume(v), veh/h	210	591	555	34	483	477	67	0	264	113	0	258
Grp Sat Flow(s),veh/h/ln	1810	1787	1680	1810	1790	1767	1774	0	1777	1810	0	1721
Q Serve(g_s), s	10.4	23.2	23.2	1.7	21.2	21.2	3.4	0.0	13.0	5.6	0.0	12.8
Cycle Q Clear(g_c), s	10.4	23.2	23.2	1.7	21.2	21.2	3.4	0.0	13.0	5.6	0.0	12.8
Prop In Lane	1.00		0.04	1.00		0.32	1.00		0.30	1.00		0.56
Lane Grp Cap(c), veh/h	247	868	815	42	667	658	105	0	325	152	0	357
V/C Ratio(X)	0.85	0.68	0.68	0.80	0.72	0.72	0.64	0.00	0.81	0.74	0.00	0.72
Avail Cap(c_a), veh/h	327	908	853	89	674	665	429	0	457	339	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	18.1	18.1	44.4	24.7	24.7	42.0	0.0	35.8	40.9	0.0	33.8
Incr Delay (d2), s/veh	13.8	2.7	2.9	21.9	4.8	4.8	2.4	0.0	5.0	2.7	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.1	12.0	11.3	1.1	11.3	11.2	1.7	0.0	6.8	2.9	0.0	6.7
LnGrp Delay(d),s/veh	52.4	20.8	21.0	66.3	29.4	29.5	44.4	0.0	40.9	43.6	0.0	39.9
LnGrp LOS	D	C	C	E	C	C	D		D	D		D
Approach Vol, veh/h		1356			994			331			371	
Approach Delay, s/veh		25.8			30.7			41.6			41.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	50.4	10.9	24.5	16.0	40.0	13.2	22.2
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	4.5	46.4	22.1	18.5	16.5	34.4	17.1	23.5
Max Q Clear Time (g_c+I1), s	3.7	25.2	5.4	14.8	12.4	23.2	7.6	15.0
Green Ext Time (p_c), s	0.0	19.1	0.1	0.8	0.2	10.5	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	10	5	0	35	5	45	0	5	225	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	11	5	0	38	5	49	0	5	245	38
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.5	9.1	11.1
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	40%	88%	0%	100%	0%
Vol Thru, %	0%	87%	40%	12%	0%	0%	94%
Vol Right, %	0%	13%	20%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	260	25	40	45	65	235
LT Vol	5	0	10	35	0	65	0
Through Vol	0	225	10	5	0	0	220
RT Vol	0	35	5	0	45	0	15
Lane Flow Rate	5	283	27	43	49	71	255
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.4	0.046	0.078	0.072	0.111	0.361
Departure Headway (Hd)	5.689	5.091	6.112	6.478	5.329	5.635	5.087
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	627	704	581	550	667	634	705
Service Time	3.439	2.841	4.198	4.252	3.103	3.384	2.836
HCM Lane V/C Ratio	0.008	0.402	0.046	0.078	0.073	0.112	0.362
HCM Control Delay	8.5	11.2	9.5	9.8	8.5	9.1	10.7
HCM Lane LOS	A	B	A	A	A	A	B
HCM 95th-tile Q	0	1.9	0.1	0.3	0.2	0.4	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	65	220	15
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	71	239	16
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.4
HCM LOS	B

Lane

Intersection	
Int Delay, s/veh	0.2

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	5	1920	5	5	1375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	2087	5	5	1495

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2848	1046	0	0	2092	0
Stage 1	2090	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	14	225	-	-	260	-
Stage 1	81	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	14	225	-	-	260	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	81	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	44.9	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	101	260	-
HCM Lane V/C Ratio	-	-	0.108	0.021	-
HCM Control Delay (s)	-	-	44.9	19.1	-
HCM Lane LOS	-	-	E	C	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	569	395	235	480	455	51	315	261	415	41	795	1144
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	618	429	255	522	495	55	342	284	451	45	864	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	719	869	389	586	732	328	418	1324	1042	82	1405	437
Arrive On Green	0.21	0.25	0.25	0.17	0.21	0.21	0.12	0.37	0.37	0.02	0.28	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	618	429	255	522	495	55	342	284	451	45	864	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	19.2	11.6	16.1	16.5	14.3	3.2	10.8	6.1	13.4	1.4	16.5	0.0
Cycle Q Clear(g_c), s	19.2	11.6	16.1	16.5	14.3	3.2	10.8	6.1	13.4	1.4	16.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	719	869	389	586	732	328	418	1324	1042	82	1405	437
V/C Ratio(X)	0.86	0.49	0.66	0.89	0.68	0.17	0.82	0.21	0.43	0.55	0.61	0.00
Avail Cap(c_a), veh/h	1100	1093	489	635	1099	492	635	2023	1593	635	2883	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.4	36.0	37.7	45.1	40.6	36.2	47.6	23.7	26.0	53.7	35.1	0.0
Incr Delay (d2), s/veh	4.5	0.4	2.2	14.0	1.1	0.2	5.1	0.1	0.3	5.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.5	5.7	7.2	9.0	7.1	1.4	5.4	3.0	5.2	0.7	7.7	0.0
LnGrp Delay(d),s/veh	46.8	36.4	39.9	59.1	41.7	36.4	52.7	23.8	26.3	59.3	35.5	0.0
LnGrp LOS	D	D	D	E	D	D	D	C	C	E	D	
Approach Vol, veh/h		1302			1072			1077			909	
Approach Delay, s/veh		42.0			49.9			34.0			36.7	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	36.7	23.4	33.0	7.1	47.6	27.7	28.7
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	34.3	20.5	* 64	35.5	* 35
Max Q Clear Time (g_c+I1), s	12.8	18.5	18.5	18.1	3.4	15.4	21.2	16.3
Green Ext Time (p_c), s	0.7	12.2	0.4	6.3	0.1	12.4	2.0	6.7

Intersection Summary	
HCM 2010 Ctrl Delay	40.9
HCM 2010 LOS	D

Notes
User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	712	64	219	1195	0	278	5	102	0	0	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1624	1827	1696	1881	1863	1900	1900	1900	1827	1900	1900	1900
Adj Flow Rate, veh/h	6	800	72	277	1513	0	371	0	134	0	0	10
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.76	0.76	0.76	0.50	0.50	0.50
Percent Heavy Veh, %	17	4	12	1	2	2	0	0	4	0	0	0
Cap, veh/h	81	1768	719	198	2007	0	527	0	226	0	0	20
Arrive On Green	0.05	0.51	0.51	0.11	0.57	0.00	0.15	0.00	0.15	0.00	0.00	0.01
Sat Flow, veh/h	1547	3471	1411	1792	3632	0	3619	0	1553	0	0	1615
Grp Volume(v), veh/h	6	800	72	277	1513	0	371	0	134	0	0	10
Grp Sat Flow(s),veh/h/ln	1547	1736	1411	1792	1770	0	1810	0	1553	0	0	1615
Q Serve(g_s), s	0.3	11.2	2.0	8.4	24.6	0.0	7.4	0.0	6.1	0.0	0.0	0.5
Cycle Q Clear(g_c), s	0.3	11.2	2.0	8.4	24.6	0.0	7.4	0.0	6.1	0.0	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	81	1768	719	198	2007	0	527	0	226	0	0	20
V/C Ratio(X)	0.07	0.45	0.10	1.40	0.75	0.00	0.70	0.00	0.59	0.00	0.00	0.49
Avail Cap(c_a), veh/h	171	1768	719	198	2526	0	1142	0	490	0	0	238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	34.3	11.9	9.7	33.8	12.5	0.0	30.9	0.0	30.4	0.0	0.0	37.3
Incr Delay (d2), s/veh	0.2	0.2	0.1	207.8	1.1	0.0	1.8	0.0	2.6	0.0	0.0	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	5.4	0.8	15.5	12.1	0.0	3.8	0.0	2.8	0.0	0.0	0.3
LnGrp Delay(d),s/veh	34.5	12.1	9.7	241.7	13.5	0.0	32.7	0.0	33.0	0.0	0.0	55.5
LnGrp LOS	C	B	A	F	B		C		C			E
Approach Vol, veh/h		878			1790			505			10	
Approach Delay, s/veh		12.1			48.8			32.8			55.5	
Approach LOS		B			D			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	44.4		4.8	7.6	48.8		14.9
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	29.0		11.2	8.4	54.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	13.2		2.5	2.3	26.6		9.4
Green Ext Time (p_c), s	0.0	13.6		0.0	0.0	16.6		1.7

Intersection Summary		
HCM 2010 Ctrl Delay		36.2
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	203	351	218	60	842	135	238	170	10	185	180	348
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1810	1776	1845	1900	1881	1863	1845	1864	1900	1845	1881	1881
Adj Flow Rate, veh/h	251	433	269	69	968	155	283	202	10	240	234	452
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.87	0.87	0.87	0.84	0.84	1.00	0.77	0.77	0.77
Percent Heavy Veh, %	5	7	3	0	1	2	3	2	2	3	1	1
Cap, veh/h	309	1264	586	89	1185	524	346	843	41	268	558	466
Arrive On Green	0.09	0.37	0.37	0.05	0.33	0.33	0.10	0.25	0.25	0.15	0.30	0.30
Sat Flow, veh/h	3343	3374	1564	1810	3574	1580	3408	3436	169	1757	1881	1572
Grp Volume(v), veh/h	251	433	269	69	968	155	283	104	108	240	234	452
Grp Sat Flow(s),veh/h/ln	1672	1687	1564	1810	1787	1580	1704	1771	1834	1757	1881	1572
Q Serve(g_s), s	8.1	10.1	14.3	4.1	27.3	8.0	8.9	5.2	5.2	14.7	11.0	31.2
Cycle Q Clear(g_c), s	8.1	10.1	14.3	4.1	27.3	8.0	8.9	5.2	5.2	14.7	11.0	31.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	309	1264	586	89	1185	524	346	434	450	268	558	466
V/C Ratio(X)	0.81	0.34	0.46	0.78	0.82	0.30	0.82	0.24	0.24	0.89	0.42	0.97
Avail Cap(c_a), veh/h	365	1264	586	148	1185	524	558	501	518	303	558	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.41	0.41	0.41	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	24.7	26.0	51.7	33.7	27.3	48.4	33.3	33.3	45.7	31.1	38.2
Incr Delay (d2), s/veh	9.6	0.7	2.6	2.2	2.7	0.6	2.1	0.2	0.2	23.5	0.4	33.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	4.1	4.8	6.6	2.1	13.9	3.6	4.3	2.6	2.7	8.9	5.8	17.9
LnGrp Delay(d),s/veh	58.6	25.4	28.6	53.9	36.4	27.8	50.5	33.5	33.5	69.2	31.5	72.1
LnGrp LOS	E	C	C	D	D	C	D	C	C	E	C	E
Approach Vol, veh/h		953			1192			495			926	
Approach Delay, s/veh		35.0			36.3			43.3			61.1	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	46.9	15.2	38.5	14.2	42.2	20.8	32.9
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	9.0	31.3	18.0	* 33	12.0	28.3	19.0	* 31
Max Q Clear Time (g_c+I1), s	6.1	16.3	10.9	33.2	10.1	29.3	16.7	7.2
Green Ext Time (p_c), s	0.0	8.7	0.2	0.0	0.1	0.0	0.1	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	43.4
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	455	20	90	831	90	30	75	30	120	310	186
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1727	1813	1900	1792	1854	1900	1900	1771	1900	1810	1881	1900
Adj Flow Rate, veh/h	87	555	24	103	955	103	47	117	47	141	365	219
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.87	0.87	0.87	0.64	0.64	0.64	0.85	0.85	0.85
Percent Heavy Veh, %	10	5	5	6	2	2	0	7	7	5	1	1
Cap, veh/h	97	1072	46	129	1075	116	86	340	137	177	373	224
Arrive On Green	0.06	0.32	0.32	0.08	0.34	0.34	0.05	0.28	0.28	0.10	0.34	0.34
Sat Flow, veh/h	1645	3365	145	1707	3208	346	1810	1202	483	1723	1102	661
Grp Volume(v), veh/h	87	284	295	103	524	534	47	0	164	141	0	584
Grp Sat Flow(s),veh/h/ln	1645	1722	1787	1707	1761	1793	1810	0	1685	1723	0	1764
Q Serve(g_s), s	4.9	12.5	12.5	5.5	26.2	26.2	2.4	0.0	7.2	7.4	0.0	30.5
Cycle Q Clear(g_c), s	4.9	12.5	12.5	5.5	26.2	26.2	2.4	0.0	7.2	7.4	0.0	30.5
Prop In Lane	1.00		0.08	1.00		0.19	1.00		0.29	1.00		0.38
Lane Grp Cap(c), veh/h	97	549	570	129	590	601	86	0	477	177	0	597
V/C Ratio(X)	0.90	0.52	0.52	0.80	0.89	0.89	0.55	0.00	0.34	0.80	0.00	0.98
Avail Cap(c_a), veh/h	97	549	570	185	615	626	428	0	659	316	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	25.9	25.9	42.3	29.3	29.3	43.4	0.0	26.5	40.8	0.0	30.5
Incr Delay (d2), s/veh	58.3	1.7	1.6	12.4	15.6	15.4	2.0	0.0	0.2	3.1	0.0	31.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.8	6.2	6.4	3.0	15.2	15.5	1.2	0.0	3.3	3.7	0.0	19.9
LnGrp Delay(d),s/veh	101.9	27.5	27.5	54.7	44.8	44.7	45.4	0.0	26.7	44.0	0.0	61.7
LnGrp LOS	F	C	C	D	D	D	D		C	D		E
Approach Vol, veh/h		666			1161			211			725	
Approach Delay, s/veh		37.2			45.6			30.8			58.3	
Approach LOS		D			D			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	35.7	9.9	37.0	9.0	37.2	15.1	31.9
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	10.1	27.9	22.0	31.5	5.5	32.5	17.1	36.4
Max Q Clear Time (g_c+I1), s	7.5	14.5	4.4	32.5	6.9	28.2	9.4	9.2
Green Ext Time (p_c), s	0.0	11.3	0.0	0.0	0.0	3.0	0.1	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	45.8
HCM 2010 LOS	D

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	20	5	0	60	10	86	0	5	201	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	16	22	5	0	65	11	93	0	5	218	22
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.7	9.4	11
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	38%	86%	0%	100%	0%
Vol Thru, %	0%	91%	50%	14%	0%	0%	95%
Vol Right, %	0%	9%	12%	0%	100%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	221	40	70	86	41	215
LT Vol	5	0	15	60	0	41	0
Through Vol	0	201	20	10	0	0	205
RT Vol	0	20	5	0	86	0	10
Lane Flow Rate	5	240	43	76	93	45	234
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.357	0.075	0.134	0.135	0.073	0.347
Departure Headway (Hd)	5.921	5.353	6.235	6.339	5.201	5.878	5.341
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	600	665	578	561	681	605	668
Service Time	3.703	3.135	4.235	4.132	2.992	3.659	3.121
HCM Lane V/C Ratio	0.008	0.361	0.074	0.135	0.137	0.074	0.35
HCM Control Delay	8.8	11.1	9.7	10.1	8.8	9.1	11
HCM Lane LOS	A	B	A	B	A	A	B
HCM 95th-tile Q	0	1.6	0.2	0.5	0.5	0.2	1.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	41	205	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	45	223	11
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.7
HCM LOS	B

Lane

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	0	813	5	0	1414
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	884	5	0	1537

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1654	445	0	0	889	0
Stage 1	886	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	89	561	-	-	758	-
Stage 1	363	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	89	561	-	-	758	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	418	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	21.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	218	758	-
HCM Lane V/C Ratio	-	-	0.025	-	-
HCM Control Delay (s)	-	-	21.9	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	320	12	0	242
Conflicting Peds, #/hr	0	22	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	348	13	0	263

