City of Healdsburg


# Central Healdsburg Avenue Plan

## Final EIR

State Clearinghouse #2012112011

November 26, 2013

# Central Healdsburg Avenue Plan
# FINAL EIR

Prepared for:


City of Healdsburg

401 Grove Street

Healdsburg, CA 95448

Prepared by:


GHD Inc.

2235 Mercury Way, Suite 150

Santa Rosa, CA  95407

November 26, 2013

State Clearinghouse #2012112011

# Table of Contents



## Tables



## Appendix

# 1. Introduction

The Final EIR for the Central Healdsburg Avenue Plan (the "Plan") consists of the Draft EIR, and the comments, responses to comments, and revisions to the Draft EIR, found in this volume.

## 1.1 EIR Certification and Plan Adoption Process

The Healdsburg Planning Commission is tentatively set to consider the Central Healdsburg Avenue Plan EIR and provide a recommendation to the City Council on whether to certify the EIR, at its regularly scheduled meeting on December 10, 2013. At the time of publication of this Final EIR, the City Council was tentatively scheduled to consider certification of the EIR, and adoption of the Plan, at its regularly scheduled meeting on January 21, 2014. Both the Planning Commission and City Council meetings are held at the City Council Chamber, 401 Grove Street in Healdsburg. To certify the Final EIR, the Council must find that:

1. The Final EIR has been completed in compliance with CEQA; and
2. The Final EIR was presented to the decision-making body of the lead agency and that the decision-making body reviewed and considered the information contained in the Final EIR prior to selection of a Project (CEQA Guidelines Section 15090).
3. The Final EIR reflects the lead agency's independent judgment and analysis.

At the time of project approval, i.e., adoption of the Plan, the City Council, as the decision-making body, must consider the information presented in the Final EIR. A public agency may not decide to approve a project unless the agency has: a) eliminated or substantially lessened all significant effects on the environment; and/or b) determined that any remaining significant effects are acceptable due to benefits of the project which override the remaining effects. The decision makers must balance the benefits of the project against its unavoidable environmental risks. If they determine that benefits outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable." If the City Council makes such a determination, it must support the action by adopting a written Statement of Overriding Considerations citing the basis for its decision and including the Statement of Overriding Considerations in the record of project approval (CEQA Guidelines Section 15093).

## 1.2 Public Involvement during the Draft EIR and Final EIR Phase

On November 2, 2012, a Notice of Preparation (NOP) of an EIR was distributed. The NOP was mailed to property owners within the Plan area and within 300 feet of the Plan area boundary, and was distributed by the State Clearinghouse to the reviewing State agencies, as well as local and regional agencies, triggering the start of a 30-day scoping period. On November 15, 2012, the City held a Scoping Meeting, at the Foss Creek Community Center, to solicit input regarding the issues that should be addressed in the EIR. The scoping period ended December 3, 2012. Three letters were received during the scoping period from the following agencies: the California Department of Fish & Wildlife, the California Public Utilities Commission, and Caltrans (refer to Appendix B, Scoping Letters, of the Draft EIR).

The public comment period for the Draft EIR began on August 22, 2013, with the distribution of the Draft EIR by the City of Healdsburg. A Notice of Availability of the Draft EIR was mailed to various interested groups and individuals, published in the Press Democrat and Healdsburg Tribune, and posted with the County Clerk on August 21, 2013. The Draft EIR was sent to the State Clearinghouse for distribution to State agencies. In addition, the Draft EIR was made available at the Planning and Building Department and the Healdsburg Regional Library. On September 24, 2013, a public hearing on the Draft EIR was held before the Healdsburg Planning Commission.

The Final EIR will be sent to those public agencies who commented on the Draft EIR 10 days prior to certification of the EIR per CEQA Guidelines Section 15088. There is no other notification or public review process for Final EIRs required by CEQA.

## 1.3 Organization of the Final EIR

The Final EIR consists of four sections:

Chapter 1 – Introduction. This chapter provides an introduction and summarizes the CEQA instructions to the lead agency for preparation of responses to substantive public comments on the Draft EIR.

Chapter 2 – Comment Letters and Responses to Comments. Copies of the comment letters and the responses to comments are included in this chapter. All comments received during the comment period are responded to in this Chapter.

Chapter 3 – Author Initiated Changes. This chapter includes revisions and clarifications to the text of the Draft EIR that have been identified by the EIR Authors.

Chapter 4 – References. This chapter includes new references that were used in preparation of the Final EIR.

## 1.4 Comments Received

During the 48-day public comment period, the City received 11 comment letters, which included 44 comments on the Draft EIR. Every comment was counted regardless of whether it duplicated a comment made in a previous comment letter. A list of the comment letters received is shown below in Table 1-1. Comment letters received are numbered starting with 1. At the public hearing, verbal comments were made as well. However, all verbal commenters also submitted their comments in writing. Therefore, to avoid duplication, only the written comments are listed below.

**Table 1-1 Comments Received**

| Letter | Agency/Organization | Last Name | First Name | Letter Date |
|---|---|---|---|---|
| 1 | State Clearinghouse | Morgan | Scott | October 7, 2013 |
| 2 | Lytton Rancheria of California | Tomaras | Brenda L. | September 18, 2013 |
| 3 | California Public Utilities Commission | Chiang | Ken | September 10, 2013 |
| 4 | Caltrans | Alm | Erik | October 4, 2013 |
| 5 | Sonoma-Marin Area Rail Transit | Nemeth | John | October 8, 2013 |
| 6 | Planning Commission | Civian | Jeff | September 26, 2013 |
| 7 | Planning Commission | Eddinger | Jerry | October 4, 2013 |
| 8 | Planning Commission | Luks | Philip | September 24, 2013 |
| 9 | Healdsburg Veterinary Hospital | McCrystle | David L. | September 16, 2013 |
| 10 | Chain Real Estate | Chain | Steve | October 9, 2013 |
| 11 | Individual | Evans | Charles | September 24, 2013 |

# 2. COMMENT LETTERS AND RESPONSE TO COMMENTS

This chapter includes responses to specific comments received during the comment period. Included are copies of the written comments received by the City through October 9, 2013, including the public hearing on September 24, 2013.

When changes to the Draft EIR are necessitated, the change is indicated by indented text. Text that has been added to the Draft EIR is indicated in underline font, while text that has been deleted is indicated with ~~strikethrough~~ font.