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	639	202	0	0	383	0
Stage 1	376	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	454	686	-	-	768	-
Stage 1	591	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	446	673	-	-	768	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	673	768	-
HCM Lane V/C Ratio	-	-	0.105	-	-
HCM Control Delay (s)	-	-	11	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	785	85	0	1414	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	853	92	0	1537	0	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	853	0	1621	427
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	768	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	782	-	94	576
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	418	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	782	-	94	576
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	378	-
Stage 2	-	-	-	-	418	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	576	-	-	782	-
HCM Lane V/C Ratio	0.057	-	-	-	-
HCM Control Delay (s)	11.6	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1057	575	275	310	405	136	425	878	310	151	457	801
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1149	625	299	337	440	148	462	954	337	164	497	0
Adj No. of Lanes	2	2	1	2	2	1	2	2	2	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	920	1097	491	398	560	250	511	1253	987	222	1374	428
Arrive On Green	0.27	0.31	0.31	0.12	0.16	0.16	0.15	0.35	0.35	0.06	0.27	0.00
Sat Flow, veh/h	3442	3539	1583	3442	3539	1583	3442	3539	2787	3442	5085	1583
Grp Volume(v), veh/h	1149	625	299	337	440	148	462	954	337	164	497	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1583	1721	1770	1393	1721	1695	1583
Q Serve(g_s), s	35.5	19.7	21.3	12.7	15.9	11.5	17.5	31.6	11.8	6.2	10.5	0.0
Cycle Q Clear(g_c), s	35.5	19.7	21.3	12.7	15.9	11.5	17.5	31.6	11.8	6.2	10.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	920	1097	491	398	560	250	511	1253	987	222	1374	428
V/C Ratio(X)	1.25	0.57	0.61	0.85	0.79	0.59	0.90	0.76	0.34	0.74	0.36	0.00
Avail Cap(c_a), veh/h	920	1097	491	531	960	429	531	1693	1333	531	2413	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.6	38.4	39.0	57.6	53.7	51.9	55.6	37.9	31.5	61.0	39.2	0.0
Incr Delay (d2), s/veh	121.0	0.7	2.2	9.4	2.5	2.2	18.4	1.4	0.2	4.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	32.2	9.7	9.7	6.6	8.0	5.2	9.7	15.8	4.6	3.1	4.9	0.0
LnGrp Delay(d),s/veh	169.7	39.1	41.2	67.0	56.2	54.1	74.0	39.3	31.7	65.8	39.4	0.0
LnGrp LOS	F	D	D	E	E	D	E	D	C	E	D	
Approach Vol, veh/h		2073			925			1753			661	
Approach Delay, s/veh		111.8			59.8			47.0			45.9	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.2	41.9	19.8	46.9	13.1	53.0	40.0	26.7
Change Period (Y+Rc), s	4.5	6.0	4.5	5.7	4.5	* 6	4.5	* 5.7
Max Green Setting (Gmax), s	20.5	63.0	20.5	35.0	20.5	* 64	35.5	* 36
Max Q Clear Time (g_c+I1), s	19.5	12.5	14.7	23.3	8.2	33.6	37.5	17.9
Green Ext Time (p_c), s	0.2	15.9	0.6	6.3	0.4	13.4	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	73.9
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	1724	222	179	1220	5	181	0	165	5	0	5
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.90
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1879	1900	1881	1881	1881	1900	1751	1900
Adj Flow Rate, veh/h	5	1874	241	203	1386	6	201	0	183	9	0	9
Adj No. of Lanes	1	2	1	1	2	0	2	0	1	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.90	0.90	0.90	0.54	0.54	0.54
Percent Heavy Veh, %	0	1	1	0	1	1	1	0	1	0	0	0
Cap, veh/h	76	1961	854	159	2167	9	596	0	258	15	0	15
Arrive On Green	0.04	0.55	0.55	0.09	0.59	0.59	0.17	0.00	0.17	0.02	0.00	0.02
Sat Flow, veh/h	1810	3574	1556	1810	3644	16	3583	0	1550	744	0	744
Grp Volume(v), veh/h	5	1874	241	203	679	713	201	0	183	18	0	0
Grp Sat Flow(s),veh/h/ln	1810	1787	1556	1810	1785	1875	1792	0	1550	1488	0	0
Q Serve(g_s), s	0.3	47.4	7.9	8.4	23.7	23.7	4.7	0.0	10.6	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	47.4	7.9	8.4	23.7	23.7	4.7	0.0	10.6	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	76	1961	854	159	1061	1115	596	0	258	30	0	0
V/C Ratio(X)	0.07	0.96	0.28	1.27	0.64	0.64	0.34	0.00	0.71	0.61	0.00	0.00
Avail Cap(c_a), veh/h	159	2035	886	159	1061	1115	902	0	390	175	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.9	20.4	11.5	43.5	12.6	12.6	35.1	0.0	37.6	46.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	11.2	0.2	162.9	1.3	1.3	0.3	0.0	3.8	19.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	0.1	26.2	3.4	11.4	11.9	12.5	2.4	0.0	4.8	0.6	0.0	0.0
LnGrp Delay(d),s/veh	44.1	31.6	11.7	206.4	14.0	13.9	35.5	0.0	41.3	65.6	0.0	0.0
LnGrp LOS	D	C	B	F	B	B	D		D	E		
Approach Vol, veh/h		2120			1595			384			18	
Approach Delay, s/veh		29.3			38.4			38.3			65.6	
Approach LOS		C			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	58.0		5.7	7.6	62.4		19.7
Change Period (Y+Rc), s	3.6	5.7		3.8	3.6	5.7		3.8
Max Green Setting (Gmax), s	8.4	54.3		11.2	8.4	34.3		24.0
Max Q Clear Time (g_c+I1), s	10.4	49.4		3.1	2.3	25.7		12.6
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	8.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	514	1078	304	120	719	90	350	195	20	130	165	300
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, 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
Adj Sat Flow, veh/h/ln	1900	1881	1881	1900	1881	1863	1881	1883	1900	1881	1863	1863
Adj Flow Rate, veh/h	541	1135	320	136	817	102	380	212	22	151	192	349
Adj No. of Lanes	2	2	1	1	2	1	2	2	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Percent Heavy Veh, %	0	1	1	0	1	2	1	1	1	1	2	2
Cap, veh/h	506	1285	562	164	1094	477	440	894	92	179	460	384
Arrive On Green	0.14	0.36	0.36	0.09	0.31	0.31	0.13	0.27	0.27	0.10	0.25	0.25
Sat Flow, veh/h	3510	3574	1563	1810	3574	1559	3476	3274	336	1792	1863	1555
Grp Volume(v), veh/h	541	1135	320	136	817	102	380	115	119	151	192	349
Grp Sat Flow(s),veh/h/ln	1755	1787	1563	1810	1787	1559	1738	1789	1822	1792	1863	1555
Q Serve(g_s), s	16.0	33.1	18.3	8.2	22.8	5.4	11.9	5.5	5.6	9.2	9.6	24.2
Cycle Q Clear(g_c), s	16.0	33.1	18.3	8.2	22.8	5.4	11.9	5.5	5.6	9.2	9.6	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	506	1285	562	164	1094	477	440	488	498	179	460	384
V/C Ratio(X)	1.07	0.88	0.57	0.83	0.75	0.21	0.86	0.24	0.24	0.84	0.42	0.91
Avail Cap(c_a), veh/h	506	1285	562	212	1094	477	501	516	525	226	497	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	33.4	28.6	49.6	34.6	28.6	47.5	31.3	31.4	49.1	35.1	40.6
Incr Delay (d2), s/veh	59.8	9.1	4.2	8.7	2.6	0.6	12.1	0.2	0.2	16.8	0.5	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	11.0	17.9	8.6	4.5	11.6	2.4	6.4	2.8	2.9	5.4	5.0	12.7
LnGrp Delay(d),s/veh	107.3	42.4	32.8	58.3	37.2	29.2	59.6	31.5	31.6	65.8	35.6	63.1
LnGrp LOS	F	D	C	E	D	C	E	C	C	E	D	E
Approach Vol, veh/h		1996			1055			614			692	
Approach Delay, s/veh		58.5			39.2			48.9			56.1	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	45.6	18.0	33.3	20.0	39.7	15.1	36.2
Change Period (Y+Rc), s	4.0	5.7	4.0	* 5.9	4.0	5.7	4.0	* 5.9
Max Green Setting (Gmax), s	13.0	32.3	16.0	* 30	16.0	29.3	14.0	* 32
Max Q Clear Time (g_c+I1), s	10.2	35.1	13.9	26.2	18.0	24.8	11.2	7.6
Green Ext Time (p_c), s	0.0	0.0	0.1	1.2	0.0	3.9	0.0	3.4

Intersection Summary		
HCM 2010 Ctrl Delay		52.1
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	196	1052	20	30	717	135	60	165	70	105	105	137
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1882	1900	1900	1884	1900	1863	1876	1900	1900	1900	1900
Adj Flow Rate, veh/h	211	1131	22	34	815	153	67	185	79	113	113	147
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.88	0.88	0.88	0.89	0.89	0.89	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	1	0	1	1	2	1	1	0	0	0
Cap, veh/h	248	1652	32	42	1115	209	105	228	97	152	155	202
Arrive On Green	0.14	0.49	0.49	0.02	0.37	0.37	0.06	0.18	0.18	0.08	0.21	0.21
Sat Flow, veh/h	1810	3401	66	1810	2996	562	1774	1245	532	1810	748	972
Grp Volume(v), veh/h	211	594	559	34	487	481	67	0	264	113	0	260
Grp Sat Flow(s),veh/h/ln	1810	1787	1680	1810	1790	1768	1774	0	1777	1810	0	1720
Q Serve(g_s), s	10.4	23.4	23.4	1.7	21.5	21.5	3.4	0.0	13.0	5.6	0.0	12.9
Cycle Q Clear(g_c), s	10.4	23.4	23.4	1.7	21.5	21.5	3.4	0.0	13.0	5.6	0.0	12.9
Prop In Lane	1.00		0.04	1.00		0.32	1.00		0.30	1.00		0.57
Lane Grp Cap(c), veh/h	248	868	816	42	666	658	105	0	325	152	0	357
V/C Ratio(X)	0.85	0.68	0.68	0.80	0.73	0.73	0.64	0.00	0.81	0.74	0.00	0.73
Avail Cap(c_a), veh/h	326	906	852	89	673	665	428	0	456	338	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	18.1	18.1	44.5	24.8	24.8	42.1	0.0	35.9	41.0	0.0	33.9
Incr Delay (d2), s/veh	14.0	2.8	3.0	21.9	5.0	5.0	2.4	0.0	5.1	2.7	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	6.2	12.2	11.5	1.1	11.5	11.3	1.7	0.0	6.8	2.9	0.0	6.8
LnGrp Delay(d),s/veh	52.6	20.9	21.1	66.3	29.7	29.8	44.4	0.0	41.0	43.7	0.0	40.3
LnGrp LOS	D	C	C	E	C	C	D		D	D		D
Approach Vol, veh/h		1364			1002			331			373	
Approach Delay, s/veh		25.9			31.0			41.7			41.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	50.4	10.9	24.5	16.0	40.1	13.2	22.2
Change Period (Y+Rc), s	3.5	6.0	5.5	5.5	3.5	6.0	5.5	5.5
Max Green Setting (Gmax), s	4.5	46.4	22.1	18.5	16.5	34.4	17.1	23.5
Max Q Clear Time (g_c+I1), s	3.7	25.4	5.4	14.9	12.4	23.5	7.6	15.0
Green Ext Time (p_c), s	0.0	19.0	0.1	0.8	0.2	10.3	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.1
HCM 2010 LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	10	5	0	35	5	47	0	5	234	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	11	5	0	38	5	51	0	5	254	38
Number of Lanes	0	0	1	0	0	0	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	2
HCM Control Delay	9.6	9.2	11.4
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	40%	88%	0%	100%	0%
Vol Thru, %	0%	87%	40%	12%	0%	0%	94%
Vol Right, %	0%	13%	20%	0%	100%	0%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	269	25	40	47	66	243
LT Vol	5	0	10	35	0	66	0
Through Vol	0	234	10	5	0	0	228
RT Vol	0	35	5	0	47	0	15
Lane Flow Rate	5	292	27	43	51	72	264
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.009	0.415	0.047	0.079	0.076	0.113	0.375
Departure Headway (Hd)	5.708	5.113	6.165	6.524	5.375	5.653	5.106
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	625	702	576	546	661	632	703
Service Time	3.463	2.868	4.256	4.303	3.153	3.407	2.86
HCM Lane V/C Ratio	0.008	0.416	0.047	0.079	0.077	0.114	0.376
HCM Control Delay	8.5	11.5	9.6	9.9	8.6	9.1	10.9
HCM Lane LOS	A	B	A	A	A	A	B
HCM 95th-tile Q	0	2	0.1	0.3	0.2	0.4	1.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	66	228	15
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	72	248	16
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.5
HCM LOS	B

Lane

Intersection							
Int Delay, s/veh	0.2						

Movement	NWL	NWR	NET	NER	SWL	SWT
Vol, veh/h	5	5	1938	5	5	1394
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	1	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	5	2107	5	5	1515

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2877	1056	0	0	2112	0
Stage 1	2109	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	13	222	-	-	256	-
Stage 1	79	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	13	222	-	-	256	-
Mov Cap-2 Maneuver	64	-	-	-	-	-
Stage 1	79	-	-	-	-	-
Stage 2	410	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	45.8	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	99	256	-
HCM Lane V/C Ratio	-	-	0.11	0.021	-
HCM Control Delay (s)	-	-	45.8	19.4	-
HCM Lane LOS	-	-	E	C	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	57	289	17	0	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	62	314	18	0	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	731	166	0	0	333	0
Stage 1	323	-	-	-	-	-
Stage 2	408	-	-	-	-	-
Critical Hdwy	6.08	7.13	-	-	5.34	-
Critical Hdwy Stg 1	6.63	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.669	3.919	-	-	3.12	-
Pot Cap-1 Maneuver	405	723	-	-	811	-
Stage 1	635	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	405	723	-	-	811	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	723	811	-
HCM Lane V/C Ratio	-	-	0.086	-	-
HCM Control Delay (s)	-	-	10.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1889	98	0	1399	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2053	107	0	1521	0	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2053	0	2813	1027
Stage 1	-	-	-	-	2053	-
Stage 2	-	-	-	-	760	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	270	-	14	232
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	270	-	14	232
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	422	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	232	-	-	270	-
HCM Lane V/C Ratio	0.244	-	-	-	-
HCM Control Delay (s)	25.4	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	250	241	140	142	95	230	240	218	204	46	172	218
Average Queue (ft)	154	117	72	76	47	115	134	110	115	11	96	121
95th Queue (ft)	223	206	120	125	76	195	209	180	181	31	165	189
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)						0	0	0	0		1	7
Queuing Penalty (veh)						0	0	0	0		2	11

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB
Directions Served	T	T	R	R	L	L	T	T	T	R
Maximum Queue (ft)	116	88	84	63	20	35	154	186	99	6
Average Queue (ft)	51	18	33	17	1	9	89	100	15	0
95th Queue (ft)	101	61	66	44	9	26	144	158	62	6
Link Distance (ft)	252	252	252				575	575	575	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)				180	240	240				200
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	47	160	162	58	270	622	636	145	54	76	23
Average Queue (ft)	7	71	70	10	192	585	566	67	19	33	2
95th Queue (ft)	31	134	137	38	356	656	725	117	58	65	12
Link Distance (ft)		253	253	253		575	575		1775		921
Upstream Blk Time (%)						37	13				
Queuing Penalty (veh)						265	95				
Storage Bay Dist (ft)	250				230			220		220	
Storage Blk Time (%)					0	41		0			
Queuing Penalty (veh)					2	60		0			

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	157	167	158	131	151	220	302	332	62	237	262	283
Average Queue (ft)	52	84	75	32	54	53	198	217	23	133	195	77
95th Queue (ft)	119	143	140	92	118	133	289	313	48	252	273	200
Link Distance (ft)			1654	1654			830	830				318
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)							6			0	7	0
Queuing Penalty (veh)							4			0	6	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	140	239	397	365
Average Queue (ft)	50	115	196	172
95th Queue (ft)	104	223	358	314
Link Distance (ft)	318		396	396
Upstream Blk Time (%)			3	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		2	13	
Queuing Penalty (veh)		5	17	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (ft)	140	321	180	814	91	161	507	320
Average Queue (ft)	33	127	83	676	35	64	285	113
95th Queue (ft)	96	248	185	990	74	127	530	349
Link Distance (ft)		924		796		535	568	568
Upstream Blk Time (%)				8			7	3
Queuing Penalty (veh)				76			0	0
Storage Bay Dist (ft)	140		140		230			
Storage Blk Time (%)	0	7	0	48		0		
Queuing Penalty (veh)	0	2	1	32		0		

Zone Summary

Zone wide Queuing Penalty: 579

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	T	R	T	L	L	T	T	R	L
Maximum Queue (ft)	422	423	331	297	140	4	128	134	149	137	70	99
Average Queue (ft)	248	255	130	133	66	0	58	76	73	74	23	93
95th Queue (ft)	399	408	268	223	114	7	108	121	126	128	52	116
Link Distance (ft)			473	473		1761			2567	2567		
Upstream Blk Time (%)	0	0	0	0								4
Queuing Penalty (veh)	0	0	0	0								0
Storage Bay Dist (ft)	450	450			360		250	250			250	135
Storage Blk Time (%)	0	1	0									4
Queuing Penalty (veh)	1	2	0									8

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	B58	B58	B58	B39	B39	SB	SB
Directions Served	L	T	T	R	R	T	T	T	T	T	L	L
Maximum Queue (ft)	189	189	175	96	84	173	133	97	136	8	70	96
Average Queue (ft)	152	151	124	33	22	58	26	13	22	0	20	39
95th Queue (ft)	203	198	178	66	58	165	88	60	154	7	52	78
Link Distance (ft)	99	99	99	99		96	96	96	1295	1295		
Upstream Blk Time (%)	33	26	18	0	0	10	1	0				
Queuing Penalty (veh)	0	0	0	0	0	0	0	0				
Storage Bay Dist (ft)					180						240	240
Storage Blk Time (%)	33			0	0							
Queuing Penalty (veh)	67			0	0							

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	SB	SB	B62
Directions Served	T	T	T
Maximum Queue (ft)	147	156	31
Average Queue (ft)	73	81	1
95th Queue (ft)	128	138	32
Link Distance (ft)	581	581	220
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B60	B60	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T		L	T	TR	L	LT
Maximum Queue (ft)	27	290	292	220	257	516	450	270	521	504	103	57
Average Queue (ft)	2	183	190	59	26	175	69	152	257	150	49	12
95th Queue (ft)	12	282	288	175	165	485	308	293	451	405	89	49
Link Distance (ft)		220	220		3185	581	581		539	539		1799
Upstream Blk Time (%)		2	3	0		0			0	0		
Queuing Penalty (veh)		14	19	0		0			2	0		
Storage Bay Dist (ft)	250			250				230			220	
Storage Blk Time (%)		2	3	0				3	14			
Queuing Penalty (veh)		0	4	1				14	20			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	NB	SB
Directions Served	R	LTR
Maximum Queue (ft)	186	60
Average Queue (ft)	93	12
95th Queue (ft)	163	41
Link Distance (ft)		920
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	262	317	442	408	258	189	209	231	78	236	261	280
Average Queue (ft)	139	176	240	209	82	95	117	129	26	126	186	94
95th Queue (ft)	224	290	387	350	197	166	188	208	59	240	258	201
Link Distance (ft)			1654	1654			779	779				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0	3	3	0	0	0			0	5	
Queuing Penalty (veh)	0	0	12	9	0	0	0			0	6	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	152	211	276	176
Average Queue (ft)	71	97	124	65
95th Queue (ft)	133	181	245	135
Link Distance (ft)	318		396	396
Upstream Blk Time (%)			3	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		5	1	
Queuing Penalty (veh)		9	1	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	B70	B70	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	LT	R
Maximum Queue (ft)	180	1064	654	356	168	579	92	245	193	86
Average Queue (ft)	132	712	155	62	51	338	35	111	97	35
95th Queue (ft)	219	1223	595	376	147	590	73	199	169	67
Link Distance (ft)		975	779	779		796		535	568	568
Upstream Blk Time (%)		16	1	0		1				
Queuing Penalty (veh)		155	4	0		4				
Storage Bay Dist (ft)	140				140		230			
Storage Blk Time (%)	5	40			0	36		0		
Queuing Penalty (veh)	43	52			1	12		0		

Zone Summary

Zone wide Queuing Penalty: 463

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	255	234	157	145	101	208	221	208	210	38	166	212
Average Queue (ft)	156	122	76	76	49	117	134	114	121	10	93	115
95th Queue (ft)	226	208	126	126	80	192	201	181	192	28	156	177
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)						0	0	0	0		2	6
Queuing Penalty (veh)						0	1	0	0		3	9

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB	B72	B72
Directions Served	T	T	R	R	L	L	T	T	T	T	
Maximum Queue (ft)	116	85	78	60	18	44	184	202	112	562	554
Average Queue (ft)	53	17	32	16	1	11	105	121	16	284	248
95th Queue (ft)	99	55	63	41	9	32	161	181	65	627	603
Link Distance (ft)	252	252	252				575	575	575	556	556
Upstream Blk Time (%)										2	1
Queuing Penalty (veh)										14	5
Storage Bay Dist (ft)				180	240	240					
Storage Blk Time (%)							0				
Queuing Penalty (veh)							0				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B69	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	T	UL	T	TR	UL	LT	R	LTR
Maximum Queue (ft)	39	159	182	58	55	410	462	482	88	101	74	15
Average Queue (ft)	6	69	73	12	2	173	153	164	44	43	22	1
95th Queue (ft)	26	132	147	40	56	387	397	406	78	80	49	8
Link Distance (ft)		556	556	556	575		588	588	139	139	139	913
Upstream Blk Time (%)							0	0	0	0	0	
Queuing Penalty (veh)							1	1	0	0	0	
Storage Bay Dist (ft)	250					500						
Storage Blk Time (%)						1	1					
Queuing Penalty (veh)						6	2					

Intersection: 3: Green Valley Rd & Amys Lane

Movement	NW	NE	SW
Directions Served	LR	T	T
Maximum Queue (ft)	31	4	3
Average Queue (ft)	3	0	0
95th Queue (ft)	19	0	3
Link Distance (ft)	984	588	1962
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	138	154	167	150	167	165	296	312	69	239	262	278
Average Queue (ft)	47	80	81	37	58	50	191	210	28	137	196	75
95th Queue (ft)	107	132	145	108	122	115	277	305	56	250	267	185
Link Distance (ft)			1654	1654			840	840				318
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)				0			6			0	6	0
Queuing Penalty (veh)				0			3			0	6	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	137	239	392	366
Average Queue (ft)	53	105	181	157
95th Queue (ft)	108	202	329	291
Link Distance (ft)	318		396	396
Upstream Blk Time (%)			2	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		1	9	
Queuing Penalty (veh)		3	12	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (ft)	153	369	180	813	88	147	472	257
Average Queue (ft)	34	137	77	629	35	64	232	82
95th Queue (ft)	101	280	174	992	74	122	424	193
Link Distance (ft)		913		796		535	568	568
Upstream Blk Time (%)				7			1	0
Queuing Penalty (veh)				61			0	0
Storage Bay Dist (ft)	140		140		230			
Storage Blk Time (%)	0	8	0	46				
Queuing Penalty (veh)	0	3	1	31				

Zone Summary

Zone wide Queuing Penalty: 162

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	469	473	571	396	209	1713	1690	141	146	176	181	74
Average Queue (ft)	432	436	443	161	76	850	798	64	87	90	91	31
95th Queue (ft)	535	562	744	297	144	2039	1995	117	132	148	153	62
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	10	28	41	0		15	6					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	45	49	15								0	
Queuing Penalty (veh)	106	115	113								0	

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B39	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	188	192	172	111	90	180	167	96	374	78	45
Average Queue (ft)	94	162	162	118	35	21	106	60	28	115	5	2
95th Queue (ft)	110	201	199	171	79	61	223	150	97	373	41	26
Link Distance (ft)		99	99	99	99		96	96	96	1295	1295	1295
Upstream Blk Time (%)	8	53	33	15	0	0	34	4	0			
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0			
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	8	53			0	0						
Queuing Penalty (veh)	16	107			0	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	SB	SB	SB	SB	B62	B62
Directions Served	L	L	T	T	T	
Maximum Queue (ft)	72	85	167	178	260	209
Average Queue (ft)	23	38	81	88	89	47
95th Queue (ft)	57	74	145	158	217	141
Link Distance (ft)			579	579	548	548
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	240	240				
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B60	B60	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	T		UL	T	TR	UL	LT	R
Maximum Queue (ft)	20	308	320	76	604	604	381	288	278	88	84	150
Average Queue (ft)	2	177	198	32	210	86	189	116	105	41	35	75
95th Queue (ft)	12	269	292	64	647	414	399	262	209	75	70	130
Link Distance (ft)		548	548	548	579	579		584	584	142	142	142
Upstream Blk Time (%)					1	0		0	0		0	1
Queuing Penalty (veh)					3	1		1	0		0	1
Storage Bay Dist (ft)	250						500					
Storage Blk Time (%)		1					1	0				
Queuing Penalty (veh)		0					6	0				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	SB
Directions Served	LTR
Maximum Queue (ft)	47
Average Queue (ft)	9
95th Queue (ft)	33
Link Distance (ft)	918
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	243	323	387	348	254	198	223	232	81	229	262	307
Average Queue (ft)	138	171	232	199	79	97	124	132	29	129	192	95
95th Queue (ft)	216	271	352	323	186	171	198	211	65	241	263	201
Link Distance (ft)			1654	1654			851	851				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0	2	2	0	0	0			0	5	
Queuing Penalty (veh)	0	0	8	6	0	1	0			0	6	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	153	196	260	143
Average Queue (ft)	73	98	120	65
95th Queue (ft)	133	169	220	114
Link Distance (ft)	318		395	395
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		2	1	
Queuing Penalty (veh)		3	1	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	B75	B75	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	LT	R
Maximum Queue (ft)	180	968	646	420	169	671	99	213	183	93
Average Queue (ft)	138	720	226	91	40	363	37	104	96	38
95th Queue (ft)	221	1170	743	451	121	668	81	183	165	75
Link Distance (ft)		904	851	851		796		535	568	568
Upstream Blk Time (%)		23	1	0		1				
Queuing Penalty (veh)		216	3	0		9				
Storage Bay Dist (ft)	140				140		230			
Storage Blk Time (%)	12	40				38		0		
Queuing Penalty (veh)	101	53				12		0		

Zone Summary

Zone wide Queuing Penalty: 889

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	282	273	189	144	82	231	245	227	209	40	171	208
Average Queue (ft)	170	137	79	77	47	116	135	117	124	10	97	120
95th Queue (ft)	254	241	141	130	74	195	206	191	193	28	161	188
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)						0	0	0	0		2	7
Queuing Penalty (veh)						0	1	0	0		3	11

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	R	R	L	L	T	T	T
Maximum Queue (ft)	130	103	68	56	14	36	151	173	99
Average Queue (ft)	60	24	30	15	1	9	90	105	15
95th Queue (ft)	113	76	56	38	7	27	140	159	60
Link Distance (ft)	252	252	252				575	575	575
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				180	240	240			
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B69	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	T	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	38	182	184	59	116	270	620	638	157	71	90	30
Average Queue (ft)	5	77	81	12	6	208	588	567	70	21	38	2
95th Queue (ft)	23	143	153	41	105	357	638	737	126	65	72	16
Link Distance (ft)		253	253	253	575		575	575		1775		921
Upstream Blk Time (%)					0		38	14				
Queuing Penalty (veh)					0		302	110				
Storage Bay Dist (ft)	250					230			220		220	
Storage Blk Time (%)						0	40		0			
Queuing Penalty (veh)						2	70		0			

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	140	157	187	159	178	250	374	396	68	242	264	317
Average Queue (ft)	49	83	96	51	61	75	231	253	25	146	204	90
95th Queue (ft)	109	137	164	126	131	190	352	370	54	260	277	242
Link Distance (ft)			1654	1654			872	872				318
Upstream Blk Time (%)												3
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)					0		13			1	10	
Queuing Penalty (veh)					0		9			1	9	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	161	239	403	379
Average Queue (ft)	53	125	203	176
95th Queue (ft)	116	232	373	336
Link Distance (ft)	318		395	395
Upstream Blk Time (%)	0		4	1
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		2	12	
Queuing Penalty (veh)		6	18	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	179	386	180	817	129	217	452	556
Average Queue (ft)	50	187	120	720	44	78	194	398
95th Queue (ft)	131	351	209	953	97	161	559	659
Link Distance (ft)		892		796		535	568	568
Upstream Blk Time (%)				7			11	23
Queuing Penalty (veh)				62			0	0
Storage Bay Dist (ft)	140		140		230			
Storage Blk Time (%)	0	18	9	41		0		
Queuing Penalty (veh)	0	6	90	45		0		

Zone Summary

Zone wide Queuing Penalty: 746

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	469	473	575	407	171	1812	1800	139	147	151	152	72
Average Queue (ft)	447	454	495	161	74	1269	1240	62	84	84	82	23
95th Queue (ft)	518	537	724	299	136	2440	2437	116	132	137	137	52
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	16	35	51	0		50	20					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	54	60	22									
Queuing Penalty (veh)	129	143	189									

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B39	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	194	189	173	113	88	186	175	111	434	299	202
Average Queue (ft)	94	167	165	123	34	21	119	80	35	147	54	31
95th Queue (ft)	110	197	195	180	76	58	223	184	110	554	347	273
Link Distance (ft)		99	99	99	99		96	96	96	1295	1295	1295
Upstream Blk Time (%)	7	59	36	18	0	0	35	8	1			
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0			
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	7	59			0	0						
Queuing Penalty (veh)	14	117			0	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	SB	SB	SB	SB
Directions Served	L	L	T	T
Maximum Queue (ft)	87	95	156	168
Average Queue (ft)	26	45	81	96
95th Queue (ft)	65	82	139	157
Link Distance (ft)			581	581
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	240	240		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B60	B60	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T		L	T	TR	L	LT
Maximum Queue (ft)	26	289	290	218	243	617	600	270	574	573	105	60
Average Queue (ft)	2	185	191	49	26	234	78	223	399	332	46	13
95th Queue (ft)	12	280	287	151	137	678	395	339	642	674	91	51
Link Distance (ft)		220	220		3185	581	581		539	539		1799
Upstream Blk Time (%)		2	3	0		1	0		11	6		
Queuing Penalty (veh)		18	22	0		5	1		65	32		
Storage Bay Dist (ft)	250			250				230			220	
Storage Blk Time (%)		2	3	0				20	27			
Queuing Penalty (veh)		0	4	1				100	53			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	NB	SB
Directions Served	R	LTR
Maximum Queue (ft)	203	47
Average Queue (ft)	101	10
95th Queue (ft)	176	35
Link Distance (ft)		920
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	220	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	254	340	753	715	265	204	269	282	74	235	262	280
Average Queue (ft)	141	229	377	342	140	108	148	164	27	145	199	96
95th Queue (ft)	222	381	762	718	307	186	237	261	57	245	271	221
Link Distance (ft)			1654	1654			831	831				318
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0	16	14	0	0	2			0	6	
Queuing Penalty (veh)	0	1	71	41	0	0	3			0	8	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	153	218	305	219
Average Queue (ft)	70	116	144	74
95th Queue (ft)	129	218	294	176
Link Distance (ft)	318		395	395
Upstream Blk Time (%)			4	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		11	2	
Queuing Penalty (veh)		21	3	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	B70	B70	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	L	TR
Maximum Queue (ft)	180	1021	802	696	180	711	208	413	140	249
Average Queue (ft)	131	804	356	225	81	423	60	209	63	128
95th Queue (ft)	204	1237	958	753	173	698	158	385	121	220
Link Distance (ft)		932	831	831		796		535	568	568
Upstream Blk Time (%)		24	2	1		1		2		
Queuing Penalty (veh)		263	14	3		4		0		
Storage Bay Dist (ft)	140				140		230			
Storage Blk Time (%)	16	34			3	32	0	11		
Queuing Penalty (veh)	165	47			22	19	0	6		

Zone Summary

Zone wide Queuing Penalty: 1586

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	302	301	217	175	96	248	256	263	261	50	174	232
Average Queue (ft)	186	159	88	86	47	135	152	131	140	13	108	133
95th Queue (ft)	274	269	161	148	75	215	229	217	219	34	169	204
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)						0	1	0	0		2	9
Queuing Penalty (veh)						0	1	0	0		4	14

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	B70	SB	SB	SB	SB	SB	B72	B72
Directions Served	T	T	R	R	T	L	L	T	T	T	T	
Maximum Queue (ft)	121	100	87	64	6	18	41	207	223	150	359	355
Average Queue (ft)	61	25	34	19	0	2	11	123	137	23	315	288
95th Queue (ft)	112	74	67	47	7	11	32	183	201	90	420	444
Link Distance (ft)	252	252	252		1366			575	575	575	251	251
Upstream Blk Time (%)											28	13
Queuing Penalty (veh)											235	110
Storage Bay Dist (ft)				180		240	240					
Storage Blk Time (%)								0		0		
Queuing Penalty (veh)								0		0		

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B69	B69	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	T		UL	T	TR	UL	LT	R
Maximum Queue (ft)	50	206	205	58	250	100	540	617	624	115	120	74
Average Queue (ft)	7	103	100	15	10	4	371	444	446	61	50	31
95th Queue (ft)	31	178	178	45	125	74	655	721	727	104	97	60
Link Distance (ft)		251	251	251	575	575		586	586	140	140	140
Upstream Blk Time (%)		0	0		0			8	7	0	0	
Queuing Penalty (veh)		0	0		0			66	55	0	0	
Storage Bay Dist (ft)	250						500					
Storage Blk Time (%)		0					10	22				
Queuing Penalty (veh)		0					66	49				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	SB
Directions Served	LTR
Maximum Queue (ft)	28
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	918
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	141	157	174	152	147	249	370	382	119	238	264	339
Average Queue (ft)	51	83	94	50	54	80	243	264	30	157	209	92
95th Queue (ft)	111	141	156	125	116	206	361	381	115	253	277	246
Link Distance (ft)			1654	1654			829	829				318
Upstream Blk Time (%)												2
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)				0	0	0	15	0		0	10	0
Queuing Penalty (veh)				0	0	0	11	1		0	9	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	130	240	394	372
Average Queue (ft)	48	122	190	175
95th Queue (ft)	102	226	334	316
Link Distance (ft)	318		396	396
Upstream Blk Time (%)			2	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	10	
Queuing Penalty (veh)		1	14	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	168	412	180	815	132	201	546	597
Average Queue (ft)	46	193	113	709	45	81	240	448
95th Queue (ft)	128	360	202	948	99	159	631	691
Link Distance (ft)		933		796		535	568	568
Upstream Blk Time (%)				6			12	31
Queuing Penalty (veh)				55			0	0
Storage Bay Dist (ft)	140		140		230			
Storage Blk Time (%)	1	18	5	41		0		
Queuing Penalty (veh)	2	6	50	46		0		

Intersection: 7: Sophia Pkwy & Project D/W

Movement	WB	NB	NB	NB	SB
Directions Served	R	T	T	TR	T
Maximum Queue (ft)	61	19	8	26	65
Average Queue (ft)	30	1	0	2	4
95th Queue (ft)	53	11	6	13	29
Link Distance (ft)	166	18	18	18	140
Upstream Blk Time (%)		0	0	0	
Queuing Penalty (veh)		0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 799

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B60	B60	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T		UL	T	TR	UL	LT
Maximum Queue (ft)	28	288	284	73	224	604	591	539	622	581	121	98
Average Queue (ft)	3	198	204	31	26	249	101	407	384	228	51	35
95th Queue (ft)	17	279	283	62	146	695	451	666	777	550	92	74
Link Distance (ft)		220	220	220	3184	579	579		581	581	143	143
Upstream Blk Time (%)		3	3			1	0		34	0	0	0
Queuing Penalty (veh)		14	18			3	1		199	3	0	0
Storage Bay Dist (ft)	250							500				
Storage Blk Time (%)		3						48	2			
Queuing Penalty (veh)		0						230	5			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	NB	SB
Directions Served	R	LTR
Maximum Queue (ft)	158	59
Average Queue (ft)	95	12
95th Queue (ft)	159	41
Link Distance (ft)	143	922
Upstream Blk Time (%)	2	
Queuing Penalty (veh)	3	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Green Valley Rd & Amys Lane

Movement	NW	NE	SW	SW	SW
Directions Served	LR	TR	L	T	T
Maximum Queue (ft)	63	2	29	558	527
Average Queue (ft)	15	0	1	209	187
95th Queue (ft)	57	2	13	696	652
Link Distance (ft)	749	581		1002	1002
Upstream Blk Time (%)				4	2
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)			1		
Storage Blk Time (%)			1	32	
Queuing Penalty (veh)			4	1	

Intersection: 7: Sophia Pkwy & Project D/W

Movement	WB	NB	NB	B74
Directions Served	R	T	TR	T
Maximum Queue (ft)	58	2	56	10
Average Queue (ft)	28	0	5	0
95th Queue (ft)	51	2	27	7
Link Distance (ft)	126	14	14	1490
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 480

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	B75	B75	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	L	TR
Maximum Queue (ft)	180	1007	867	722	179	683	190	362	135	248
Average Queue (ft)	139	865	493	343	81	383	55	185	66	121
95th Queue (ft)	211	1225	1097	941	173	625	142	325	121	213
Link Distance (ft)		922	839	839		796		535	568	568
Upstream Blk Time (%)		29	4	1		0		0		
Queuing Penalty (veh)		324	23	5		0		0		
Storage Bay Dist (ft)	140				140		230			
Storage Blk Time (%)	20	34			1	30		7		
Queuing Penalty (veh)	198	47			6	18		4		

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	353	360	250	243	92	270	290	694	612	123	175	311
Average Queue (ft)	217	238	137	139	49	226	243	308	262	24	132	170
95th Queue (ft)	324	337	213	212	78	311	328	718	622	92	196	281
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												4
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)		0		0		6	22	1	2		13	25
Queuing Penalty (veh)		0		0		15	50	6	1		21	39

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	B70	SB	SB	SB	SB	SB	SB	B69
Directions Served	T	T	R	R	T	L	L	T	T	T	R	T
Maximum Queue (ft)	141	119	130	113	49	42	216	357	365	393	230	11
Average Queue (ft)	75	50	60	39	4	7	34	227	234	138	51	0
95th Queue (ft)	128	110	106	87	35	27	122	328	339	342	194	11
Link Distance (ft)	252	252	252		1366			575	575	575		3103
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										1		
Storage Bay Dist (ft)				180		240	240				200	
Storage Blk Time (%)								7		1	0	
Queuing Penalty (veh)								3		9	1	

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	36	234	258	65	261	412	415	97	136	95	37
Average Queue (ft)	5	103	116	21	134	149	181	45	75	40	6
95th Queue (ft)	24	198	217	56	252	311	328	86	119	73	26
Link Distance (ft)		253	253	253		575	575		1775		921
Upstream Blk Time (%)		0	0								
Queuing Penalty (veh)		0	1								
Storage Bay Dist (ft)	250				230			220		220	
Storage Blk Time (%)		0			8	0					
Queuing Penalty (veh)		0			52	1					

Intersection: 3: Green Valley Rd & Amys Lane

Movement	NW
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	6
95th Queue (ft)	25
Link Distance (ft)	985
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	166	187	170	164	141	250	431	448	180	230	259	270
Average Queue (ft)	72	101	84	73	44	87	227	244	41	100	169	72
95th Queue (ft)	142	160	149	145	98	212	385	403	115	229	244	160
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)						0	14	1		0	3	0
Queuing Penalty (veh)						0	9	1		0	3	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	165	234	389	380
Average Queue (ft)	52	152	151	161
95th Queue (ft)	121	246	331	313
Link Distance (ft)	318		394	394
Upstream Blk Time (%)	0		4	1
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		13	2	
Queuing Penalty (veh)		25	5	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	158	238	249	179	424	428	74	172	365	489
Average Queue (ft)	65	100	124	90	218	231	30	65	103	253
95th Queue (ft)	131	196	213	179	366	375	65	127	279	461
Link Distance (ft)		1823	1823		795	795		526	556	556
Upstream Blk Time (%)									1	3
Queuing Penalty (veh)									0	0
Storage Bay Dist (ft)	140			140			230			
Storage Blk Time (%)	2	3		1	23					
Queuing Penalty (veh)	4	2		4	22					

Zone Summary

Zone wide Queuing Penalty: 275

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	468	473	573	427	267	1810	1799	224	241	269	277	192
Average Queue (ft)	454	464	527	189	78	1502	1467	126	141	148	155	62
95th Queue (ft)	503	514	666	318	162	2433	2454	200	211	232	242	133
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	9	33	51	0		60	22					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	43	56	13	0				0	0	0	1	0
Queuing Penalty (veh)	124	162	143	1				0	0	1	1	0

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B58	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	195	196	188	118	94	180	177	167	17	1315	1310
Average Queue (ft)	94	171	168	170	44	31	161	101	101	1	795	611
95th Queue (ft)	106	187	194	185	90	76	206	192	181	17	1588	1589
Link Distance (ft)		99	99	99	99		96	96	96	96	1295	1295
Upstream Blk Time (%)	18	77	42	43	0	0	74	12	12		20	15
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0		0	0
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	18	77			0	0						
Queuing Penalty (veh)	39	166			1	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	B39	SB	SB	SB	SB	SB	B60	B62
Directions Served	T	L	L	T	T	R	T	T
Maximum Queue (ft)	1261	137	159	234	240	70	8	11
Average Queue (ft)	526	56	72	128	140	4	0	1
95th Queue (ft)	1456	112	131	210	221	33	6	9
Link Distance (ft)	1295			581	581		3185	220
Upstream Blk Time (%)	1							
Queuing Penalty (veh)	0							
Storage Bay Dist (ft)		240	240			200		
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B62	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	T	T	L	T	TR	L	LT	R
Maximum Queue (ft)	50	303	305	220	223	258	235	316	341	71	102	164
Average Queue (ft)	3	216	229	107	28	38	106	147	176	29	51	77
95th Queue (ft)	17	336	340	260	127	155	217	274	299	64	88	133
Link Distance (ft)		220	220		3185	3185		539	539		1799	
Upstream Blk Time (%)	0	9	10	0								
Queuing Penalty (veh)	0	91	105	0								
Storage Bay Dist (ft)	250			250			230			220		220
Storage Blk Time (%)	0	9	10	0			3	1				0
Queuing Penalty (veh)	0	0	23	4			21	1				0

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	SB
Directions Served	LTR
Maximum Queue (ft)	61
Average Queue (ft)	12
95th Queue (ft)	42
Link Distance (ft)	920
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Green Valley Rd & Amys Lane

Movement	NW	SW
Directions Served	LR	L
Maximum Queue (ft)	37	28
Average Queue (ft)	9	3
95th Queue (ft)	31	17
Link Distance (ft)	746	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		1
Storage Blk Time (%)		1
Queuing Penalty (veh)		7

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	268	340	632	620	265	250	336	347	84	230	263	298
Average Queue (ft)	165	222	310	310	162	103	192	205	32	147	203	87
95th Queue (ft)	250	354	568	557	336	203	311	324	65	243	274	212
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	1	7	16	0	0	7			0	8	
Queuing Penalty (veh)	1	4	34	49	0	1	9			0	8	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	152	207	217	226
Average Queue (ft)	58	107	99	103
95th Queue (ft)	118	178	175	183
Link Distance (ft)	318		394	394
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		1	0	
Queuing Penalty (veh)		2	1	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	180	589	447	168	297	309	156	254	188	286
Average Queue (ft)	143	227	233	35	170	179	50	130	85	123
95th Queue (ft)	207	483	430	104	267	273	102	212	155	221
Link Distance (ft)		1823	1823		795	795		526		556
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	140			140			230		150	
Storage Blk Time (%)	16	13			15			1	1	6
Queuing Penalty (veh)	83	26			5			0	2	7