Comment Letter #1

STATE OF CALIFORNIA

# GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR



October 7, 2013

Barbara Nelson
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Subject: Central Healdsburg Avenue Plan
SCH#: 2012112011

Dear Barbara Nelson:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on October 4, 2013, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

1-1

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Comment Letter #1 cont'd

**SCH#** 2012112011
**Project Title** Central Healdsburg Avenue Plan
**Lead Agency** Healdsburg, City of

**Type** EIR Draft EIR

**Description** The Plan covers approximately 71.5 acres of land and establishes a set of guiding principles and design frameworks for the development of public infrastructure and private investment in the Plan area. The proposed Plan would change land use designations within the Plan area that would require General Plan and Land Use Code amendments. In addition, the Plan adds several recreational components, establishes building design guidelines, and identifies a framework for circulation (including a new Highway 101 southbound on-ramp) and utility system improvements.

## Lead Agency Contact

**Name** Barbara Nelson
**Agency** City of Healdsburg
**Phone** (707) 431-3346 **Fax**
**email**
**Address** 401 Grove Street
**City** Healdsburg **State** CA **Zip** 95448

## Project Location

**County** Sonoma
**City** Healdsburg
**Region**
**Lat / Long** 38° 36' 22" N / 122° 52' 4" W
**Cross Streets** Bounded by Mill St, Hwy 101, Exchange Ave, Adeline Way, Front St, Harmon St, Haydon
**Parcel No.** Numerous
**Township** 9N **Range** 9W **Section** 20 **Base** MDB&M

1-1 cont'd

## Proximity to:

**Highways** Hwy 101
**Airports** No
**Railways** Northwestern Pacific
**Waterways** Russian River
**Schools** Numerous
**Land Use** industrial, commercial, retail, residential/Industrial, Mixed Use, Residential/Industrial, Mixed-Use, Medium Density

**Project Issues** Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects; Aesthetic/Visual

**Reviewing Agencies** Resources Agency; Department of Fish and Wildlife, Region 3; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 4; Air Resources Board, Transportation Projects; Regional Water Quality Control Board, Region 1; Department of Toxic Substances Control; Native American Heritage Commission; Public Utilities Commission

**Date Received** 08/21/2013 **Start of Review** 08/21/2013 **End of Review** 10/04/2013

## Letter 1 Response to Comments

### Response to Comment 1-1

This letter acknowledges the Project's compliance with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. The State Clearinghouse received two letters from State agencies: one from the Public Utilities Commission and one from the Department of Transportation. The individual comments in these letters are responded to under Comment Letter 3 and Comment Letter 4.

Comment Letter #2


# *TOMARAS & OGAS, LLP*

10755-F SCRIPPS POWAY PARKWAY #281 • SAN DIEGO, CALIFORNIA 92131
TELEPHONE (858) 554-0550 • FACSIMILE (858) 777-5765 • WWW.MTOWLAW.COM

**Kathryn A. Ogas** **kogas@mtowlaw.com**
**Brenda L. Tomaras** **btomaras@mtowlaw.com**


September 18, 2013

**Via E-mail**

Barbara Nelson, AICP
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Re: Comments on Draft Environmental Impact Report for the Central Healdsburg Avenue Plan

Dear Ms. Nelson:

This comment letter is submitted on behalf of the Lytton Rancheria of California (hereinafter, "Lytton Tribe"), a federally recognized Indian tribe and sovereign government. The Lytton Tribe submits the following comments on the Draft Environmental Impact Report (DEIR) for the Central Healdsburg Avenue Plan. We request that these comments, as well as any subsequent comments submitted by the Lytton Tribe, be included in the record for approval of the Project.

## REQUESTED NOTICE AND INVOLVEMENT

2-1 The Lytton Tribe formally requests, pursuant to Public Resources Code §21092.2, to be notified and involved in the entire environmental review process under CEQA during this Project. This includes adding the Tribe to your distribution list(s) for public notices and public circulation of all documents pertaining to this Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning this Project.

## LYTTON TRIBAL CULTURAL AFFILIATION TO THE PROJECT AREA AND PROJECT IMPACTS TO CULTURAL RESOURCES

The Lytton Tribe is not opposed to this project. The Tribe's primary concerns stem from the project's likely impacts on Native American cultural resources. The Lytton Tribe has a legal and cultural interest in the proper protection of sacred places and all Pomo cultural resources. The Tribe is concerned about both the protection of unique and irreplaceable cultural resources, such as Pomo village sites and archaeological items which would be displaced by development, and with the proper and lawful treatment of cultural items, Native American human remains and

sacred items likely to be discovered in the course of development and improvements the Project Area.

2-1 cont'd The Pomo people traditionally occupied the geographical area known today as the County of Sonoma for thousands of years, including within the City of Healdsburg's sphere of influence. This is verified through stories and songs of the Pomo people that are cultural evidence of the Tribe's cultural affiliation with these lands. Occupation is also evidenced through the location of the Tribe's prior reservation, anthropological studies, archaeological studies, and histories of the area. In addition, Tribal ties to these territories have been maintained to the present day through cultural and governmental actions.

Given that Native American cultural resources may be affected by the Project, the Tribe should be allowed to be involved and participate with the City of Healdsburg in developing all monitoring and mitigation plans for the duration of the Project. Further, the Tribe believes that if human remains are discovered, State law would apply and the mitigation measures for the Project must account for this. According to the California Public Resources Code, § 5097.98, if Native American human remains are discovered, the Native American Heritage commission must name a "most likely descendant," who shall be consulted as to the appropriate disposition of the remains.

## DRAFT EIR AND MITIGATION MEASURES

Environmental Impact Reports must provide adequate protection for significant archaeological and cultural sites and adequately follow the provisions of CEQA and its Guidelines, including Calif. Pub. Res. Code § 21083.2(b) (avoidance as preferred method of
2-2 preservation of archaeological resources), CEQA Guidelines § 15126.4(b)(3) (agencies should avoid effects on historical resources of archaeological nature), and CEQA Guidelines § 15020 (lead agency responsible for adequacy of environmental documents).

The Tribe appreciates inclusion of the suggested mitigation measures, but would like to suggest some small revisions to **Mitigation Measure CR-3** as the way it is currently drafted is not in accordance with State law. Archaeologists have no role in determining appropriate treatment of human remains and associated grave goods. It is the MLD who makes any recommendations. Suggested additions are by underline and suggested deletions are by strikeout.