Zone Summary

Zone wide Queuing Penalty: 1122

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	372	386	284	270	88	270	290	980	911	145	175	311
Average Queue (ft)	222	243	138	144	49	239	257	507	452	23	137	180
95th Queue (ft)	326	346	228	225	77	321	339	1124	1039	97	197	291
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												6
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)	0	0	0			15	40	2	3		17	29
Queuing Penalty (veh)	0	0	0			35	93	8	2		28	47

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	B70	SB	SB	SB	SB	SB	SB
Directions Served	T	T	R	R	T	L	L	T	T	T	R
Maximum Queue (ft)	154	130	117	107	74	56	279	356	359	415	240
Average Queue (ft)	81	55	58	35	7	9	40	229	232	143	54
95th Queue (ft)	138	117	104	79	60	35	139	326	328	340	202
Link Distance (ft)	252	252	252		1366			575	575	575	
Upstream Blk Time (%)										0	
Queuing Penalty (veh)										0	
Storage Bay Dist (ft)				180		240	240				200
Storage Blk Time (%)								8		1	1
Queuing Penalty (veh)								3		10	3

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B72	B72	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	T	T	UL	T	TR	UL	LT	R
Maximum Queue (ft)	41	248	272	74	4	14	270	598	614	133	146	91
Average Queue (ft)	6	109	116	21	0	1	236	373	346	67	82	36
95th Queue (ft)	28	212	229	59	4	9	333	700	656	115	135	71
Link Distance (ft)		251	251	251	3103	3103		583	583	140	140	140
Upstream Blk Time (%)		0	1					12	2	0	1	0
Queuing Penalty (veh)		1	2					83	12	0	1	0
Storage Bay Dist (ft)	250						230					
Storage Blk Time (%)		0					64	0				
Queuing Penalty (veh)		0					401	1				

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	SB
Directions Served	LTR
Maximum Queue (ft)	30
Average Queue (ft)	5
95th Queue (ft)	23
Link Distance (ft)	920
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	191	205	175	175	140	238	426	446	211	211	250	223
Average Queue (ft)	74	103	77	76	48	73	222	238	41	89	158	70
95th Queue (ft)	161	181	147	146	104	187	390	405	139	215	236	158
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0			0	1	13	1		0	3	
Queuing Penalty (veh)	0	0			0	3	8	1		0	2	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	157	240	392	375
Average Queue (ft)	48	151	159	158
95th Queue (ft)	108	248	347	309
Link Distance (ft)	318		393	393
Upstream Blk Time (%)	0		5	1
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		13	2	
Queuing Penalty (veh)		25	4	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	170	229	266	180	393	395	79	148	190	559
Average Queue (ft)	70	91	132	94	202	215	29	66	116	314
95th Queue (ft)	140	183	222	187	331	340	65	124	219	570
Link Distance (ft)		1823	1823		794	794		524		556
Upstream Blk Time (%)										9
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	140			140			230		150	
Storage Blk Time (%)	2	3		3	20				1	33
Queuing Penalty (veh)	4	2		12	19				5	42

Zone Summary

Zone wide Queuing Penalty: 858

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	468	473	576	386	185	1809	1803	233	250	288	276	226
Average Queue (ft)	454	464	527	185	69	1518	1491	132	151	165	174	53
95th Queue (ft)	497	505	665	307	137	2434	2455	210	227	248	259	131
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	7	35	52	0		63	24					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	40	56	16	0				0	0	1	1	
Queuing Penalty (veh)	117	164	175	0				0	1	3	2	

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B58	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	195	192	187	122	97	197	181	173	2	1260	1240
Average Queue (ft)	93	171	167	170	42	30	157	107	104	0	709	537
95th Queue (ft)	110	187	194	188	91	76	221	199	185	2	1512	1468
Link Distance (ft)		99	99	99	99		96	96	96	96	1295	1295
Upstream Blk Time (%)	12	75	40	41	0	0	69	12	12		13	10
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0		0	0
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	12	75			0	0						
Queuing Penalty (veh)	25	163			1	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	B39	SB	SB	SB	SB	SB	SB
Directions Served	T	L	L	T	T	T	R
Maximum Queue (ft)	1199	117	158	246	271	34	45
Average Queue (ft)	422	45	65	135	144	1	2
95th Queue (ft)	1274	94	125	218	233	35	25
Link Distance (ft)	1295			579	579	579	
Upstream Blk Time (%)	1						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		240	240				200
Storage Blk Time (%)				0			
Queuing Penalty (veh)				1			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B62	B60	B60	WB	WB	WB	NB
Directions Served	L	T	T	R	T	T	T	T	UL	T	TR	UL
Maximum Queue (ft)	68	296	293	104	169	201	116	56	267	461	476	108
Average Queue (ft)	5	223	230	39	22	35	4	2	183	236	252	48
95th Queue (ft)	39	336	334	76	104	137	85	57	308	510	501	90
Link Distance (ft)		220	220	220	3184	3184	579	579		580	580	143
Upstream Blk Time (%)	0	9	12							1	1	0
Queuing Penalty (veh)	0	66	81							6	4	0
Storage Bay Dist (ft)	250								230			
Storage Blk Time (%)	0	9							29	1		
Queuing Penalty (veh)	0	0							178	1		

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	NB	NB	SB
Directions Served	LT	R	LTR
Maximum Queue (ft)	106	146	60
Average Queue (ft)	55	75	14
95th Queue (ft)	96	135	45
Link Distance (ft)	143	143	922
Upstream Blk Time (%)	0	1	
Queuing Penalty (veh)	0	1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	292	340	871	726	265	240	369	383	132	241	264	323
Average Queue (ft)	166	222	339	335	168	107	205	218	35	159	209	81
95th Queue (ft)	258	355	692	647	341	215	344	354	108	243	275	211
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)			0									1
Queuing Penalty (veh)			0									0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0	8	18	0	0	9	0		0	8	
Queuing Penalty (veh)	0	1	44	55	0	1	11	0		0	8	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	133	177	212	235
Average Queue (ft)	58	96	100	106
95th Queue (ft)	112	160	177	194
Link Distance (ft)	318		394	394
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	1	
Queuing Penalty (veh)		0	1	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	180	452	468	179	333	340	111	254	150	225
Average Queue (ft)	141	217	233	34	180	184	49	135	75	120
95th Queue (ft)	208	426	440	108	286	294	94	220	128	209
Link Distance (ft)		1823	1823		795	795		526	556	556
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	140			140			230			
Storage Blk Time (%)	15	12			17			1		
Queuing Penalty (veh)	81	25			5			1		

Zone Summary

Zone wide Queuing Penalty: 1222

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	254	249	147	142	96	241	254	260	246	38	171	225
Average Queue (ft)	155	124	77	79	49	122	140	125	130	10	98	124
95th Queue (ft)	233	218	125	128	81	202	209	211	211	29	162	192
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)						0	0	0	0		2	7
Queuing Penalty (veh)						0	1	0	0		3	12

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB	SB	B72	B72
Directions Served	T	T	R	R	L	L	T	T	T	R	T	
Maximum Queue (ft)	112	93	76	61	20	42	186	200	129	4	567	559
Average Queue (ft)	53	19	33	17	1	11	111	127	19	0	293	262
95th Queue (ft)	98	62	63	43	11	31	171	191	75	4	656	629
Link Distance (ft)	252	252	252				575	575	575		556	556
Upstream Blk Time (%)											2	1
Queuing Penalty (veh)											17	5
Storage Bay Dist (ft)				180	240	240				200		
Storage Blk Time (%)									0			
Queuing Penalty (veh)									0			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B69	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	T	UL	T	TR	UL	LT	R	LTR
Maximum Queue (ft)	37	158	170	49	55	443	550	547	80	84	68	17
Average Queue (ft)	6	76	81	10	2	111	167	182	39	40	23	2
95th Queue (ft)	26	134	145	35	56	250	434	449	69	76	51	10
Link Distance (ft)		556	556	556	575		588	588	139	139	139	913
Upstream Blk Time (%)							0	0			0	
Queuing Penalty (veh)							1	1			0	
Storage Bay Dist (ft)	250					500						
Storage Blk Time (%)							1					
Queuing Penalty (veh)							2					

Intersection: 3: Green Valley Rd & Amys Lane

Movement	NW	SW
Directions Served	LR	T
Maximum Queue (ft)	26	3
Average Queue (ft)	1	0
95th Queue (ft)	11	3
Link Distance (ft)	984	1962
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	154	173	162	142	152	248	304	312	66	238	264	314
Average Queue (ft)	51	85	75	33	54	57	196	213	26	140	196	86
95th Queue (ft)	114	142	139	95	113	153	290	311	52	254	272	228
Link Distance (ft)			1654	1654			840	840				318
Upstream Blk Time (%)												2
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)					0		7			0	8	0
Queuing Penalty (veh)					0		4			0	7	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	153	235	384	358
Average Queue (ft)	55	115	186	163
95th Queue (ft)	125	216	338	315
Link Distance (ft)	318		396	396
Upstream Blk Time (%)	0		2	2
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		2	9	
Queuing Penalty (veh)		7	12	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	R
Maximum Queue (ft)	121	296	179	815	104	167	533	197
Average Queue (ft)	30	136	89	634	38	69	260	75
95th Queue (ft)	85	266	189	973	84	133	485	152
Link Distance (ft)		913		796		535	568	568
Upstream Blk Time (%)				6			1	0
Queuing Penalty (veh)				55			0	0
Storage Bay Dist (ft)	140		140		230			
Storage Blk Time (%)	0	9	1	46		0		
Queuing Penalty (veh)	0	3	5	31		0		

Zone Summary

Zone wide Queuing Penalty: 166

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	469	473	567	399	174	1740	1729	152	161	158	172	77
Average Queue (ft)	429	433	451	153	72	889	840	67	89	90	92	31
95th Queue (ft)	543	567	742	285	133	2061	2019	126	139	140	147	61
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	12	28	42	0		17	7					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	44	49	16	0								
Queuing Penalty (veh)	105	117	117	0								

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B58	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	193	198	172	107	88	184	166	96	8	344	74
Average Queue (ft)	93	163	163	117	38	23	110	58	25	0	85	6
95th Queue (ft)	114	203	199	168	79	65	222	149	92	6	304	45
Link Distance (ft)		99	99	99	99		96	96	96	96	1295	1295
Upstream Blk Time (%)	8	52	33	15	0	0	30	4	0			
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0			
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	8	52			0	0						
Queuing Penalty (veh)	16	105			0	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	B39	SB	SB	SB	SB	B62	B62
Directions Served	T	L	L	T	T	T	
Maximum Queue (ft)	29	73	91	165	180	241	166
Average Queue (ft)	1	22	38	79	89	88	43
95th Queue (ft)	21	54	73	136	153	197	124
Link Distance (ft)	1295			579	579	548	548
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		240	240				
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B60	B60	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	T		UL	T	TR	UL	LT	R
Maximum Queue (ft)	26	305	329	81	611	585	224	192	186	79	72	145
Average Queue (ft)	2	184	208	35	179	64	113	104	102	36	31	69
95th Queue (ft)	13	280	305	66	608	353	203	166	167	66	61	122
Link Distance (ft)		548	548	548	579	579		584	584	142	142	142
Upstream Blk Time (%)					1	0						0
Queuing Penalty (veh)					3	0						0
Storage Bay Dist (ft)	250						500					
Storage Blk Time (%)		2										
Queuing Penalty (veh)		0										

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	SB
Directions Served	LTR
Maximum Queue (ft)	49
Average Queue (ft)	9
95th Queue (ft)	33
Link Distance (ft)	918
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	224	338	482	446	243	193	202	221	72	228	263	285
Average Queue (ft)	134	173	246	212	82	96	119	130	26	127	188	98
95th Queue (ft)	207	281	398	358	195	166	189	209	55	245	266	205
Link Distance (ft)			1654	1654			851	851				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)			3	3	0	0	0			0	5	0
Queuing Penalty (veh)			13	10	0	0	0			0	6	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	154	193	254	150
Average Queue (ft)	70	92	120	66
95th Queue (ft)	131	173	213	119
Link Distance (ft)	318		395	395
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		3	1	
Queuing Penalty (veh)		5	1	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	B75	B75	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	LT	R
Maximum Queue (ft)	180	989	721	431	179	678	92	199	190	96
Average Queue (ft)	132	765	221	98	51	357	36	103	100	36
95th Queue (ft)	217	1178	738	494	144	649	78	176	168	73
Link Distance (ft)		904	851	851		796		535	568	568
Upstream Blk Time (%)		23	1	0		1				
Queuing Penalty (veh)		215	6	1		6				
Storage Bay Dist (ft)	140				140		230			
Storage Blk Time (%)	8	43				37		0		
Queuing Penalty (veh)	71	56				12		0		

Zone Summary

Zone wide Queuing Penalty: 866

2: Sophia Pkwy & Green Valley Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.0	0.3	0.0	0.0	0.3
Total Delay (hr)	2.4	13.4	1.5	0.0	17.3

2: Sophia Pkwy & Green Valley Rd Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.1	0.2
Total Del/Veh (s)	16.7	22.1	24.1	18.6	19.8

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	384	390	259	255	95	270	290	1047	985	126	175	315
Average Queue (ft)	232	253	137	140	49	248	267	559	491	25	134	185
95th Queue (ft)	356	372	224	221	80	318	340	1145	1063	103	195	314
Link Distance (ft)			490	490				2352	2352			252
Upstream Blk Time (%)												9
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	450	450			360	250	250			250	135	
Storage Blk Time (%)	0	0				16	46	1	4		15	28
Queuing Penalty (veh)	0	0				37	107	7	2		25	46

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	B70	SB	SB	SB	SB	SB	SB	B69
Directions Served	T	T	R	R	T	L	L	T	T	T	R	T
Maximum Queue (ft)	144	134	127	103	142	52	215	370	375	501	240	26
Average Queue (ft)	76	53	57	35	17	7	42	239	240	147	54	1
95th Queue (ft)	131	116	104	82	101	30	148	349	353	385	203	23
Link Distance (ft)	252	252	252		1366			575	575	575		3103
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										1		
Storage Bay Dist (ft)				180		240	240				200	
Storage Blk Time (%)								10		1	1	
Queuing Penalty (veh)								4		10	2	

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	B72
Directions Served	T
Maximum Queue (ft)	7
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	251
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B72	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	T	UL	T	TR	UL	LT	R	LTR
Maximum Queue (ft)	48	268	287	74	11	263	341	366	115	132	80	34
Average Queue (ft)	5	125	139	29	0	132	146	191	58	75	35	5
95th Queue (ft)	28	228	247	64	7	224	270	308	98	118	67	23
Link Distance (ft)		251	251	251	3103		583	583	140	140	140	920
Upstream Blk Time (%)		0	1						0	0		
Queuing Penalty (veh)		1	2						0	0		
Storage Bay Dist (ft)	250					230						
Storage Blk Time (%)		0				2	1					
Queuing Penalty (veh)		0				14	2					

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	175	186	163	167	125	238	371	387	148	203	252	242
Average Queue (ft)	68	95	80	81	46	73	216	233	41	86	158	71
95th Queue (ft)	146	161	144	149	99	184	344	364	102	209	234	156
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	0		0			11	0		0	2	0
Queuing Penalty (veh)	0	0		0			7	0		0	2	0

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	132	234	347	359
Average Queue (ft)	44	148	138	148
95th Queue (ft)	100	240	300	288
Link Distance (ft)	318		393	393
Upstream Blk Time (%)			3	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		9	2	
Queuing Penalty (veh)		18	4	

Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	167	247	262	179	365	368	82	170	190	544
Average Queue (ft)	62	96	134	85	197	205	29	70	124	296
95th Queue (ft)	128	189	224	175	314	318	69	137	220	524
Link Distance (ft)		1823	1823		794	794		524		556
Upstream Blk Time (%)										5
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	140			140			230		150	
Storage Blk Time (%)	1	3		2	19			0	2	31
Queuing Penalty (veh)	3	2		7	18			0	10	39

Zone Summary

Zone wide Queuing Penalty: 372

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	EB	EB	EB	EB	EB	B66	B66	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R
Maximum Queue (ft)	468	473	572	411	226	1811	1799	247	258	291	285	182
Average Queue (ft)	451	461	518	185	77	1468	1440	136	150	162	169	47
95th Queue (ft)	513	520	687	308	157	2473	2488	219	226	249	252	112
Link Distance (ft)			473	473		1761	1761			2567	2567	
Upstream Blk Time (%)	9	32	51	0		62	24					
Queuing Penalty (veh)	0	0	0	0		0	0					
Storage Bay Dist (ft)	450	450			360			250	250			250
Storage Blk Time (%)	42	54	15	0				0	1	1	1	0
Queuing Penalty (veh)	124	158	159	0				0	1	2	1	0

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	NB	NB	NB	NB	NB	NB	B58	B58	B58	B58	B39	B39
Directions Served	L	L	T	T	R	R	T	T	T	T	T	T
Maximum Queue (ft)	99	196	197	184	124	90	196	176	166	33	1319	1318
Average Queue (ft)	94	172	167	168	42	28	157	103	102	1	715	564
95th Queue (ft)	110	187	199	195	85	71	219	195	183	17	1554	1528
Link Distance (ft)		99	99	99	99		96	96	96	96	1295	1295
Upstream Blk Time (%)	16	75	40	41	0	0	69	12	12		18	15
Queuing Penalty (veh)	0	0	0	0	0	0	0	0	0		0	0
Storage Bay Dist (ft)	135					180						
Storage Blk Time (%)	16	75			0	0						
Queuing Penalty (veh)	35	161			1	0						

Intersection: 1: Blue Ravine Rd/Green Valley Rd & Natoma Ave

Movement	B39	SB	SB	SB	SB	SB	B62
Directions Served	T	L	L	T	T	R	T
Maximum Queue (ft)	1298	132	149	237	250	41	7
Average Queue (ft)	466	54	70	125	137	2	0
95th Queue (ft)	1373	108	127	207	218	22	5
Link Distance (ft)	1295			579	579		220
Upstream Blk Time (%)	2						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)		240	240			200	
Storage Blk Time (%)				0			
Queuing Penalty (veh)				0			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	EB	EB	EB	EB	B62	B62	B60	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	T	T	T	UL	T	TR	UL	LT
Maximum Queue (ft)	91	306	301	95	247	280	56	264	336	327	118	123
Average Queue (ft)	7	226	231	41	38	54	2	141	155	188	51	63
95th Queue (ft)	52	346	343	79	150	191	49	246	280	302	94	109
Link Distance (ft)		220	220	220	3184	3184	579		580	580	143	143
Upstream Blk Time (%)	0	10	12								0	0
Queuing Penalty (veh)	0	71	87								0	0
Storage Bay Dist (ft)	250							230				
Storage Blk Time (%)	0	10						4	1			
Queuing Penalty (veh)	0	1						28	1			

Intersection: 2: Sophia Pkwy & Green Valley Rd

Movement	NB	SB
Directions Served	R	LTR
Maximum Queue (ft)	155	52
Average Queue (ft)	76	12
95th Queue (ft)	132	39
Link Distance (ft)	143	922
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	L	T
Maximum Queue (ft)	283	340	649	631	265	248	327	325	82	237	264	330
Average Queue (ft)	171	235	328	327	165	103	196	211	31	157	211	91
95th Queue (ft)	261	367	632	614	338	204	307	318	67	246	277	237
Link Distance (ft)			1654	1654			1823	1823				318
Upstream Blk Time (%)												1
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	300	300			225	210			455	225	225	
Storage Blk Time (%)	0	1	8	17	0	1	7			0	10	
Queuing Penalty (veh)	1	4	40	52	0	3	9			0	10	

Intersection: 4: Francisco Dr & Green Valley Rd

Movement	NB	SB	SB	SB
Directions Served	TR	L	T	R
Maximum Queue (ft)	157	206	232	235
Average Queue (ft)	60	97	101	109
95th Queue (ft)	117	167	186	192
Link Distance (ft)	318		394	394
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	1	
Queuing Penalty (veh)		0	2	