> Should human remains, associated grave goods, or items of cultural patrimony be encountered during construction, the following procedures shall be followed as required by Public Resources Code § 5097.9 and Health and Safety Code § 7050.5. In the event of discovery or recognition of any human remains, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Sonoma County Coroner has determined that the remains are not subject to his or her authority. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made by the Coroner. If the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the State Native American Heritage Commission (NAHC). ~~The NAHC shall assign a Most~~

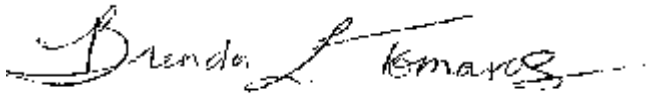
2-2 cont'd

~~Likely Descendent (MLD). A qualified archaeologist, in consultation with the MLD, shall provide, in writing, recommendations regarding the treatment of the human remains and any associated cultural materials.~~ The Native American Heritage Commission must then immediately notify the "most likely descendant(s)" of receiving notification of the discovery. The most likely descendant(s) shall then make recommendations within 48 hours, and engage in consultations concerning the treatment of the remains as provided in Public Resources Code §5097.98.

The Lytton Tribe looks forward to working together with the City of Healdsburg and other interested agencies in protecting any invaluable Pomo cultural resources found in the Project area. Should you have any questions, please do not hesitate to contact me.

Very truly yours,

TOMARAS & OGAS, LLP



Brenda L. Tomaras
Attorneys for the Lytton Rancheria of California

## Letter 2 Response to Comments

### Response to Comment 2-1

The City has placed Lytton Rancheria of California (Lytton Tribe) on their mailing list for all public notices related to the Central Healdsburg Avenue Plan. The City shares the concerns of the Lytton Tribe with regard to protection of unique and irreplaceable cultural resources, and therefore, has included Mitigation Measure CR-1a (Avoid or Reduce Impacts to Currently Unknown Archaeological Resources) and Mitigation Measure CR-3 (Protection of Human Remains Encountered During Construction) in the EIR.

### Response to Comment 2-2

The City agrees with the suggested changes to Mitigation Measure CR-3 (Protection of Human Remains Encountered During Construction), with some minor revisions. Mitigation Measure CR-3, from pages 3.4-24 and 3.4-25 of the Draft EIR is revised as follows:

> **Mitigation Measure CR-3 Protection of Human Remains Encountered During Construction**
>
> Should human remains, associated grave goods, or items of cultural patrimony be encountered during construction, the following procedures shall be followed as required by Public Resources Code § 5097.9 and Health and Safety Code § 7050.5. In the event of discovery or recognition of any human remains, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Sonoma County Coroner has determined that the remains are not subject to his or her authority. Further, pursuant to California Public Resources Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made by the Coroner. If the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the State Native American Heritage Commission (NAHC). ~~The NAHC shall assign a Most Likely Descendent (MLD). A qualified archaeologist, in consultation with the MLD, shall provide, in writing, recommendations regarding the treatment of the human remains and any associated cultural materials.~~ In accordance with Public Resources Code 5097.98, the Native American Heritage Commission would then immediately notify the "most likely descendant(s)" of receiving notification of the discovery. The most likely descendant(s) would then make recommendations within 48 hours, and engage in consultations concerning the treatment of the remains.

Comment Letter #3

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013
(213) 576-7083

September 10, 2013

Barbara Nelson
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Dear Ms. Nelson:

Re: SCH 2012112011 Healdsburg Central Healdsburg Avenue Plan Project, DEIR

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings in California. The Commission Rail Crossings Engineering Section (RCES) is in receipt of the Draft *Environmental Impact Report (DEIR)* for the proposed City of Healdsburg (City) Central Healdsburg Avenue Plan project.

3-1 The project area includes active railroad tracks. RCES recommends that the City add language to the Central Healdsburg Avenue Plan so that any future development adjacent to or near the railroad/light rail right-of-way (ROW) is planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade crossings. This includes considering pedestrian/bike circulation patterns or destinations with respect to railroad ROW and compliance with the Americans with Disabilities Act. Mitigation measures to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade crossings due to increase in traffic volumes and continuous vandal resistant fencing or other appropriate barriers to limit the access of trespassers onto the railroad ROW.

If you have any questions in this matter, please contact me at (213) 576-7076, ykc@cpuc.ca.gov.

Sincerely,

Ken Chiang, P.E.
Utilities Engineer
Rail Crossings Engineering Section
Safety and Enforcement Division

C: State Clearinghouse

## Letter 3 Response to Comments

### Response to Comment 3-1

The California Public Utilities Commission (CPUC) is correct, development in the Project area would result in increased traffic, including at the intersection of Healdsburg Avenue / Mill Street / Vine Street, which is an at-grade crossing of the Sonoma-Marin Area Rail Transit (SMART) railroad tracks (Crossing #5-68.20). The proposed Plan includes a roundabout at this intersection to improve traffic conditions. As noted on page 3.12-17 of the Draft EIR, the City will work with the CPUC to comply with all regulatory and railroad safety standards. In addition, Mitigation Measure TR-1 (Implementation of Intersection Improvements at Healdsburg Avenue / Mill Street / Vine Street) requires the design of the roadway improvements to consider pedestrian safety. The design of the roundabout will incorporate concurrence by North Coast Railroad Authority (NCRA) and SMART for submittal of a General Order 88-B.

The Plan also conceptually identifies a pedestrian crossing of the railroad tracks at the future SMART station. At the time when the City moves forward with this component of the Plan, site-specific design will be performed, at which time the City will again work with the CPUC, NCRA, and SMART in designing a safe crossing that meets the CPUC regulations and SMART operations, safety, and security requirements.

Comment Letter #4



**DEPARTMENT OF TRANSPORTATION**
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-6053
FAX (510) 286 5559
TTY 711

*Flex your power!*
*Be energy efficient!*

October 4, 2013

SON101879
SON-101-34.88
SCH# 2012112011

Ms. Barbara Nelson
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Dear Ms. Nelson:

**Central Healdsburg Avenue Plan Project – Draft EIR**

Thank you for continuing to include the California Department of Transportation (Caltrans) in the environmental review process for the Central Healdsburg Avenue Plan (CHAP) Project. The following comments are based on the Draft Environmental Impact Report (DEIR).

4-1 ***Traffic Safety***
Caltrans Headquarters has recently issued the Traffic Operations Policy Directive (TOPD 13- 02) on Intersection Control Evaluation (ICE). It establishes an integrated, systematic and performance-based approach to engineering and investment decisions on State highway intersections and interchanges. For all new projects, alternative intersection/interchange control methods should be evaluated before the optimal design is chosen. The proposed roundabout at the U.S. Highway 101 (US-101) Northbound off Ramp with South Healdsburg Avenue and the possible Southbound on Ramp intersection with Westside Road will need to go through the TOPD-ICE process.

***Highway Operations***
4-2 All improvement measures affecting the operations of the US-101 mainlines and associated ramps need to be coordinated with Caltrans. Additionally, on page 9 of the DEIR, Analysis Scenarios, a separate traffic study may have to be prepared to justify the addition of the southbound US-101 on-ramp at Westside Road and the northbound US-101 off- ramps at Mill Street.

4-3 On page 10 of Appendix E, Transportation Report, please specify the version of the Signalized and unsignalized Intersection Design and Research Aid (SIDRA) Analysis Software referenced for the Roundabout Analysis.

Comment Letter #4 cont'd

4-3 cont'd Please provide a copy of existing and forecasted turning movement volumes for the roundabouts under consideration and a copy of the SIDRA Analysis Roundabout output movement summaries for existing and forecasted conditions.

4-4 Provide copies of plans and specifications for planned changes/modifications at the US-101 /Westside Road /Mill Street and US-101/Healdsburg Avenue/intersection to Caltrans for review.

4-5 On page 44, Attachment A: Lane configuration, Diagram No. 4 " US 101 'NB' On-Ramp" should read "US 101 'SB' On-Ramp. Additionally, provide a copy of the Traffic Management Control Plan.

4-6 Please provide a copy of the Highway Capacity Manual method calculations used to generate the results shown on tables: 5, 6,7,9,10,11,12,13,14, and 15 (pages 20 thru-37) of Appendix E.

***Forecasting***

4-7 On page 24 in the Transportation Report includes the statement, "Traffic forecasts were developed for the Existing Plus Project and Cumulative scenarios." Since they are not mentioned is seems that forecasts were not prepared for Cumulative CHAP or the Cumulative CHAP: SB Ramp alternatives. However, the rest of the paragraph seems to indicate forecasts were prepared for all of these scenarios and Appendix A includes forecasts for all four future scenarios. The meaning of the statement is unclear and should be clarified.

4-8 Caltrans is not familiar with the Healdsburg Travel Demand Model so we do not know if its land use projections conform to the Association of Bay Area Government (ABAG) model. It is suitable for use in the EIR regardless of the answer to this question. However, any subsequent forecasts performed as part of the environmental assessment and design of any project that will affect State highway facilities must be performed with a model that conforms to ABAG land use projections.

4-9 The description of the forecasting process on page 31 is very brief and ambiguous. It states, "Adjusted traffic forecasts were developed by adjusting the model volumes to account for error between the base year model volumes and the January 2011 counts." What process was used to make these adjustments?

4-10 Turning movements forecasts were included in Attachment A and presumably used in the operational analysis. The report did not describe how these forecasts were arrived at. Raw model turning movement forecasts are generally of poor quality and must be post-processed to give reasonable forecasts. The report should include a description of how this was done. Also, the post-processing often leaves adjacent intersection volumes unbalanced; the forecasts must be balanced from one intersection to another. If this was done the procedure used should be described.

***Design***

4-11 Due to the proposed spacing, an exception to Caltrans design standards will be needed for the new freeway ramps.

Comment Letter #4
cont'd

Please feel free to call or email Luis Melendez at (510) 286-5606 or Luis_Melendez@dot.ca.gov with any questions regarding this letter.

Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

## Letter 4 Response to Comments

**Response to Comment 4-1**

The City appreciates the information regarding the Traffic Operations Policy Directive which allows the City to be better prepared when it comes time to implement the on- and off-ramp improvements. The City looks forward to working with Caltrans on these important traffic improvements.

**Response to Comment 4-2**

The City is aware of the need to coordinate with Caltrans and that project-specific studies may need to be prepared. Note that the Plan includes the southbound US-101 on-ramp at Westside Road, from the City of Healdsburg General Plan and other planning documents, but the Plan does not include the previously proposed northbound US-101 off-ramp at Mill Street.

**Response to Comment 4-3**

SIDRA Intersection Version 5.1 was used for the roundabout analysis. The existing and forecasted turning movements are in Section 7 Attachment A of the Transportation Report, which is included in the Draft EIR as Appendix E. The SIDRA output movement summaries are included as Appendix A Additional Traffic Data, herein.

**Response to Comment 4-4**

The City will provide the plans and specifications for changes/modifications to the two intersections referenced, when they become available.

**Response to Comment 4-5**

This comment is correct. Box 4 in the Lane Configuration diagrams, found in Appendix E of the Draft EIR, should be labeled “US 101 SB On-Ramp,” not “US 101 NB On-Ramp.” The City will provide a copy of the Traffic Management Control Plan when available.

**Response to Comment 4-6**

The Highway Capacity Manual method calculations are included in Appendix A Additional Traffic Data.

**Response to Comment 4-7**

The term “Cumulative scenarios” is meant to encompass three cumulative scnearios: “Cumulative No Project”, “Cumulative Plus Project”, and “Cumulative Plus Project (SB On-ramp only at Westside).”

**Response to Comment 4-8**

The City’s travel demand forecasting model was used to develop traffic forecasts for the CHAP EIR. The City’s model is based on the Sonoma County Transportation Authority (SCTA) Countywide model. The SCTA and City models include land use, socioeconomic, and road network data to estimate travel patterns, roadway traffic volumes, and transit ridership. Land use and socioeconomic data are aggregated into traffic analysis zones (TAZs). The SCTA model divides Sonoma County into approximately 712 TAZs.

The SCTA model includes two scenarios: base year (2005) and future year (2035). The SCTA model was last updated in 2009 and incorporated the latest County assessor’s database, Association of Bay Area Governments (ABAG) 2007 Projections for housing and employment projections, and General Plan land

use plans provided by jurisdictions. Transportation projects planned and funded in the County's Regional Transportation Plan (RTP) at the time of the update were included in the roadway and transit network files. The City's travel demand model was developed by Omni-Means in 2010 and is based on the SCTA model. The City's model provides increased detail for the transportation network and TAZs within Healdsburg. While ABAG's Projections were updated in 2009, the Projections 2007 forecasts in Sonoma County are generally higher in 2007 than 2009. This is because the Projections 2007 were forecasted before the latest recession. Therefore, the City's travel demand model provides conservative results with greater spatial network detail within Healdsburg.