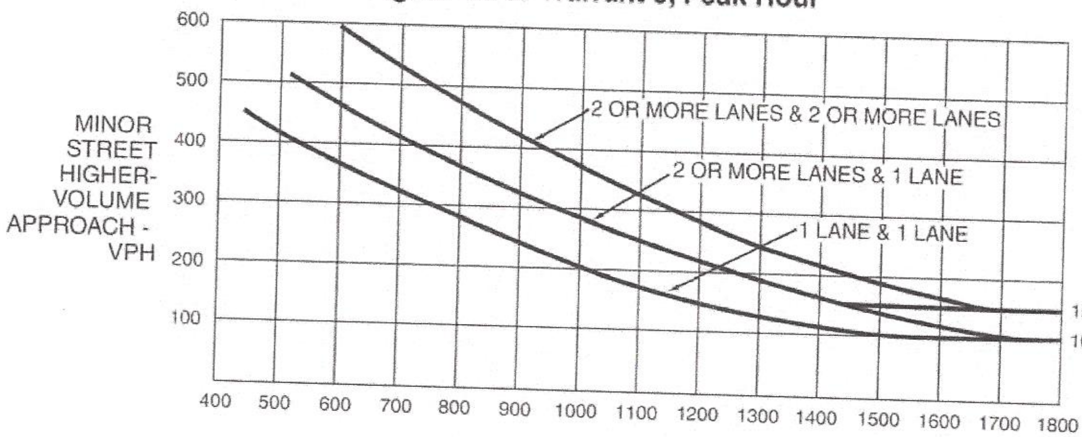
Intersection: 5: El Dorado Hills Blvd & Green Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	180	430	437	169	313	326	150	273	162	257
Average Queue (ft)	138	198	214	32	179	182	53	132	76	121
95th Queue (ft)	202	403	419	99	280	287	107	222	134	217
Link Distance (ft)		1823	1823		795	795		526	556	556
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	140			140			230			
Storage Blk Time (%)	14	12			17			1		
Queuing Penalty (veh)	77	23			5			0		

Zone Summary

Zone wide Queuing Penalty: 1058

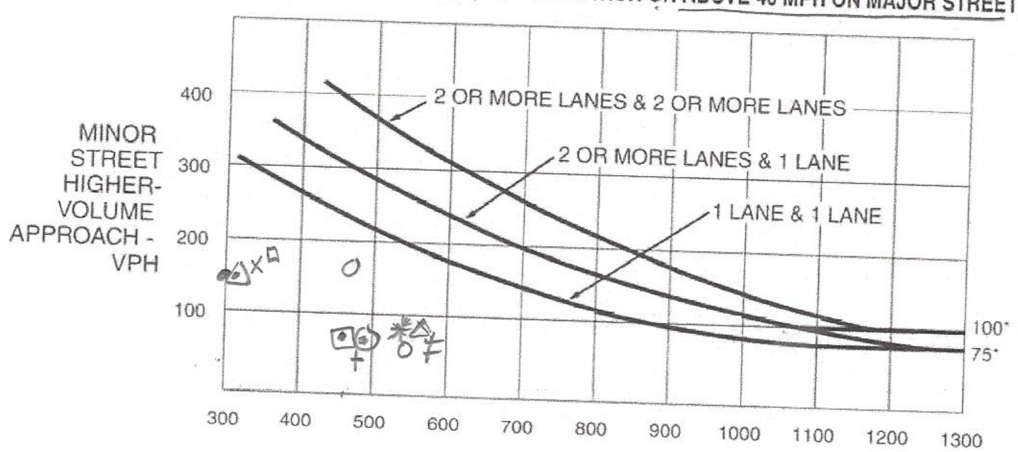
Figure 4C-3. Warrant 3, Peak Hour



*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 approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

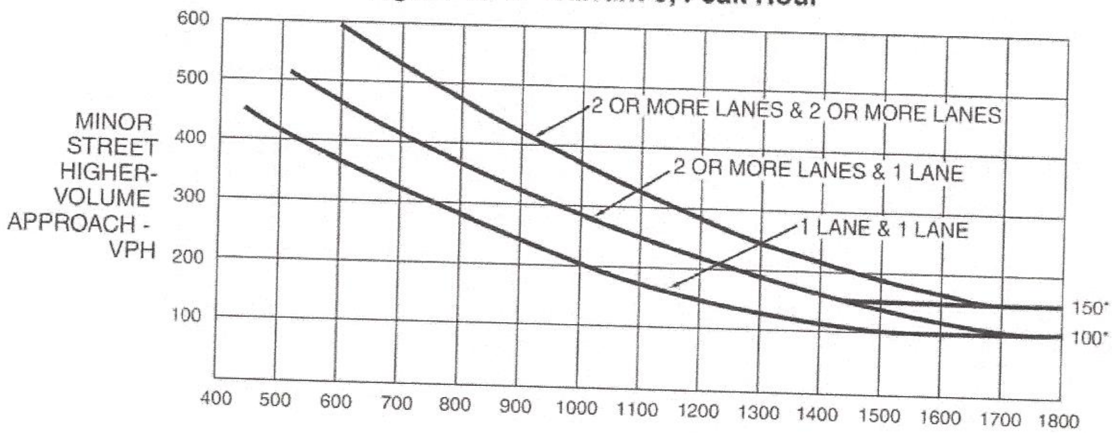


*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

- • EXIST AM
- ⊡ EXIST PM
- △ EPP AM
- ⊙ EPP PM
- X 2019 AM
- * 2019 PM
- □ 2019PP AM
- △ 2019 PP PM
- O 2035 AM
- ⊗ 2035 PM
- † 2035 PP AM
- ‡ 2035 PP PM

SOPHIA PARKWAY / ELMORES WAY

Figure 4C-3. Warrant 3, Peak Hour

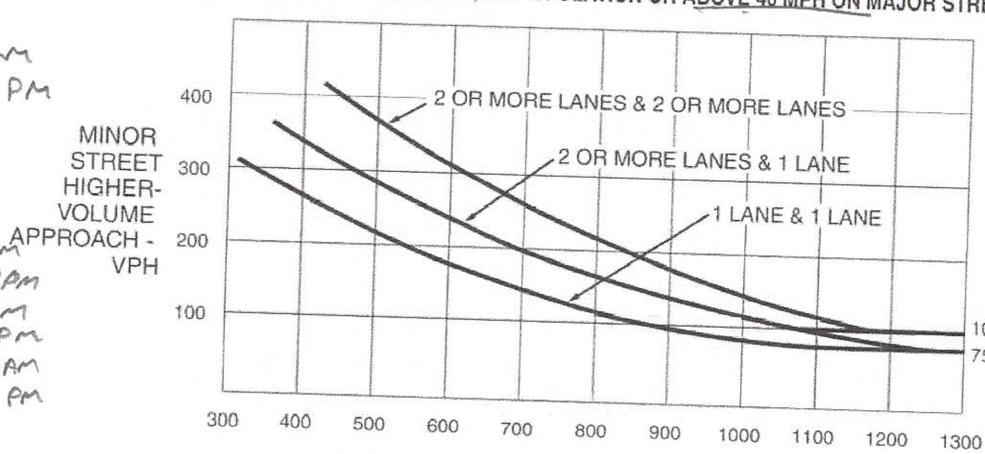


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

• EXIST AM
EXIST PM
EPP AM
EPP PM
X 2019 AM
2019 PM
2019 PP AM
2019 PP PM
2035 AM
2035 PM
† 2035 PP AM
‡ 2035 PP PM



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

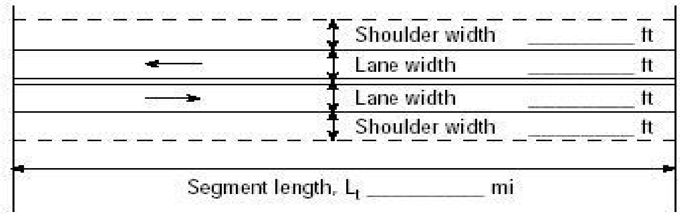
GREEN VALLEY / AMY'S LANE

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		**Site Information**	
Analyst	*JF*	Highway / Direction of Travel	*Green Valey Road*
Agency or Company		From/To	*west of Sophia Parkway EB*
Date Performed	*8/12/2015*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM*	Analysis Year	*Existing*

Project Description: *Arco AM PM*

Input Data



☐ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☐ Rolling

Analysis direction vol., V_d	*1477*veh/h
Opposing direction vol., V_o	*968*veh/h
Shoulder width ft	*6.0*
Lane Width ft	*12.0*
Segment Length mi	*1.2*
Grade Length mi Up/down	
Peak-hour factor, PHF	*0.92*
No-passing zone	*58%*
% Trucks and Buses, P_T	*6* %
% Recreational vehicles, P_R	*2%*
Access points *mi*	*2*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^* f_{g,ATS} * f_{HV,ATS})$	*1605*	*1052*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*59.5 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.0 mi/h*
		Percent free flow speed, PFFS	*63.9 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^*f_{HV,PTSF}{}^* f_{g,PTSF})$	*1605*	*1052*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*89.5*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*9.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}{}^*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*95.4*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.94*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*63.9*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1605.4*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.23*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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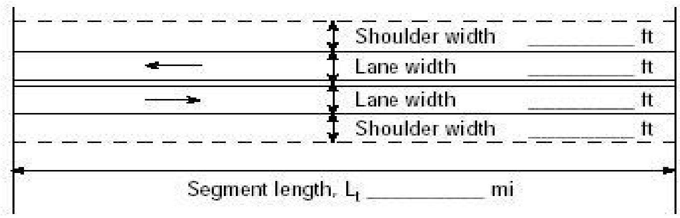
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

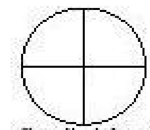
General Information		Site Information	
Analyst	*JF*	Highway / Direction of Travel	*Green Valley Road*
Agency or Company		From/To	*west of Sophia Parkway - WB*
Date Performed	*8/12/2015*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM*	Analysis Year	*Existing*

Project Description: *Arco AM PM*

Input Data



Analysis direction vol., V_d *968*veh/h
Opposing direction vol., V_o *1477*veh/h
Shoulder width ft *6.0*
Lane Width ft *12.0*
Segment Length mi *1.2*



☐ Class I highway ☐ Class II highway ☐ Class III highway
Terrain ☐ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.92*
No-passing zone *58%*
% Trucks and Buses , P_T *6 %*
% Recreational vehicles, P_R *2%*
Access points *mi* *2/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF^*f_{g,ATS}*f_{HV,ATS})$	*1052*	*1605*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
		Base free-flow speed[4], BFFS	*60.0 mi/h*
		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Mean speed of sample[3], S_{FM}		Adj. for access points[4], f_A (Exhibit 15-8)	*0.5 mi/h*
Total demand flow rate, both directions, *v*		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*59.5 mi/h*
Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*38.2 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.7 mi/h*	Percent free flow speed, PFFS	*64.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF^*f_{HV,PTSF}*f_{g,PTSF})$	*1052*	*1605*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*83.9*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*9.7*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*87.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.62*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*64.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1052.2*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.01*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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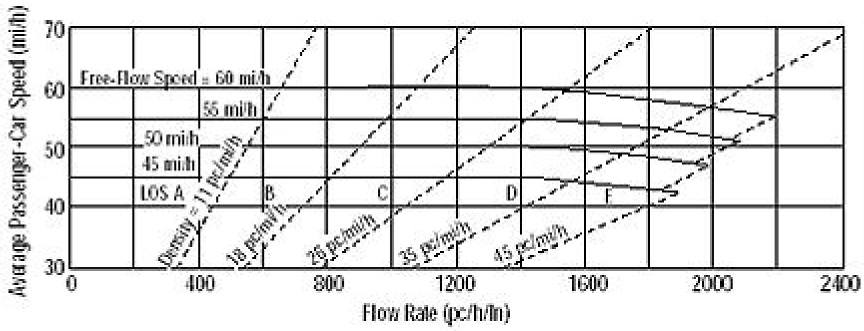
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	Existing

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1549	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.972

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	5.0
Access Points, A (A/mi)	1
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	55.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	1.5
f_A (mi/h)	0.3
f_M (mi/h)	0.0
FFS (mi/h)	53.2

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	866
Speed, S (mi/h)	55.0
D (pc/mi/ln)	15.7
LOS	B

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*841.8*
Effective width, W_v (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.19*
Bicycle level of service (Exhibit 15-4)	*E*

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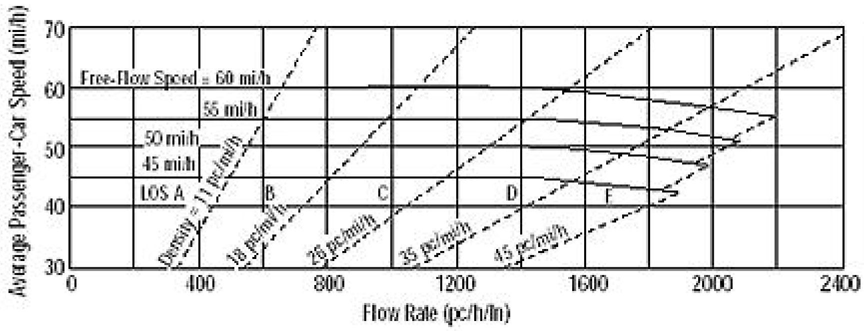
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	Existing

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1027	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.972

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	5.0
Access Points, A (A/mi)	1
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	55.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	1.5
f_A (mi/h)	0.3
f_M (mi/h)	0.0
FFS (mi/h)	53.2

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	574
Speed, S (mi/h)	55.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*558.2*
Effective width, W_v (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.98*
Bicycle level of service (Exhibit 15-4)	*E*

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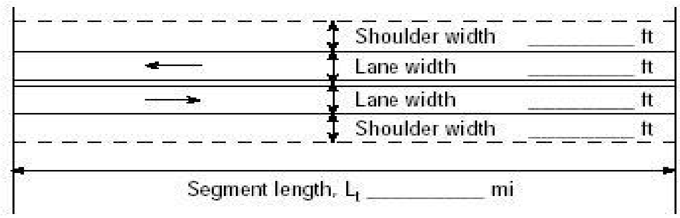
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*JF*	Highway / Direction of Travel	*Green Valley Road*
Agency or Company		From/To	*west of Sophia Parkway - EB*
Date Performed	*8/12/2015*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM*	Analysis Year	*Existing + Project*

Project Description: *Arco AM PM*

Input Data



☐ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☐ Rolling

Analysis direction vol., V_d	*1500*veh/h
Opposing direction vol., V_o	*988*veh/h
Shoulder width ft	*6.0*
Lane Width ft	*12.0*
Segment Length mi	*1.2*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.92*
No-passing zone	*58%*
% Trucks and Buses, P_T	*6* %
% Recreational vehicles, P_R	*2%*
Access points *mi*	*2*/mi

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.3*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.1*	*1.1*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.980*	*0.980*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF* f_{g,ATS} * f_{HV,ATS})$	*1664*	*1096*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*0.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS $(FSS=BFFS-f_{LS}-f_A)$	*59.5 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*37.2 mi/h*
		Percent free flow speed, PFFS	*62.5 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}* f_{g,PTSF})$	*1630*	*1074*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*90.3*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*9.6*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*96.1*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.96*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*0*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*62.5*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1630.4*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.23*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

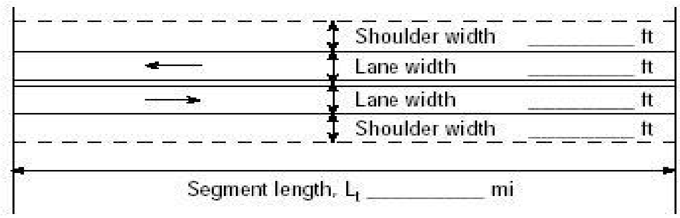
 *HCS 2010*TM Version 6.65 Generated: 8/12/2015 7:04 AM

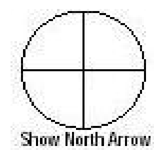
DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		**Site Information**	
Analyst	*JF*	Highway / Direction of Travel	*Green Valley Road*
Agency or Company		From/To	*west of Sophia Parkway - WB*
Date Performed	*8/12/2015*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM*	Analysis Year	*Existing + Project*

Project Description: *Arco AM PM*

Input Data





☐ Class I highway ☐ Class II highway ☐ Class III highway

Terrain ☐ Level ☐ Rolling

Analysis direction vol., V_d	*988*veh/h
Opposing direction vol., V_o	*1500*veh/h
Shoulder width ft	*6.0*
Lane Width ft	*12.0*
Segment Length mi	*1.2*
Grade Length mi	Up/down
Peak-hour factor, PHF	*0.92*
No-passing zone	*58%*
% Trucks and Buses , P_T	*6 %*
% Recreational vehicles, P_R	*2%*
Access points *mi*	*2/mi*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}$=1/ (1+ P_T(E_T-1)+P_R(E_R-1))	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) v_i=V_i / (PHF* $f_{g,ATS}$ * $f_{HV,ATS}$)	*1074*	*1630*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*60.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*0.0 mi/h*
Free-flow speed, FFS=S_{FM}+0.00776(*v*/ $f_{HV,ATS}$)		Adj. for access points[4], f_A (Exhibit 15-8)	*0.5 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.7 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*59.5 mi/h*
		Average travel speed, ATS_d=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$	*37.8 mi/h*
		Percent free flow speed, PFFS	*63.6 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ P_T(E_T-1)+P_R(E_R-1))	*1.000*	*1.000*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) v_i=V_i/(PHF*$f_{HV,PTSF}$* $f_{g,PTSF}$)	*1074*	*1630*
Base percent time-spent-following[4], $BPTSF_d$(%)=100(1-$e^{av_d^b}$)	*84.4*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*9.6*	
Percent time-spent-following, $PTSF_d$(%)=$BPTSF_d$+$f_{np,PTSF}$ *($v_{d,PTSF}$ / $v_{d,PTSF}$ + $v_{o,PTSF}$)	*88.2*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*E*
Volume to capacity ratio, *v/c*	*0.63*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*63.6*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1073.9*
Effective width, Wv (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.02*
Bicycle level of service (Exhibit 15-4)	*D*

Notes

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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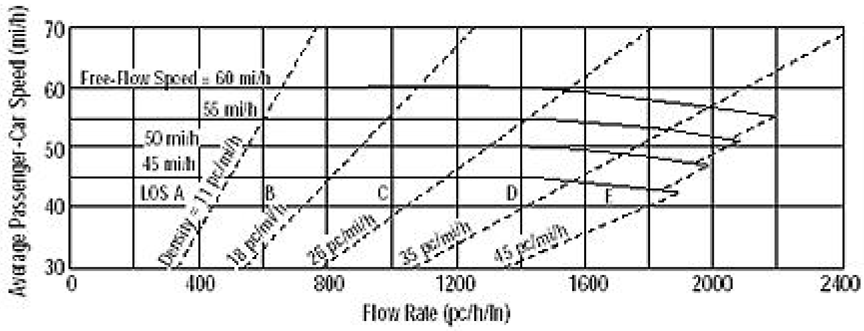
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	Existing + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1568	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.972

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	5.0
Access Points, A (A/mi)	1
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	55.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	1.5
f_A (mi/h)	0.3
f_M (mi/h)	0.0
FFS (mi/h)	53.2

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	876
Speed, S (mi/h)	55.0
D (pc/mi/ln)	15.9
LOS	B

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*852.2*
Effective width, W_v (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*5.19*
Bicycle level of service (Exhibit 15-4)	*E*