**Response to Comment 4-9**

The "difference method" was used to adjust the traffic forecasts at the turning movement level. This method consists of running the base year and future year models to obtain raw model volumes at the turning movement level. Then the increment of growth between the base and future model volumes was added to the existing turning movement counts to obtain the adjusted forecast volumes.

**Response to Comment 4-10**

See the response to Comment 4-9. In addition to the difference method adjustment, the volumes between adjacent intersections were also balanced. This was done to reflect how the addition of ramps at Westside Road would redistribute trips along Healdsburg Avenue.

**Response to Comment 4-11**

The City is aware of the need for an exception and has included a Mandatory Design Exception in the list of approvals on page 2-11 in the Project Description of the Draft EIR.

Comment Letter #5

SONOMA-MARIN SMART AREA RAIL TRANSIT



5401 Old Redwood Highway
Suite 200
Petaluma, CA 94954
Phone: 707-794-3330
Fax: 707-794-3037
www.sonomamarintrain.org

October 8, 2013

Barbara Nelson
City of Healdsburg
401 Grove Street
Healdsburg, CA 95448

Comments on Draft Environmental Impact Report (DEIR) for the Central Healdsburg Avenue Plan

Dear Ms. Nelson,

Thank you for providing us with the opportunity to comment on the Draft EIR for the Central Healdsburg Avenue Plan and for the opportunity to be involved in the Plan development process.

We respectfully offer the following comments:

Project Description

5-1 On page 2-5 the document describes the proposed roundabout at Healdsburg Avenue. Given the presence of railroad tracks, the design should be closely coordinated with SMART to ensure rail safety and functionality. The design will also be subject to Federal Railroad Administration (FRA) regulations and California Public Utilities Commission (CPUC) oversight.

5-2 On page 2-6 there is a discussion of potential new streets in the area. It should be understood that any new streets that require or utilize SMART right-of-way would need to be approved by SMART and consistent with operational, safety and other needs.

5-3 On page 2-6 there is a discussion of a potential pedestrian crossing of the SMART tracks in the proposed rail station area. It is our understanding that multiple tracks may be required in this area to meet the needs of both future SMART passenger service and the North Coast Railroad Authority's (NCRA) freight operations. Given that, a new at-grade pedestrian crossing at the station may not be possible.

5-4 One page 2-7, there is a discussion of the Railroad Park concept. Again, it should be understood that park on SMART property would need to be approved by SMART and compatible and consistent with SMART operations, safety and security requirements and other agency needs.

5-5

In Figure 2-2, the legend should read be changed from "Future SMART Station (as approved by SMART)" to "Future SMART Station (conceptual design)"

Figure 2-5 depicts a pedestrian crossing of the SMART tracks. As mentioned previously, this crossing may not be possible.

Air Quality

5-6

On page 3.2-13, the documents states that there would be less than ten trains per day in the future when SMART serves Healdsburg. While a final train schedule for service that includes Healdsburg has not been produced, draft timetables have all proposed more than ten passenger trains per day (generally 16-24). In short, there may be more than 10 trains per day serving Healdsburg.

Cultural Resources

5-7

The plan discusses preservation of the historic railroad turntable. Again, this would require SMART approval and would need to be compatible and consistent with SMART operations, safety and security requirements and other agency needs.

Cordially,

John Nemeth

John Nemeth
Planning Manager

## Letter 5 Response to Comments

### Response to Comment 5-1

The City is aware of the need to closely coordinate improvements to the Healdsburg Avenue / Mill Street / Westside Road intersection with SMART, NCRA, and CPUC, and has included coordination with these entities in the design effort that will begin in 2014. In addition, the list of project approvals found in the Project Description of the Draft EIR, includes SMART, NCRA, and CPUC.

### Response to Comment 5-2

If any new streets within the Plan area were to encroach on SMART right-of-way, the City would coordinate with SMART and obtain all necessary approvals.

### Response to Comment 5-3

The City appreciates information on the potential challenges that may be involved in implementing a pedestrian crossing at the future SMART rail station. The City would like to acknowledge the importance of having a pedestrian connection between the planned high density residential area immediately to the southwest of the future SMART rail station and the station itself, without which this residential area would be cut off from the rail station. When this component of the Plan moves forward for implementation, the City will work closely with all regulatory agencies to find a successful solution to the challenges of creating such a connection and would install a pedestrian crossing only if it met FRA (Federal Railroad Administration) and CPUC safety standards.

### Response to Comment 5-4

At such time as the City decides to pursue the Railroad Park concept, the City will coordinate with SMART and obtain all necessary approvals.

### Response to Comment 5-5

The City acknowledges the following change to Figure 2-2 of the Project Description in the Draft EIR:

> Future SMART Station (~~as approved by SMART~~conceptual design)

Refer to Response to Comment 5-3 with regard to the proposed pedestrian crossing of the rail tracks.

### Response to Comment 5-6

The City appreciates the clarification. Although the number of trains is slightly higher, the exposure to new sensitive receptors remains less than significant. The following text is changed on page 3.2-12 of the Draft EIR:

> The Northwestern Pacific Rail Corridor bisects the Plan area. In the future, this rail Corridor will include infrequent freight trains, less than one train per day on average and infrequent SMART passenger trains. There would be ~~less than ten~~ approximately 16 to 24 train passages per day. The SMART trains would be modern diesel powered trains that are expected to have low emissions. The DEIR prepared for SMART reported a cancer risk of 1.5 excess cancer cases at the closest exposure area, assumed to be 75 feet from the proposed Windsor Station, where emissions would be highest due to accelerating and idling trains. $PM_{2.5}$ concentrations, reported as DPM, were well below 0.01 $\mu g/m^3$. Emissions of diesel exhaust from train passages near the site are not expected to cause significant exposures to future residences of the project (SMART

2005). Therefore, exposure to new sensitive receptors located near the Northwestern Pacific Rail Corridor is considered to be less than significant.

**Response to Comment 5-7**

At such time as the City decides to pursue preserving the historic railroad turntable, the City will coordinate with SMART, and any other agencies with jurisdiction over the site, and obtain all necessary approvals.

Comment Letter #6

Comments on the Central Healdsburg Avenue Plan Draft EIR

By: Jeff Civian

September 26, 2013

6-1 1. Land Use Section, page 3.9-9 identifies the density range of 10 to 20 units/ac for HDR, while the Final Draft cites up to 30 units/ac on Table 3-1 on page 29..