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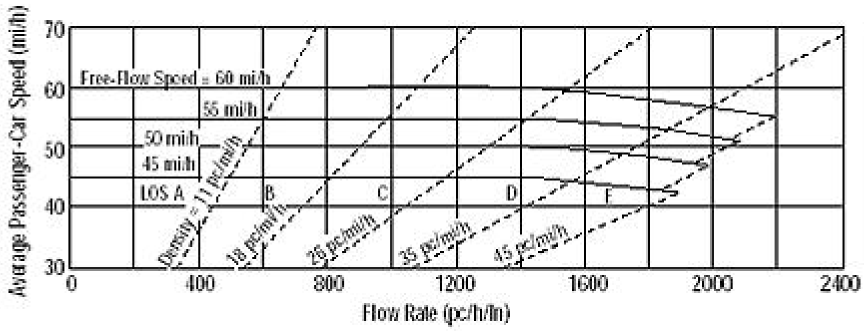
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	Existing + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1046	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	2
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.972

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	5.0
Access Points, A (A/mi)	1
Median Type, M	Divided
FFS (measured)	
Base Free-Flow Speed, BFFS	55.0

Calc Speed Adj and FFS

f_{LW} (mi/h)	0.0
f_{LC} (mi/h)	1.5
f_A (mi/h)	0.3
f_M (mi/h)	0.0
FFS (mi/h)	53.2

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	584
Speed, S (mi/h)	55.0
D (pc/mi/ln)	10.6
LOS	A

Design

Design (N)

Required Number of Lanes, N

Flow Rate, v_p (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*568.5*
Effective width, W_v (Eq. 15-29) ft	*16.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*4.99*
Bicycle level of service (Exhibit 15-4)	*E*

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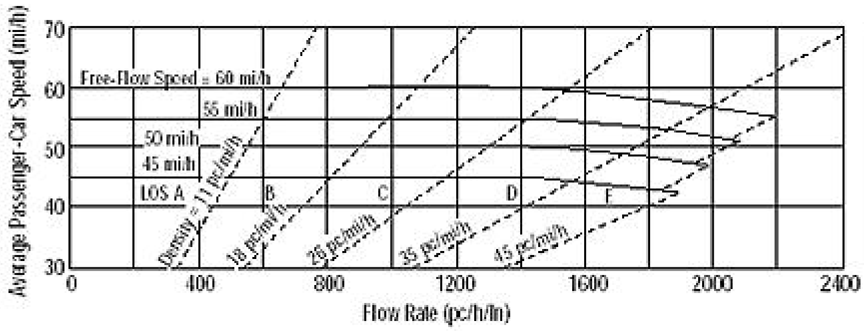
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1649	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	918
Speed, S (mi/h)	55.0
D (pc/mi/ln)	16.7
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*896.2*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.62*
Bicycle level of service (Exhibit 15-4)	*D*

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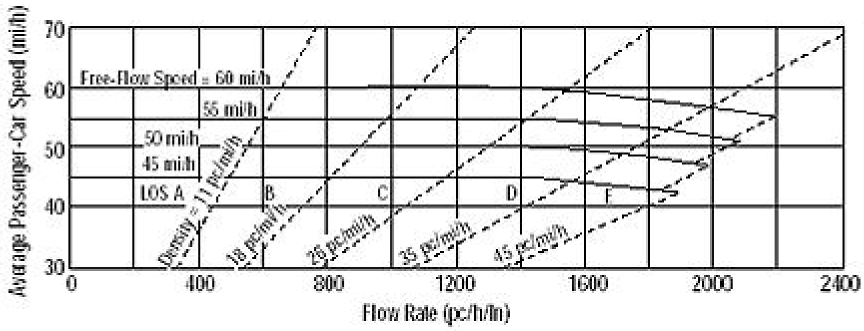
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1060	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	590
Speed, S (mi/h)	55.0
D (pc/mi/ln)	10.7
LOS	A

Design

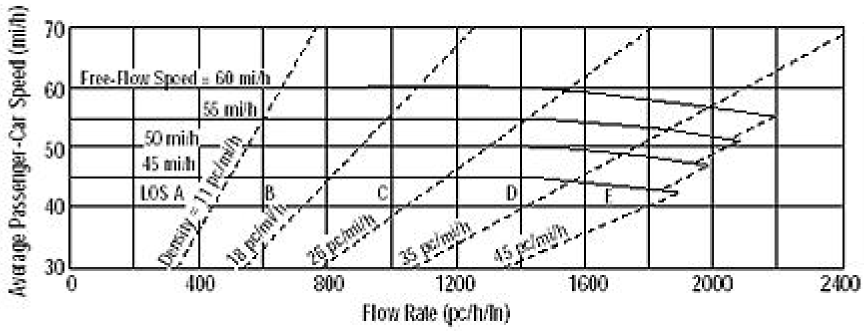
Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*576.1*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.39*
Bicycle level of service (Exhibit 15-4)	*C*

 HCS 2010™ Version 6.65 Generated: 8/12/2015 8:45 AM

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v_p
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v_p

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1756	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	978
Speed, S (mi/h)	55.0
D (pc/mi/ln)	17.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*954.3*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.65*
Bicycle level of service (Exhibit 15-4)	*D*

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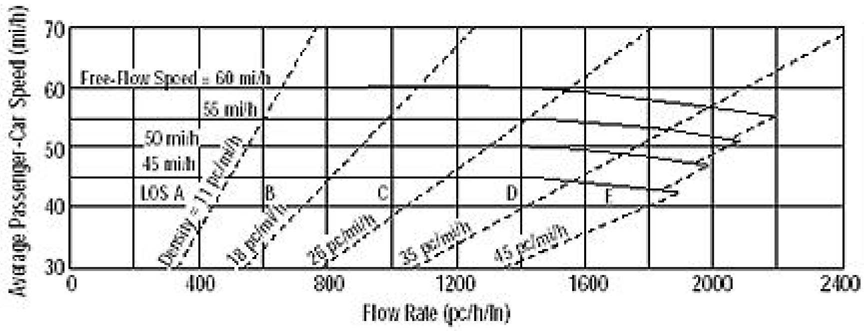
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1164	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	648
Speed, S (mi/h)	55.0
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*632.6*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.44*
Bicycle level of service (Exhibit 15-4)	*C*

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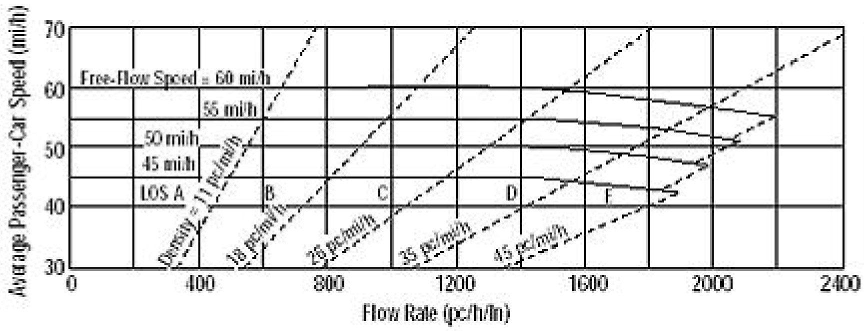
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1670	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	930
Speed, S (mi/h)	55.0
D (pc/mi/ln)	16.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*907.6*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.63*
Bicycle level of service (Exhibit 15-4)	*D*

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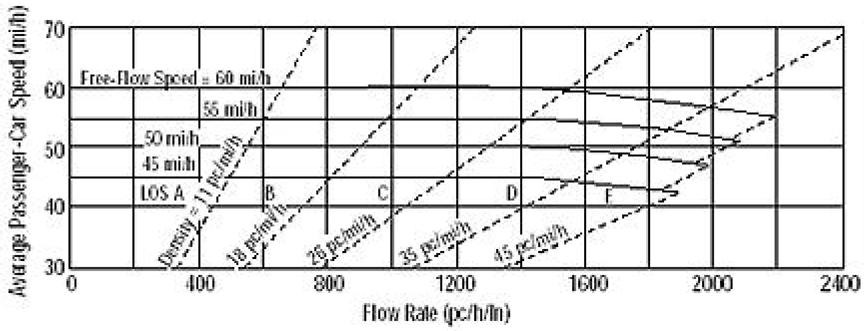
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1080	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	601
Speed, S (mi/h)	55.0
D (pc/mi/ln)	10.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*587.0*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.40*
Bicycle level of service (Exhibit 15-4)	*C*

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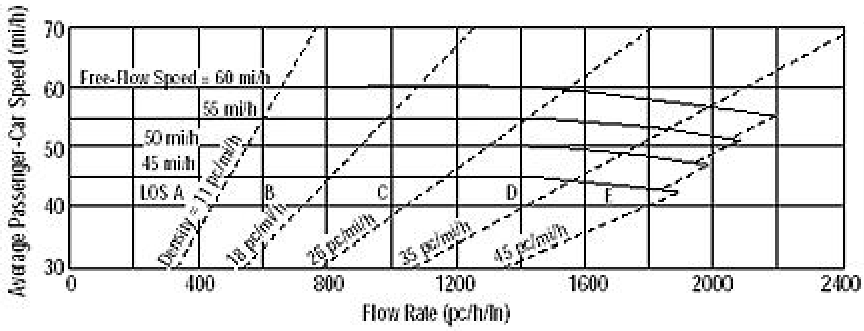
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1775	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	988
Speed, S (mi/h)	55.0
D (pc/mi/ln)	18.0-
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*964.7*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.66*
Bicycle level of service (Exhibit 15-4)	*D*

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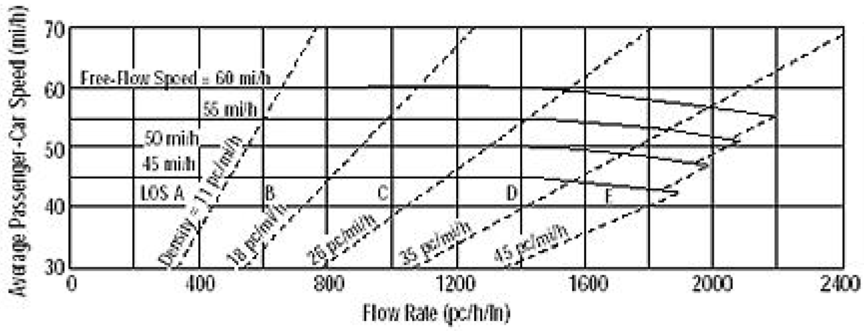
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2019 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1183	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	659
Speed, S (mi/h)	55.0
D (pc/mi/ln)	12.0
LOS	B

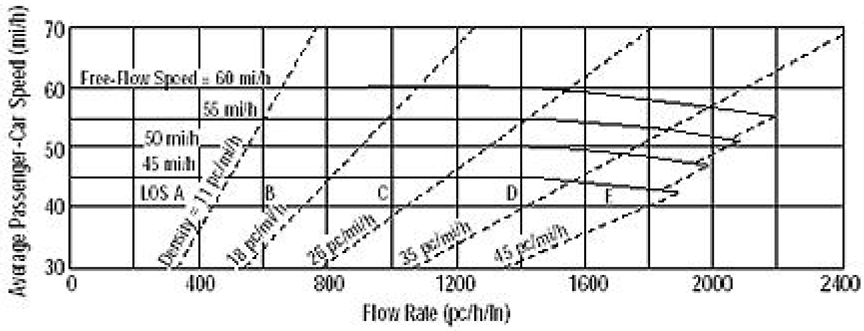
Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*642.9*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.45*
Bicycle level of service (Exhibit 15-4)	*C*

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1930	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1075
Speed, S (mi/h)	55.0
D (pc/mi/ln)	19.5
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1048.9*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.70*
Bicycle level of service (Exhibit 15-4)	*D*

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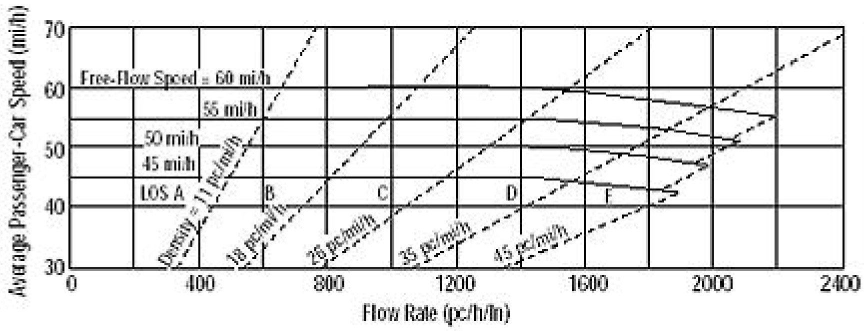
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1370	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	763
Speed, S (mi/h)	55.0
D (pc/mi/ln)	13.9
LOS	B

Design

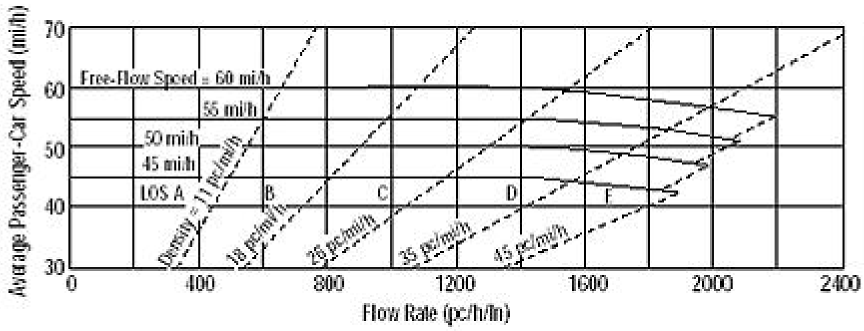
Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*744.6*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.53*
Bicycle level of service (Exhibit 15-4)	*D*

 HCS 2010™ Version 6.65 Generated: 8/12/2015 8:56 AM

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1875	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1044
Speed, S (mi/h)	55.0
D (pc/mi/ln)	19.0
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1019.0*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.68*
Bicycle level of service (Exhibit 15-4)	*D*

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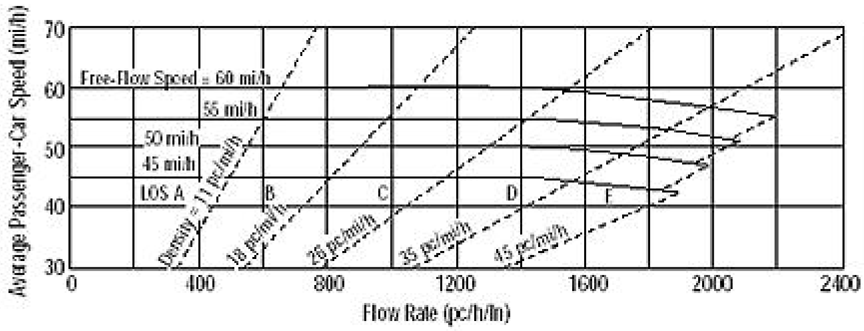
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1385	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	771
Speed, S (mi/h)	55.0
D (pc/mi/ln)	14.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

13-1347 5J 437 of 474

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*752.7*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.53*
Bicycle level of service (Exhibit 15-4)	*D*

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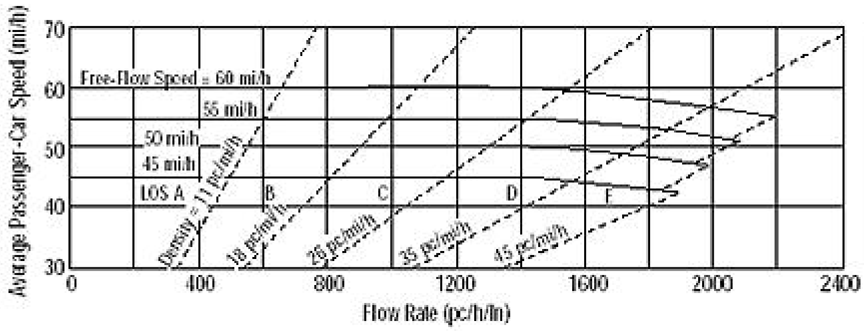
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035 plus Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1951	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1086
Speed, S (mi/h)	55.0
D (pc/mi/ln)	19.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1060.3*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.70*
Bicycle level of service (Exhibit 15-4)	*D*

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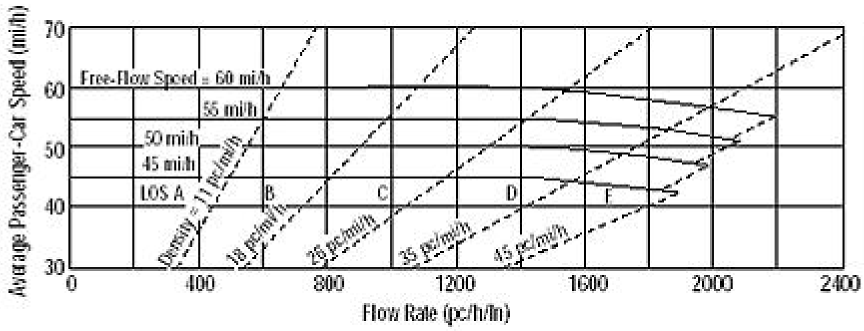
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	O
Operational (LOS)	FFS, N, v_p	L
Design (N)	FFS, LOS, v_p	N
Design (v_p)	FFS, LOS, N	v_p
Planning (LOS)	FFS, N, AADT	L
Planning (N)	FFS, LOS, AADT	N
Planning (v_p)	FFS, LOS, N	v_p

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	west of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035 plus Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1390	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	774
Speed, S (mi/h)	55.0
D (pc/mi/ln)	14.1
LOS	B

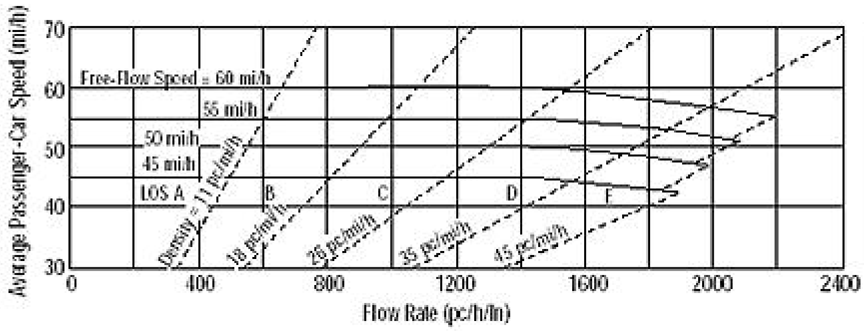
Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*755.4*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.53*
Bicycle level of service (Exhibit 15-4)	*D*

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1894	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1055
Speed, S (mi/h)	55.0
D (pc/mi/ln)	19.2
LOS	C

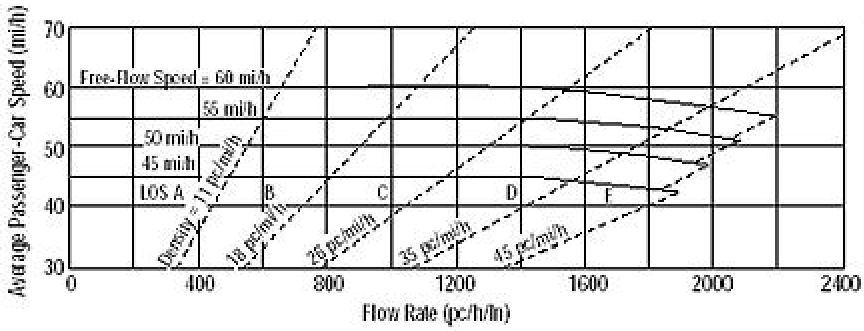
Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*1029.3*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.69*
Bicycle level of service (Exhibit 15-4)	*D*

MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input
Operational (LOS)	FFS, N, v_p
Design (N)	FFS, LOS, v_p
Design (v_p)	FFS, LOS, N
Planning (LOS)	FFS, N, AADT
Planning (N)	FFS, LOS, AADT
Planning (v_p)	FFS, LOS, N

General Information

Analyst	JF
Agency or Company	
Date Performed	8/11/2015
Analysis Time Period	PM

Site Information

Highway/Direction to Travel	Green Valley Rd
From/To	east of Sophia Parkway
Jurisdiction	ED County
Analysis Year	2035 + Project

Project Description Arco AM PM

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1404	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	5
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.976

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	55.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	55.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	782
Speed, S (mi/h)	55.0
D (pc/mi/ln)	14.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*763.0*
Effective width, W_v (Eq. 15-29) ft	*24.00*
Effective speed factor, S_t (Eq. 15-30)	*4.79*
Bicycle level of service score, BLOS (Eq. 15-31)	*3.54*
Bicycle level of service (Exhibit 15-4)	*D*

Appendix D – Biological Resources Supporting Information

Exhibit Q

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

March 25, 2015

Document Number: 150325124558

R. John Little Ph.D.
Sycamore Environmental Consultants Inc.
6355 Riverside Blvd. Suite C
Sacramento, CA 95831

Subject: Species List for Green Valley Convenience Center Project

Dear: Dr. Little

We are sending this official species list in response to your March 25, 2015 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 June 23, 2015.

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 http://www.fws.gov/sacramento/es/Branch-Contacts/es_branch-contacts.htm.

Endangered Species Division

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 Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 150325124558

Current as of: March 25, 2015

Quad Lists

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)

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)

Plants

Calystegia stebbinsii
Stebbins's morning-glory (E)

Ceanothus roderickii
Pine Hill ceanothus (E)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Quads Containing Listed, Proposed or Candidate Species:

CLARKSVILLE (511A)

County Lists

El Dorado County

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

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 (=Salmo) clarki henshawi
Lahontan cutthroat trout (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)
Critical habitat, California red-legged frog (X)

Rana sierrae
Mountain yellow legged frog (PX)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (T)

Plants

Calystegia stebbinsii
Stebbins's morning-glory (E)

Ceanothus roderickii
Pine Hill ceanothus (E)

Fremontodendron californicum ssp. decumbens
Pine Hill flannelbush (E)

Galium californicum ssp. sierrae
El Dorado bedstraw (E)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Senecio layneae
Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

Bufo canorus
Yosemite toad (C)

Rana muscosa
mountain yellow-legged frog (C)

Mammals

Martes pennanti
fisher (C)

Plants

Rorippa subumbellata
Tahoe yellow-cress (C)

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

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the

California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

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 June 23, 2015.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Clarksville (3812161) or Rocklin (3812172) or Pilot Hill (3812171) or Coloma (3812078) or Folsom (3812162) or Shingle Springs (3812068) or Buffalo Creek (3812152) or Folsom SE (3812151) or Latrobe (3812058))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Endangered	G2G3	S1S2	SSC
Allium jepsonii Jepson's onion	PMLIL022V0	None	None	G1	S1	1B.2
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S2	SSC
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Banksula californica Alabaster Cave harvestman	ILARA14020	None	None	GH	SH	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calystegia stebbinsii Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
Ceanothus roderickii Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G1	S1	1B.2
Central Valley Drainage Hardhead/Squawfish Stream Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA	None	None	GNR	SNR	
Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Cosumnoperla hypocrena Cosumnes stripetail	IIPLE23020	None	None	G2	S2	
Crocanthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0	None	None	G2Q	S2	3.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Dumontia oregonensis hairy water flea	ICBRA23010	None	None	G1G3	S1	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fremontodendron decumbens Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
Galium californicum ssp. sierrae El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1	1B.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S2	FP
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G1T1	S1	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Packera layneae Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2	1B.2
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pekania pennanti fisher - West Coast DPS	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Rana boylii foothill yellow-legged frog	AAABH01050	None	None	G3	S2S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Wyethia reticulata El Dorado County mule ears	PDAST9X0D0	None	None	G2	S2	1B.2

Record Count: 61

CNPS California Native Plant Society Rare and Endangered Plant Inventory

Plant List

29 matches found. *Click on scientific name for details*

Search Criteria

Found in 9 Quads around 38121F1

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	1B.2	S1	G1
Allium sanbornii var. sanbornii	Sanborn's onion	Alliaceae	perennial bulbiferous herb	4.2	S4?	G3T4?
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S34	G4
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	perennial rhizomatous herb	1B.1	S1	G1
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	4.3	S4	G4
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1	S1	G1
Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	1B.2	S3	G3
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	annual herb	4.2	S4	G4G5T4
Claytonia parviflora ssp. grandiflora	streambank spring beauty	Montiaceae	annual herb	4.2	S3	G5T3
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	3.2	S2	G2Q
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Erigeron miser	starved daisy	Asteraceae	perennial herb	1B.3	S2	G2
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	4.3	S3	G3
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	1B.2	S2	G2
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	1B.2	S1	G1
Galium californicum ssp. sierrae	El Dorado bedstraw	Rubiaceae	perennial herb	1B.2	S1	G5T1
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	1B.2	S2	G2
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1

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Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	4.2	S3	G4T3
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	1B.1	S1	G1
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	1B.2	S2	G2
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb	1B.2	S3	G3
Trichostema rubisepalum	Hernandez bluecurls	Lamiaceae	annual herb	4.3	S4	G4
Wyethia reticulata	El Dorado County mule ears	Asteraceae	perennial herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 31 March 2015].

Table D-1
Species Evaluated

Special-Status Species from USFWS Letter, CNDDB Query, and CNPS Query (compiled by Sycamore Environmental Consulting,, March 2015)

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Invertebrates					
Branchinecta lynchi Vernal pool fairy shrimp	T	--	1, 2	Exist only in vernal pools or vernal pool-like habitats. Individuals have never been found in riverine, marine, or other permanent bodies of water. Water movement within complexes allows movement between individual pools. Currently found in 28 counties across the Central Valley and coast ranges of CA. Occupies a variety of vernal pool habitats (USFWS 2005).	No. There are no vernal pools or other suitable habitat.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	T	--	1, 2	Requires an elderberry shrub (*Sambucus mexicana* or *Sambucus racemosa* var. *microbotrys*) as a host plant (USFWS 9 July 1999).	No. There are no elderberry shrubs.
Lepidurus packardi Vernal pool tadpole shrimp	E	--	1, 2	Occurs in vernal pools and sometimes other areas of similar hydrology across the Central Valley of CA and in the San Francisco Bay area. Requires a minimum of about 25 days to mature, and usually inhabits large, deep vernal pools that pool continuously for many months (USFWS 2005). They can also make use of smaller pools that are present as part of a larger vernal pool complex (Witham et al. 1998), and they may be able tolerate temporary dry conditions (USFWS 2005).	No. There are no vernal pools or other suitable habitat.
Fish					
Hypomesus transpacificus Delta smelt	T	T	1	Euryhaline (tolerant of a wide salinity range) species that spawns in freshwater dead-end sloughs and shallow edge-waters of channels of the Delta (USFWS 1994).	No. There is no suitable aquatic habitat.
Oncorhynchus mykiss Central Valley steelhead ESU	T	--	1, 2	Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. While steelhead are found elsewhere in the Sacramento River system, the principal remaining wild populations are a few hundred fish that spawn annually in Deer and Mill Creeks in Tehama County and a population of unknown size in the lower Yuba River. With the possible exception of a small population in the lower Stanislaus River, steelhead appear to have been extirpated from the San Joaquin system (Moyle 2002). Spawning occurs in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Federal listing includes all runs in the Sacramento and San Joaquin Rivers and their tributaries (CDFW 2015).	No. There is no suitable aquatic habitat. The channel at the site is too small. Nimbus Dam downstream prevents fish passage.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon ESU	T	T	1	Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. Extant populations spawn in the Sacramento River and its tributaries (Moyle 2002). Populations in the San Joaquin River are believed to be extirpated (NMFS 1998). Enters the Sacramento River from March to July and spawns from late August through early October. Requires streams with suitable gravel composition, water depth, and velocity for spawning (McGinnis 1984). The Federal listing includes populations spawning in the Sacramento River and its tributaries (CDFW 2015).	No. There is no suitable aquatic habitat. The channel at the site is too small. Nimbus Dam downstream prevents fish passage.
Oncorhynchus tshawytscha Winter-run Chinook salmon ESU	E	E	1	Anadromous salmonids which historically spawned in cold waters of the McCloud, Pit, and upper Sacramento Rivers, but are presently found only in the mainstem Sacramento River, below Keswick Dam (Moyle 2002). Emigrates predominately as fry and subyearlings and enters the Sacramento/ San Joaquin Basin from December through July and spawns from April through July. Adult female Chinook will prepare a spawning bed in a stream with suitable gravel composition, water depth, and velocity (McGinnis 1984).	No. There is no suitable aquatic habitat. The channel at the site is too small. Nimbus Dam downstream prevents fish passage.
Amphibians					
Ambystoma californiense California tiger salamander (central population)	T	T, SSC	1	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Requires pools lasting approximately 10 weeks or longer to complete larval development (Jennings and Hayes 1994). Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). The state listing refers to the entire range of the species. The federal threatened listing is only for the Central Valley population. The Sonoma and Santa Barbara populations are federally listed as endangered (CDFW 2015).	No. There is no suitable habitat and the site is outside the range.
Rana aurora draytonii California red-legged frog	T, CH	SSC	1, 2	Inhabits quiet pools of streams, marshes, and occasionally ponds with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2015; USFWS 2010). The range of CA red-legged frog extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. CA red-legged frog was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002).	No. There is no suitable breeding habitat, and there are no populations within dispersal distance.
Rana boylii Foothill yellow-legged frog	--	SSC	2	Occurs in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types from near sea level to 6,370 ft in the Sierra. This species is rarely encountered (even on rainy nights) far from permanent water (CWHR 2015).	No. There is no suitable aquatic habitat.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Spea (=Scaphiopus) hammondi Western spadefoot	--	CSC	2	Ranges throughout the Central Valley and adjacent foothills, and is usually quite common where it occurs. Occurs primarily in grasslands, but occasionally occurs in valley-foothill hardwood woodlands (CWHR 2015). Primarily found in the lowlands frequenting washes, floodplains of rivers, alluvial fans, playas, and alkali flats. Also ranges into foothills and mountains. Prefers areas of open vegetation and short grasses with sandy or gravelly soil (Stebbins 2003). Spends most of the year in underground burrows up to 36 inches deep, which they generally construct themselves. Most surface movements by adults are associated with rains or high humidity at night. Breeding and egg laying occur almost exclusively in shallow, temporary pools formed by heavy winter rains (CWHR 2015).	No. There are no vernal pools or other suitable habitat.
Reptiles					
Emys marmorata Western pond turtle	--	SSC	2	Prefers aquatic habitats with abundant vegetative cover and exposed basking sites such as logs. Associated with permanent or nearly permanent water in a wide variety of habitat types, normally in ponds, lakes, streams, irrigation ditches, or permanent pools along intermittent streams (CWHR 2015).	Yes. The channel and seasonal wetland may provide habitat seasonally. See text.
Phrynosoma blainvillii Coast (California) horned lizard	--	SSC	2	Occurs in valley and foothill hardwood, conifer, and riparian habitats, as well as in pine-cypress, juniper and annual grasslands up to 4,000 ft in the Sierra Nevada and 6,000 ft in southern CA Basks in the early morning. Often associated with sandy or loose soil areas (CWHR 2015). Feeds mostly on native ants. Tends not to persist where the argentine ant invades (Suarez et al. 2000, Suarez and Case 2002).	No. The uplands are too small and isolated from other upland habitat by development.
Thamnophis gigas Giant garter snake	T	T	1, 2	Known from low basins in the Central Valley. Habitat requisites consist of 1) adequate water during the snake's active season (early spring through mid-fall) to provide food and cover; 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; 3) grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season (USFWS 1999).	No. The project site is outside the geographic range.
Birds					
Agelaius tricolor Tricolored blackbird	--	E	2	Forages on ground in cropland, grassland, and on pond edges. Nests near freshwater, preferably in emergent marsh densely vegetated with cattails or tules, but also in thickets of willow, blackberry, and wild rose. Highly colonial; nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2015). Chooses areas with widespread water and large, thick patches of vegetation for colonies to reduce predation (Hamilton 2004). Nesting colonies are of concern to CDFW (2015).	No. The site is too small, and without adjacent habitat, for nesting.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Ammodramus savannarum Grasshopper sparrow	--	SSC	2	An uncommon local summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity cos south to San Diego Co. Occurs in dry, dense grasslands, especially with scattered shrubs for sitting perches. A thick cover of grasses and forbs is essential for concealment. Nests are built of grasses and forbs in slight depressions in ground hidden by a clump of grasses or forbs. Usually nests solitarily from early April to mid-July. May form semicolonial breeding groups of 3-12 pairs (CWHR 2015). Nesting sites are of concern to CDFW (2015).	No. There is no suitable habitat.
Aquila chrysaetos Golden eagle	--	FP	2	Uncommon permanent resident and migrant throughout California, except in the central portion of the Central Valley. Perhaps more common in southern California than in northern California. Ranges from sea level up to 11,500 ft (Grinnell and Miller 1944). Typically inhabits rolling foothills, mountainous areas, sage-juniper flats, and deserts. Uses secluded cliffs with overhanging ledges and large trees for cover. Nest on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Needs open terrain for hunting (CWHR 2015). Nesting and wintering sites are of concern to CDFW (2015).	No. There is no suitable nesting habitat.
Athene cunicularia Burrowing owl	--	SSC	2	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Uses small mammal burrows, often ground squirrel, for roosting and nesting cover (CWHR 2015). Burrowing sites and some wintering sites are of concern to CDFW (2015).	No, there are no suitable burrows at the site and has not been seen during multiple visits.
Buteo swainsoni Swainson's hawk	--	T	2	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Nests in stands with few trees in juniper-sage flats, in riparian areas and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2015). Nesting sites are of concern to CDFW (2015).	Yes. See text.
Elanus leucurus White-tailed kite	--	FP	2	Yearlong resident in coastal and valley lowlands. Rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats, mostly in cismontane California. Substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. Nest placed near top of dense oak, willow, or other tree stand located near open foraging area. Forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (CWHR 2015). Nesting sites are of concern to CDFW (2015).	Yes. See text.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Haliaeetus leucocephalus Bald eagle	D	E, FP	2	Occurs along coasts, rivers, and large, deep lakes and reservoirs in California. Nests mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity cos. More widespread as a winter migrant. Requires large bodies of water or free flowing rivers with abundant fish and perching sites. Nests in large old growth and dominant live trees with open branchwork. Favors ponderosa pine (CWHR 2015). Nesting and wintering sites are of concern to CDFW (2015).	No. The site does not provide suitable nesting habitat, but there is a nearby nest along Folsom Lake. See text.
Laterallus jamaicensis coturniculus Black rail	--	T, FP	2	Yearlong resident of saline, brackish, and fresh emergent wetlands in the Bay area, Delta, a few southern coast locations, the Salton Sea, and the lower Colorado River. Typically occurs in tidal emergent wetlands dominated by pickleweed and in brackish marshes supporting bulrushes in association with pickleweed (CWHR 2015). Populations have also been found in Yuba, Butte, Nevada, and Placer cos. In freshwater habitats, restricted to breeding in marshes with stands of tule, cattail, bulrush, and sedge. These sites are very shallow (usually less than 3 cm) but require a perennial water source. A relatively narrow range of conditions is required for occupancy and successful breeding. Water depth is an important parameter for successful nest sites as rising water levels can prevent nesting by flooding nests and reducing access to foraging habitat. Too little water will lead to abandonment of the site until the water source is reestablished. In the foothills of the central Sierra Nevada, rails occur in marshes ranging from 0.5 ac to 25 ac in size, with 32% of occupied sites in wetlands less than 0.75 ac. (Technology Associates 2009)	No, the seasonal wetland is too small as a whole, and only parts of the seasonal wetland may meet habitat requirements of vegetation and hydrology.
Progne subis Purple martin	--	SSC	2	Found throughout most of the U.S. east of the Rocky Mtns. In the western U.S, occurs in OR, WA, CA, UT, CO, AZ, and NM. Winters in South America and arrives in central CA in late March. Breeding occurs from April into August. Generally inhabits open areas with an open water source nearby. Purple martins nest colonially or singly in cavities both natural and man-made. Purple martins are not as likely to use nest boxes in CA as they are in the eastern U.S. All current known nesting sites in Sacramento are in vertical weep holes beneath bridges built of steel and concrete box girders over urban areas and railroad tracks (Airola and Grantham 2003). Nesting sites are of concern to CDFW (2015).	No, there is no suitable habitat.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Riparia riparia Bank swallow	--	T	2	Found primarily west of California's deserts in riparian and other lowland habitats during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which it digs nesting holes. Approximately 75% of the breeding population in CA occurs along banks of the Sacramento and Feather Rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo cos., and in northeastern CA in Shasta, Siskiyou, Lassen, Plumas, and Modoc cos. Breeding colonies can have between 10 and 1,500, but typically between 100 and 200, nesting pairs (CWHR 2015).	No, there is no suitable habitat.
Mammals					
Antrozous pallidus Pallid bat	--	SSC	2	Occupies many habitats including desert, grasslands, shrublands, woodlands, rocky canyons, oak savannah, redwood, open farmland and mixed conifer forest from sea level up to 3,000 ft (Bolster 1998, CWHR 2014). Prefers open, dry habitats with rocky areas for roosting, and rock outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts in caves, crevices, mines, and occasionally buildings and hollow trees. Night roosts may be more open, such as porches and open buildings. Social, often roosting in groups of 20 or more. Absent in the northwest from Del Norte and western Siskiyou cos. south to northern Mendocino Co. (CWHR 2015). May be more dependent on tree roosts than was previously realized. They have been located in tree cavities in oak, ponderosa pine, coast redwood and giant sequoia (Bolster 1998).	No, there is no suitable roosting habitat.
Pekania (=Martes) pennant (Pacific) fisher, west coast DPS	P	C, SSC	2	Permanent resident of the Sierra Nevada, Cascades, Klamath Mountains, and the North Coast Range. Occurs above 3,200 ft in the Sierra Nevada and Cascades (Jameson and Peeters 2004). Occurs in coniferous or deciduous riparian habitats with intermediate to large trees and closed canopies. Dens in protected cavities, brush piles, logs, or under an upturned tree. Hollow logs, trees, and snags are especially important. Mostly nocturnal and crepuscular (CWHR 2015). Federal candidate status refers to the distinct population segment in WA, OR and CA (CDFW 2015).	No, the site is outside the geographic range and there is no suitable habitat.
Taxidea taxus American badger	--	SC	2	Found throughout most of California except the northern North Coast. Abundant in drier open stages of many shrub, forest, and herbaceous habitats with friable soils. Feeds on fossorial rodents, some reptiles, insects, earthworms, bird eggs, and carrion (CWHR 2015).	No, no suitable burrows were observed and the site is too small.
Plants		**/ CNPS[d]**			
Allium jepsonii Jepson's onion	--	--/ 1B.2	2	Bulbiferous perennial herb found in serpentine or volcanic soils of chaparral, cismontane woodland, and lower montane coniferous forest from 950 to 4,350 ft. Known from Butte, El Dorado, Placer, and Tuolumne counties. Blooms April through August (CNPS 2015).	No. There are no suitable soils.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Balsamorhiza macrolepis var. *macrolepis* Big-scale balsamroot	--	--/ 1B.2	2	Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils, from 295 to 5,100 ft. Known from Alameda, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Solano, Sonoma, Tehama, and Tuolumne cos. Blooms March through June (CNPS 2015).	No. There is no suitable habitat.
Calystegia stebbinsii Stebbins' morning-glory	E	E/ 1B.1	1, 2	A perennial rhizomatous herb found in serpentine or gabbroic soils in chaparral openings and cismontane woodland from 600 to 3,600 ft. Known from El Dorado and Nevada counties. Blooms April through July (CNPS 2015).	No There are no suitable soils and the site is outside the range.
Ceanothus roderickii Pine Hill ceanothus	E	R/ 1B.2	1, 2	Perennial evergreen shrub found in serpentine or gabbroic soils in chaparral and cismontane woodland from 800 to 3,600 ft. Known from El Dorado County. Blooms April through June (CNPS 2015).	No. There are no suitable soils and the site is outside the range.
Chlorogalum grandiflorum Red Hills soaproot	--	--/ 1B.2	2	Perennial bulbiferous herb found in serpentine, gabbroic, and other soils in chaparral, cismontane woodland, and lower montane coniferous forest from 800 to 4,100 ft. Known from Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne counties. Blooms May through June (CNPS 2015).	No. There is no suitable habitat.
Crocanthemum suffrutescens Bisbee Peak rush-rose	--	--/ 3.2	2	Perennial evergreen shrub found in chaparral from 250 to 2,200 ft. Often found on gabbroic or Ione soils, often in burned or disturbed areas. Known from Amador, Calaveras, and El Dorado counties. Blooms April through August (CNPS 2015).	No. There is no suitable habitat.
Downingia pusilla Dwarf downingia	--	--/ 2B.2	2	Annual herb found in mesic valley and foothill grassland and vernal pools up to 1,500 ft elevation. Known primarily from the Central Valley. Blooms March through May (CNPS 2015).	No. There are no vernal pools or other suitable habitat.
Erigeron miser Starved daisy	--	--/ 1B.3	2	Perennial herb found on rocky substrates in upper montane coniferous forest from 6,000 to 8,600 ft. This species is endemic to CA, and found in Lassen, Mono, Nevada and Placer Cos. Blooms June through October (CNPS 2015).	No. There is no suitable habitat.
Eryngium pinnatisectum Tuolumne button-celery	--	--/ 1B.2	2	An annual to perennial herb found in mesic areas of cismontane woodland, lower montane coniferous forests, and vernal pools from 220 to 3,000 ft. Known from Amador, Calaveras, Sacramento, Sonoma and Tuolumne cos. Blooms May through August (CNPS 2015).	Yes. See text.
Fremontodendron californicum ssp. *decumbens* Pine Hill flannelbush	E	R/ 1B.2	1, 2	Perennial evergreen shrub found in rocky areas of serpentine or gabbroic soils in chaparral and cismontane woodland from 1,400 to 2,500 ft. Known from El Dorado County, and uncertain reports from Nevada and Yuba counties. Blooms April through July (CNPS 2015).	No, there are no suitable soils and the site is outside the range.
Galium californicum ssp. *sierrae* El Dorado bedstraw	E	R/ 1B.2	1, 2	Perennial herb found in gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 300 to 1,900 ft. Known from El Dorado County. Blooms May through June (CNPS 2015).	No, there are no suitable soils and the site is outside the range.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Gratiola heterosepala Boggs Lake hedge-hyssop	--	E/ 1B.2	2	Annual herb found in clay soils in marshes and swamp around lake margins, and vernal pools, from 30 to 7,800 ft. Blooms from April through August (CNPS 2015).	No, there are no suitable soils.
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	--	--/ 1B.2	2	Annual herb found in mesic valley and foothill grassland from 100 to 750 ft. Known from Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties. Blooms March through May (CNPS 2015).	No. There are no vernal pools or other suitable habitat.
Legenere limosa Legenere	--	--/ 1B.1	2	Annual herb found in vernal pools up to 2,900 ft in elevation. Blooms April through June (CNPS 2015).	No, there are no vernal pools.
Horkelia parryi Parry's horkelia	--	--/ 1B.2	2	Perennial herb found in chaparral and cismontane woodland, especially of the Ione formation, from 260 to 3,500 ft. Known from Amador, Calaveras, El Dorado, and Mariposa counties. Blooms April through September (CNPS 2015).	No, there is no suitable habitat.
Navarretia myersii ssp. *myersii* Pincushion navarretia	--	--/ 1B.1	2	Annual herb found in vernal pools, often with acidic conditions, from 60 to 1,100 ft in elevation. Known from Amador, Calaveras, Merced, Placer, and Sacramento counties. Blooms April through May (CNPS 2015).	No, there are no vernal pools.
Orcuttia tenuis Slender Orcutt grass	T	E/ 1B.1	2	Annual herb found in vernal pools, often gravelly, from 115 to 5,800 ft. Blooms May through October (CNPS 2015). Found primarily on substrates of volcanic origin in pools classified as northern volcanic ashflow or mudflow vernal pools, but also found on Redding soils in Sacramento County. Known from pools at least 0.2 ac in size (1.6 ac median) and 11.8 inches deep and typically occurs in the deepest area of the pool (68 FR 46684).	No, there are no vernal pools.
Orcuttia viscida Sacramento Orcutt grass	E, CH	E/ 1B.1	2	Annual herb found in vernal pools from 98 to 328 ft. Known only from Sacramento County. Blooms April through September (CNPS 2015). Known from northern hardpan and volcanic mudflow vernal pools. Known only from Sacramento County in pools of at least 0.25 ac (USFWS 2003).	No, there are no vernal pools.
Sagittaria sanfordii Sanford's arrowhead	--	--/ 1B.2	2	An emergent rhizomatous perennial herb found in shallow freshwater marshes and swamps from 0 to 2,000 ft. Blooms May through October (CNPS 2015).	Yes. Some of the seasonal wetland may contain water late enough into the summer.
Packera layneae Layne's butterweed (ragwort)	T	R/ 1B.2	1, 2	Perennial herb found in rocky areas with serpentine or gabbroic soils in chaparral and cismontane woodland from 650 to 3,600 ft. Known from Butte, El Dorado, Placer, Tuolumne, and Yuba counties. Blooms April through August (CNPS 2015).	No, there are no suitable soils.
Wyethia reticulata El Dorado County mule ears	--	--/ 1B.2	2	Perennial rhizomatous herb found on clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest from 600 to 2,300 ft. Known from El Dorado and Yuba counties. Blooms April through August (CNPS 2015).	No, there are no suitable soils.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Natural Communities					
Central Valley drainage hardhead/ squawfish stream	--	--	2	Hardhead occur in low- to mid-elevation streams in the main Sacramento-San Joaquin drainage and in the Russian River. Their range extends from the Kern River in Kern County, in the south, to the Pit River in Modoc County in the north. In the San Joaquin drainage, the species is scattered in tributary streams and absent from valley reaches of the San Joaquin River. In the Sacramento drainage, the hardhead is present in most large tributary streams as well as in the Sacramento River. Hardhead are typically found in undisturbed areas of larger low- to mid-elevation streams, although they are also found in the mainstem Sacramento River at low elevations and in its tributaries to about 4,920 ft. They prefer clear, deep (>32 inches) pools and runs with sand-gravel-boulder substrates and slow velocities. Hardhead are always found in association with Sacramento pikeminnow (squawfish) and usually with Sacramento sucker. They tend to be absent from streams where introduced species, especially centrarchids (sunfish), predominate and from streams that have been severely altered by human activity. Sacramento pikeminnow occur in clear rivers and creeks of central California and occur in small numbers in the Sacramento-San Joaquin Delta. They are most characteristic of low- to mid-elevation streams with deep pools, slow runs, and undercut banks, and overhanging vegetation. They are most abundant in lightly disturbed, tree-lined reaches that also contain other native fish (Moyle 2002).	No, this community does not occur.
Northern hardpan vernal pool	--	--	2	A low emergent wetland community dominated by annual herbs and grasses on very acidic soils with an iron-silicon cemented hardpan. Evaporation (not runoff) dries pools in spring creating concentric bands of vegetation. Occurs primarily on old alluvial terraces on the east side of the Great Valley from Tulare or Fresno County north to Shasta County (Holland 1986).	No, this community does not occur.
Northern volcanic mudflow vernal pool	--	--	2	A very low, open mixture of amphibious annual herbs and grasses. Pools are typically small, covering at most a few square meters. Restricted to irregular depressions in shallow soil in tertiary pyroclastic flows. Pools form in small depressions following winter rains. Characteristic species include: *Downingia bicornuta*, *Lasthenia glaberrima*, *Limnanthes douglasii rosea*, *Navarretia tagetina*. Distribution is scattered on flat-topped mesas along the Sierran foothills, mostly between 500-2000 ft in the Blue Oak Woodland and Gray-Pine Chaparral Woodland (Holland 1986).	No, this community does not occur.