6-2 2. Land Use Section, page 3.9-15 states that the cap on residential dwelling units is 226 while the Final Draft cites 331 du in Table 3-1 on page 29. These need to be reconciled.

6-3 3. Land Use Section, page 3.9-15 should include a discussion of the resultant growth rate of the total du units per the Final Draft Plan. Measure M proponents have identified a 1% growth rate as a target. It is a useful barometer for planning purposes.

6-4 4. Transportation Section Mitigation Measure (MM) TR-1 on page 3.12-14. Is an update of the CIP relative to traffic improvement costs part of this MM? It should be clearly stated that a detailed cost estimate of the improvements and the necessary impact fees required to implement these improvements.

6-5 5. Transportation Section MM TR-1 on page 3.12-14. The MM is too indeterminate for identifying the trigger points for traffic improvements. The MM should provide a clear empirical methodology for traffic improvements.

6-6a 6. Transportation Section MM on page 3.12-19. I believe that Table 3.12-11 should identify a traffic signal (not a stop sign) for the cumulative plus project scenario for the Healdsburg Ave./Front Street Intersection. MM TR-C1-b identifies a traffic signal on the following page 3.12-20. MM TR-C1-a identifies bypass lanes that may not be practical given pedestrian safety. This should be more clearly defined. Again, this MM is too indeterminate. What if the bypass lanes are not built? Then we have a LOS of E at the five way intersection.

6-7 7. Transportation Section Table 3.12-11 on page 3.12-19 shows LOS E and F for the Central Healdsburg Ave./Mill Street/Vine Street Intersection and Central Healdsburg Ave./Front Street, respectively. These exceed the target LOS D significant threshold. The MM on the following page 3.12-20 should be strengthened to clearly identify the methodology for traffic improvements including the funding source. It is important to accomplish the MM before there is a huge traffic problem at these intersections. The transportation consultant should examine the bypass lanes that reportedly reduce the LOS from E to C. This is a huge change. What will the LOS be for Central Healdsburg Ave./Front Street be after a traffic signal is installed?

6-6b

## Letter 6 Response to Comments

### Response to Comment 6-1

The intent of the Plan is to achieve a higher density near the future rail station than is currently allowed under the General Plan designation for High Density Residential (HR). Consequently, the HR parcels within the Plan area would have a development range of 10 to 30 units per acre, instead of 10 to 20 units per acre. As noted in the Project Description of the Draft EIR, this would require a General Plan Amendment which would only apply to parcels within the Plan area. For ease of implementation, the City has decided to create a new general plan land use designation for the Plan area that allows for the 10 to 30 units per acre. The new designation would be titled "Transit Residential" and would apply to the two parcels currently designated as High Density Residential on Figure 2-4 of the Draft EIR.

The following change is made to the first paragraph on page 2-4 of the Draft EIR:

> Proposed land use designations within the Plan area would be Industrial, Mixed Use, ~~High Density~~ Transit Residential, Medium Density Residential, and Public/Quasi-Public. Overall, the land use designation changes proposed in the Plan result in a reduction in Industrial area and an increase in Mixed-Use and ~~High Density~~ Transit Residential area, as compared to the General Plan designations. The Public/Quasi-Public designation would apply to the future Healdsburg SMART station and associated railway, whereas under the existing General Plan, the station portion of the Plan area is designated as Industrial and the railway portion is unclassified. The resulting anticipated buildout of the proposed Plan area and the net change, as compared to the existing land use pattern, are summarized in Table 2-2 Plan Area Buildout.

The following change is made to the last paragraph page 2-9 of the Draft EIR:

> **City of Healdsburg General Plan 2030 Policy Document**
>
> The General Plan land use designations for certain parcels within the Plan area would require amendment for consistency with new classifications proposed in the Plan (see Figure 2-4). In addition, ~~the High Density Residential designation within the Plan area would change from 10 to 20 units per acre, to~~ there would be a new land use designation, Transit Residential, that accommodates 10 to 30 units per acre. The text and figures of the General Plan Policy Document also would require amendment to reference and illustrate the area of Healdsburg covered by the Plan.

The following change is made to the fifth bullet on page 2-10 of the Draft EIR:

- The parcels that would change to ~~High Density Residential (HR)~~ Transit Residential (TR) Land Use Designation would change to Multi-Family Residential (RM) Zoning District.

The following change is made to the legend on Figure 2-4, Proposed Land Use Designations, in the Draft EIR:

> ~~High Density Residential~~ Transit Residential

**Response to Comment 6-2**

The cap of 226 dwelling units discussed on page 3.9-15 of the Draft EIR relates to the proposed changes to the Growth Management Ordinance (GMO). If the GMO changes are approved by voters, the cap only would apply for the 15-year duration of the proposed changes to the Growth Management Ordinance. After the changes to the Growth Management Ordinance expire, additional units could be built within the Plan area. The 331 units identified in Table 3-1 and 3-2 of the Final Draft Plan represent the gross units that could occur within the Plan area at full buildout.

**Response to Comment 6-3**

If the proposed changes to the GMO are approved by voters, and if the maximum allowed units (226) were built within the 15-year period, the average growth rate of dwelling units per year would be 6.6 percent within the Plan area or 0.13 percent within the City overall.

**Response to Comment 6-4**

Although not a comment on the adequacy of the Draft EIR, the following cost information is provided for reference. The proposed roundabout at Healdsburg Avenue / Mill Street / Vine Street is in the 2013-2017 Capital Improvement Program (CIP) that was adopted by the City Council in June 2012. The CIP refers to it as "5-way intersection improvements" and identifies the costs of implementation as $2,700,000. The roundabout is being funded with redevelopment funds.

**Response to Comment 6-5**

The existing PM peak volume is 1,960 vehicles at Healdsburg Avenue / Mill Street / Vine Street. The improvements would need to be implemented prior to the intersection exceeding 2,250 vehicle trips during the PM peak. As individual projects come forward, the City would track the additional vehicle trips of each respective project, and not approve a project that exceeded the vehicle trips until the improvements have been made. At this time, the City anticipates construction of the improvements at Healdsburg Avenue / Mill Street / Vine Street to begin in 2015.

**Response to Comment 6-6a and 6-6b**

Table 3.12-11 accurately represents the pre-mitigation cumulative conditions at the intersection of Healdsburg Avenue and Front Street. The mitigation measure would add a traffic signal. After installation of the traffic signal, the cumulative condition would improve from Level of Service (LOS) F to LOS A.