Table D-1
Species Evaluated

Special-Status Species/ Common Name	Federal Status [a,b]	State Status [a,b]	Source [c]	Habitat Requirements	Potential to Occur at Project Site
Valley needle grass grassland	--	--	2	Grassland dominated by *Stipa pulchra*, a perennial tussock-forming bunchgrass. Annual herbs and grasses occur between bunches. Usually occurs on fine-textured (often clay) soils. May intergrade with oak woodlands. Historically occurred around the Sacramento, San Joaquin, and Salinas valleys, as well as the Los Angeles Basin (Holland 1986).	No, this community does not occur. Some *S. pulchra* plants do occur along the road prisms, and were possibly seeded during past road improvements.

[a] **Listing Status** **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare; **D** = Delisted; ***** = Possibly extinct.

[b] **Other Codes** **SSC** = CA Species of Special Concern; **FP** = CA Fully Protected; **Prot** = CA Protected; **CH =** Critical habitat designated.

CNPS Rank (plants only): **1A** = Presumed Extinct in CA; **1B** = Rare or Endangered (R/E) in CA and elsewhere; **2** = R/E in CA and more common elsewhere; **3** = Need more information; **4** = Plants of limited distribution

CNPS List Decimal Extensions: **.1** = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** = Fairly endangered in CA (20-80% of occurrences threatened); **.3 =** Not very endangered in CA (< 20% of occurrences threatened or no current threats known).

[c] **Source:** **1** = USFWS letter. **2** = CNDDB or CNPS.

Airola, D. A. and J. Grantham. 12 December 2003. Purple martin population status, nesting habitat characteristics, and management in Sacramento, California. Western Birds 34:235-251.

Bolster, B.C., ed. 1998. Terrestrial mammal species of special concern in California. Draft Final Report prepared by P.W. Collins. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No.FG3146WM

Busby, P. J., T. C. Wainwright, and G. J. Bryant. 1996. Status review of West Coast steelhead from Washington, Oregon and California. NOAA Technical Memorandum NMFS-NWFSC-27. National Marine Fisheries Service, Seattle, WA.

California Department of Fish and Wildlife (CDFW). March 2015. Special animals. Habitat Conservation Division, CNDDB, Sacramento, CA.

California Native Plant Society (CNPS). Accessed April 2015. Inventory of rare and endangered plants (Version v8-02). California Native Plant Society, Sacramento, CA. <http://www.rareplants.cnps.org>

California Wildlife Habitat Relationships (CWHR) Program. Accessed April 2015. California Wildlife Habitat Relationships System, Life history account and range map. Updated from Zeiner, D.C. et al 1988-1990. CWHR Program, California Department of Fish and Game, Sacramento, CA. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

Grinnell, J. and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna No. 27. Club, Berkeley, CA and reprinted 1986 by Artemisia Press, Lee Vining, CA.

Hamilton, W. J. 2004. Tricolored Blackbird (*Agelaius tricolor*). *In* The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight

Holland, R. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game, Sacramento, CA.

Jameson, E. W. and H. J. Peeters. 2004. California mammals. University of California Press, Berkeley, CA.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Rancho Cordova, CA.

McGinnis, S. M. 1984. Freshwater fishes of California. University of California Press, Berkeley, CA.

Moyle, P. B. 2002. Inland fishes of California. University of California Press, Berkeley, CA.

National Marine Fisheries Service (NMFS). February 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-35.

Stebbins, R. C. 2003. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston, MA.

Suarez, A.V., J.Q. Richmond and T.J. Case. 2000. Prey selection of horned lizards following the invasion of Argentine ants in southern California. Ecological Applications 10(3): 711-725.

Suarez, A.V. and T.J. Case. 2002. Bottom-up effects on persistence of a specialist predator: ant invasions and horned lizards. Ecological Applications 12(1): 291-298. Technology Associates. 20 April 2009. Yolo Natural Heritage Program, draft species account: California black rail (Laterallus jamaicensis coturniculus). http://www.yoloconservationplan.org/species.html#birds

Technology Associates. 20 April 2009. Yolo Natural Heritage Program, draft species account: California black rail (*Laterallus jamaicensis coturniculus*). http://www.yoloconservationplan.org/species.html#birds

U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and threatened wildlife and plants; critical habitat determination for the Delta smelt. Sacramento Fish and Wildlife Office, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 9 July 1999. Conservation guidelines for the Valley elderberry longhorn beetle. U.S. Fish and Wildlife Service, Sacramento, CA.

U.S. Fish and Wildlife Service (USFWS). 1999. Draft recovery plan for the giant garter snake (*Thamnophis gigas*). U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 28 May 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). Region 1, U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 6 August 2003. Endangered and threatened wildlife and plants; final designation of critical habitat for four vernal pool crustaceans and eleven vernal pool plants in California and southern Oregon. Final rule, Federal Register 68(151): 46684-46867, 50 CFR Part 17.

U.S. Fish & Wildlife Service (USFWS). 15 December 2005. Recovery plan for vernal pool ecosystems of California and Southern Oregon. Region 1, USFWS. Portland, OR.

U.S. Fish and Wildlife Service (USFWS). 17 March 2010. Endangered and threatened wildlife and plants: revised designation of critical habitat for California red-legged frog; final rule. Federal Register 75 (51): 12816-12959; 50 CFR Part 17. U.S. Fish and Wildlife Service, Sacramento, CA.

Table D-2
Species Observed

(Sycamore Environmental Consulting, Inc., April 8, 2015)

FAMILY	SCIENTIFIC NAME [3]	COMMON NAME	N/I [1]
DICOTS			
Anacardiaceae	*Toxicodendron diversilobum*	Western poison oak	N
Apiaceae	*Torilis arvensis*		I
Asteraceae	*Anaphalis margaritacea*	Pearly everlasting	N
	Baccharis pilularis	Coyote brush	N
	Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	I
	Centaurea solstitialis	Yellow star-thistle	I
	Chondrilla juncea	Skeleton weed	I
	Cirsium sp.	Thistle	--
	Erigeron sp. (= *Conyza*)	Horseweed	--
	Helminthotheca echioides	Bristly ox-tongue	I
	Holocarpha virgata		N
	Lactuca serriola	Prickly lettuce	I
	Leontodon saxatilis	Hairy hawkbit	I
	Silybum marianum	Milk thistle	I
	Sonchus oleraceus	Common sow thistle	I
	Tragopogon dubius	Yellow salsify	I
	Xanthium strumarium	Cocklebur	N
Bignoniaceae	*Catalpa* sp.	Southern catalpa	I
Boraginaceae	*Amsinckia intermedia*	Common fiddleneck	N
Brassicaceae	*Brassica nigra*	Black mustard	I
	Cardamine oligosperma	Bitter-cress	N
	Hirschfeldia incana	Summer mustard	I
	Nasturtium officinale	Water cress	N
	Raphanus sativus	Radish	I
Caryophyllaceae	*Cerastium glomeratum*	Mouse-ear chickweed	I
Chenopodiaceae	*Chenopodium album*	Lamb's quarters	I
Convolvulaceae	*Convolvulus arvensis*	Field bindweed	I
Crassulaceae	*Crassula tillaea*	Crassula	I
Euphorbiaceae	*Chamaesyce maculata*	Spotted spurge	I
	Croton setigerus	Turkey-mullein	N
	Triadica sebifera	Chinese tallowtree	I
Fabaceae	*Acmispon americanus* var. *americanus*	Deervetch	N
	Lupinus bicolor	Miniature lupine	N
	Medicago polymorpha	California burclover	I
	Trifolium hirtum	Rose clover	I
	Vicia villosa	Hairy vetch	I
Fagaceae	*Quercus douglasii*	Blue oak	N
	Quercus lobata	Valley oak	N
	Quercus wislizeni var. *wislizeni*	Interior live oak	N
Gentianaceae	*Centaurium muehlenbergii*	Centaury	N
Geraniaceae	*Erodium botrys*	Storksbill	I
	Erodium cicutarium	Redstem filaree	I
	Erodium moschatum	Greenstem filaree	I
	Geranium dissectum	Cranesbill, geranium	I
Hypericaceae	*Hypericum perforatum* ssp. *perforatum*	Klamathweed	I
Lamiaceae	*Mentha pulegium*	Pennyroyal	I
	Stachys sp.	Hedge-nettle	N
	Trichostema lanceolatum	Vinegar weed	N
Lythraceae	*Lythrum hyssopifolium*		I

Table D-2
Species Observed

FAMILY	SCIENTIFIC NAME [3]	COMMON NAME	N/I [1]
Montiaceae	*Calandrinia ciliata*	Red maids	N
Moraceae	*Ficus carica*	Edible fig	I
Myrsinaceae	*Anagallis arvensis*	Scarlet pimpernel	I
Onagraceae	*Clarkia purpurea* ssp. *quadrivulnera*	Four-spot	N
	Epilobium brachycarpum	Willowherb	N
	Epilobium ciliatum	Willowherb	N
	Ludwigia sp.	Water primrose	--
Orobanchaceae	*Castilleja* sp.	Paintbrush, owl's-clover	N
Oxalidaceae	*Oxalis micrantha*	Dwarf wood-sorrel	I
Papaveraceae	*Eschscholzia californica*	California poppy	N
Plantaginaceae	*Kickxia* sp.	Kickxia	I
	Veronica sp.	Speedwell, brooklime	--
Polygonaceae	*Polygonum* sp.	Knotweed	--
	Rumex conglomeratus	Dock	I
	Rumex crispus	Curly dock	I
	Rumex pulcher	Fiddle dock	I
Rosaceae	*Prunus* sp.	Prunus	--
	Pyracantha sp.	Firethorn	I
	Rubus armeniacus	Himalayan blackberry	I
Rubiaceae	*Galium aparine*	Goose grass	N
	Galium parisiense	Wall bedstraw	I
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	N
	Salix exigua	Narrow-leaved willow	N
	Salix gooddingii	Gooddingʼs black willow	N
	Salix laevigata	Red willow	N
Viscaceae	*Phoradendron leucarpum* ssp. *tomentosum*	American mistletoe	N
MONOCOTS			
Cyperaceae	*Carex* sp.	Sedge	--
	Cyperus sp.	Nutsedge	--
	Eleocharis acicularis	Needle spikerush	N
	Eleocharis macrostachya	Spikerush	N
Juncaceae	*Juncus balticus*	Baltic rush	N
	Juncus xiphioides	Iris-leaved rush	N
Poaceae	*Aira caryophyllea*	Silver hair grass	I
	Avena barbata	Slender wild oat	I
	Avena fatua	Wild oat	I
	Briza minor	Small quaking grass	I
	Bromus diandrus	Ripgut grass	I
	Bromus hordeaceus	Soft brome	I
	Bromus madritensis ssp. *madritensis*	Madrid brome	I
	Bromus madritensis ssp. *rubens*	Red brome	I
	Cynodon dactylon	Bermuda grass	I
	Elymus caput-medusae	Medusa head	I
	Festuca bromoides	Brome fescue	I
	Festuca myuros	Rattail sixweeks grass	I
	Festuca perennis	Rye grass	I
	Glyceria sp.	Manna grass	--
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	I
	Paspalum dilatatum	Dallis grass	I
	Polypogon sp.		--
	Stipa pulchra [2]	Purple needle grass	N

Table D-2
Species Observed

FAMILY	SCIENTIFIC NAME [3]	COMMON NAME	N/I [1]
Themidaceae	*Triteleia laxa*	Ithuriel's spear	N
Typhaceae	*Typha angustifolia*	Narrow-leaved cattail	N

[1] N = Native to CA; I = Introduced; -- = Cannot be determined without keying to species

[2] Purple needle grass was only found along the road prisms of Green Valley Road and Sophia Parkway. This grass was likely used in a seed mix along the roads after construction approximately 13 years ago.

[3] Taxa identified to genus only were generally not in bloom.

COMMON NAME	SCIENTIFIC NAME
BIRDS	
Mourning dove	*Zenaida macroura*
Northern mockingbird	*Mimus polyglottos*
Red-tailed hawk	*Buteo jamaicensis*
Turkey vulture	*Cathartes aura*
Wild turkey	*Meleagris gallopavo*
MAMMALS	
California vole	*Microtus californicus*
Desert cottontail	*Sylvilagus audubonii*
Mule deer/Black – tailed Deer [1]	*Odocoileus hemionus*
FISH	
Mosquito fish	*Gambusia affinis*
REPTILES	
Western fence lizard	*Sceloporus occidentalis*
Western rattlesnake	*Crotalus viridis*

[1] Dead.