**Response to Comment 6-7**

Mitigation Measure TR-C1-a requires consideration of pedestrian safety in the design of the roundabout. In addition, there may be other ways to accomplish an acceptable LOS. Once site-specific studies are performed, the design can be refined. Consequently, Mitigation Measure TR-C1-a on page 3.12-20 of the Draft EIR is revised as follows:

> ***TR-C1-a Improvement at Healdsburg Avenue / Mill Street / Vine Street***
>
> The City shall include in the design of the roundabout a right-turn bypass lane at the north and east approaches to the roundabout. This would include a short right-turn lane on each approach. The design of the bypass lanes shall consider pedestrian safety. For example, if feasible, the bypass lanes shall not overlap with the pedestrian crossings at the approach of the roundabout. <u>The roundabout also can be designed in an alternate way that achieves an acceptable LOS as</u>

defined in the Healdsburg General Plan. Documentation shall be provided showing the alternate design can achieve the City's LOS standards.

Comment Letter #7

**COMMENTS ON THE CENTRAL HEALDSBURG AVE. PLAN DRAFT EIR.**

**SECTION 3.12 TRANSPORTATION**

**Table 3.12-8 Project Intersection LOS Analysis**

7-1 This table illustrates the "Existing" and the "Existing Plus Project" LOS of intersections for the proposed project. The Healdsburg Ave./Mill Street/ Vine Street intersection would go from an existing PM LOS Delay of D/41 to a proposed D/47 with installation of the Roundabout. This is not far from becoming a LOS E intersection at E/55. The concern is that the City is spending a large amount of money to improve an intersection to accommodate the proposed project, but does not really improve LOS at this very important Healdsburg intersection. As illustrated in the referenced Table 3.12, the LOS gets worse at PM Peak Hour. Although the City's General Plan Guidelines of LOS D are being adhered to with the proposed project, an 8 second delay longer at the intersection would result in LOS E and the City's General Plan Guidelines not being met.

7-2 According to the Draft EIR, a sophisticated traffic modeling software was used to analyze the roundabout. Does that software take into account all the variables of traffic flow? Is there an actual roundabout that has been built with the characteristics of the Hbg. Ave./Vine St./Mill St. intersection, which includes I) heavy tourist traffic not knowing where to go, 2) a five way intersection, 3)Semi Truck and trailer traffic, 4) Pedestrian traffic, 5) Bicycle traffic, 6) Auto traffic, 7) Train tracks through the middle of intersection, 8) Two lane roundabout requiring lane changing in the intersection.

It appears with all of the above intersection characteristics, the potential for a degraded LOS is very possible, as well as the safety concerns of all these conflicting modes of transportation to be using one roundabout.

7-3 We watch people daily drive through the flashing cross walks installed on Healdsburg Ave. Tourists have a hard time taking everything in the first time they drive through town, let alone a roundabout with all the above factors.

We also know many locals who presently try to avoid this intersection if possible because of the current LOS. However, with no North Bound 101 Off-ramp at Mill Street/Westside Road, this intersection has to be used when traveling to Westside, Mill St., Vine St. and Central Healdsburg without back tracking from Dry Creek Off-ramp.

Submitted by:
Jerry Eddinger

307 North Street, Healdsburg

## Letter 7 Response to Comments

### Response to Comment 7-1

It is correct that Table 3.12-8 shows the PM Peak delay increasing from Existing to Existing Plus Project conditions. However, what the table does not show is that Existing Plus Project PM Peak LOS without the roundabout would be LOS E. Therefore, the roundabout portion of the Project improves the Existing Plus Project conditions. If the Plan did not already include a roundabout, it is possible that a roundabout would have been required as a mitigation measure.

### Response to Comment 7-2

The analysis in the Draft EIR used SIDRA which takes into account the origin and destination of flows and the circulating flow at each approach to an intersection. During the early stages of the planning process for the Plan, a microscopic simulation model of the study area using the software program VISSIM was developed. Traffic microsimulation models capture the interaction of the individual automobiles, buses, trains, and pedestrians as they travel through the transportation system. The model showed that the conceptual roundabout was feasible, would have acceptable traffic operations, and could accommodate the larger turn radius associated with large commercial vehicles (ARUP 2011). Also refer to Response to Comments 9-2 and 9-3.

### Response to Comment 7-3

Although not a comment on the adequacy of the Draft EIR, these are important points that would be addressed during the design of the roundabout.

Comment Letter #8

**From:** Barbara Nelson
**To:** Kristine Gaspar
**Subject:** FW: Comments to Central Healdsburg DEIR
**Date:** Tuesday, September 24, 2013 1:26:00 PM

**From:** Philip Luks
**Sent:** Tuesday, September 24, 2013 1:10 PM
**To:** Barbara Nelson
**Subject:** Comments to Central Healdsburg DEIR

Barbara, these are my written comments on the above draft:

8-1 --on page 3-11-22, the impact for PS-C-2 is "significant," but to make sense of the discussion of the impact, the mention of the impact on the next page needs to be changed to "less than significant."

8-2 ---The discussion of traffic projections in the EEIR, and in fact the traffic study itself, provide no concrete traffic projections, and provide little in the way of explanation of the assumptions underlying any projections. The reference in the traffic study to the 2005 and 2008 Sonoma County study, which appears to have optimistic assumptions about jobs and population growth, raises questions about the bases for projections, which the DEIR does not answer. All this is against a background of traffic projections used to argue for a widened Memorial bridge, which were shown to be overoptimistic.

8-3 It would help public discussion if the DEIR contained : (1) a summary of the actual traffic projections used, at least at the 5-way, to determine the potential need for the two slip streets, together with a calculation of the annual percentage increase flowing from those numbers; (2) a summary of the significant assumptions used to arrive at those projections, and (3) the actual 5-way counts, from the bridge study, the new study and any other recent counts, so that the fit between the projections and the counts can be looked at.

It may well be that the providing of this information will not change the basic conclusion that the City ought to make provision for the slip streets. But at least we would have some understandable basis for discussing the wisdom of that conclusion.

## Letter 8 Response to Comments

### Response to Comment 8-1

The City agrees that the significance determination on page 3.11-22 of the Draft EIR is inconsistent with the analysis. The significance determination for Impact PS-C-2 on page 3.11-22 of the Draft EIR is revised as follows:

> **Impact:** **PS-C-2: Would the Plan plus cumulative projects create deficiencies in the City's wastewater treatment facilities or create the need for such services to be constructed or expanded in such a way that would significantly impact the environment?**
>
> Analysis: *Less than Significant*

### Response to Comment 8-2

The traffic projections are shown in Section 7 of the Transportation Report which was included in the Draft EIR as Appendix E. The City of Healdsburg's travel demand forecasting model was used to develop traffic forecasts for the Draft EIR. The City's model is based on the Sonoma County Transportation Authority (SCTA) Countywide model. Please see Response to Comment 4-8 for more detail regarding the data and assumptions used. Included in Appendix A of this document are the SIDRA model results for the two proposed roundabouts. The City recognizes that the population and employment projections are conservative, as they incorporate ABAG's 2007 Projections. However, this is appropriate for a programmatic EIR for a planning document. Future projects implemented under the Plan would be required to have site-specific modeling performed. In addition, Caltrans requires the use of ABAG projections in traffic modeling for improvements under their jurisdiction. This would include the improvements at the northbound off-ramp at Healdsburg Avenue and the southbound on-ramp at Westside Road. Also, see Response to Comment 6-7 with regard to changes made to Mitigation Measure TR-C1-a.

### Response to Comment 8-3

The traffic projections used were included in Section 7 of the Transportation Report which was included as Appendix E of the Draft EIR. See Response to Comments 8-2 and 4-8 for information on the travel demand model and assumptions used. The cumulative analysis takes into account build-out under the Healdsburg General Plan 2030, and the (SCTA) Countywide model, which uses ABAG projections. The analysis did not assume a certain percent of growth would occur each year. However, when looking at the existing traffic conditions and comparing it to the cumulative plus project scenario, the percent increase, if it were averaged over a 25 years, is equal to 0.7 percent.

The traffic counts used in the Transportation Report are shown on the Lane Configurations Existing Conditions diagram in Section 7 of the Transportation Report. The counts were taken in January 2011 in support of the planning process for the Plan. Between the time when the counts were taken and the Transportation Study commenced, no new development was approved and no new infrastructure was installed within the Plan area, or near enough to the Plan area to create substantial changes to the January 2011 traffic counts. Therefore, the City determined it was appropriate to use the January 2011 counts. Also, see Appendix A, herein, for the SIDRA roundabout analysis outputs which show the traffic demands estimated for each movement.

Comment Letter #9

**HEALDSBURG VETERINARY HOSPITAL**

David L. McCrystle, D.V.M.

RECEIVED

SEP 17 2013

PLANNING & BUILDING DEPT.
CITY OF HEALDSBURG

Comments about EIR on Central Healdsburg Avenue Plan

Thank you for the opportunity to comment as I have a few concerns.

9-1 1) My first concern would be the complete project timelines. Would the Westside Rd on ramp be built when Healdsburg Ave is narrowed? The impacts to the EIR would be quite different if this ramp is built or not.

9-2 2) Next is the time of the traffic study. The study was 2010 and my observation is that it is quite out of date based on the volume of traffic I see. The volume coming south from Healdsburg Ave north of Mill Street fills the two lanes and would impact the design yet I do not see that on the EIR. What will be the impact of two or three new hotels on that same flow? I did not see the impact of trains (how many per day) on the same intersection. Also if the traffic is blocked by the jaywalkers at H2 Hotel or at future hotels and cannot complete the flow through the roundabout at Mill Street because the flow north is blocked, what will be the impact on south Healdsburg Ave?

9-3 3) Of major concern is the flow of large trucks. We are an agricultural community and as such I am watching sets of doubles go by my office with regular frequency at this time. Can they make the turns necessary? Are the roundabouts sufficiently large to allow free movement? Are they flat so that trucks will not be tipped by putting the inside wheels on the roundabouts? What are the plans for the multiple delivery trucks parked in the center strip in front of my office to deliver to the market to the south of me. How about the gas trucks in the service station? I remember the medians at Chiquita Rd and Healdsburg Ave that needed to be removed because trucks had to roll over the top of them.

9-4 4) A major concern is entrance and egress from my office at 135 Healdsburg Ave. The building to the north blocks the sight line. The stop lights at either side of Healdsburg Ave (Mill Street and Exchange Ave) do stop traffic and allow an opening from traffic to safely cross my driveway. With roundabouts there will be a continuous traffic flow. I did not see anything in the EIR that wants to protect the businesses that are in place already. McDonalds is the only newcomer and they have to be here for over 20 years. Healdsburg Veterinary Hospital was started in 1948 and has served the community since then and still needs to have a traffic flow that does not impact its function. The EIR talks about increased safety. I wonder how many accidents have been reported on this section of Healdsburg Ave. I Know of 4. A city bus hit my client, a young lady dragged a man with her car, and two drunks hit buildings. What are the police records? Should they not be in the EIR?

9-5 5) Lastly not regarding traffic. I see a path along Foss creek that goes along the rear of my property and then crosses Healdsburg Ave. I already have had my fence cut and would worry about further security for my animals and staff.

135 Healdsburg Avenue • Healdsburg, CA 95448 • office: 707/433-5539 • fax: 707/433-0173 • Email: dmccrystle@aol.com

Comment Letter #9
cont'd

9-6 I do not know if an EIR is to include impact on business but I have practiced through a major four foot sewer pipe dig in front of the office, a loss of two street parking spaces in front of the office, A turn lane that is not wide enough to protect people turning from the south and no turn lane to the north, gas and water line replacements, new high speed driveways per the city order (that caused the death of a large oak). Now the city wants to further change the structure of Healdsburg for the visitor and not include options for making all the businesses viable.

## Letter 9 Response to Comments

### Response to Comment 9-1

The Central Healdsburg Avenue Plan is a long-range planning document, and is evaluated as a whole, rather than series of individual actions. As indicated in CEQA Guidelines section 15146, an EIR on a project such as adoption of a plan need not be as detailed as an EIR on the specific projects that might follow. With the exception of improvements at Healdsburg Avenue / Mill Street / Vine Street, which are anticipated to be constructed in 2015, there is no timeline for implementation of individual components of the Plan, including the Westside Road US 101 on-ramp. Impacts from implementation of the south-bound on-ramp at Westside Road were included in the analysis in the Draft EIR.

### Response to Comment 9-2

Work on the Transportation Study commenced in September 2012. To establish the existing conditions, traffic counts that were taken in January 2011 were used (these are the same counts that were used during the development of the Plan). Between the time when the counts were taken and the Transportation Study commenced, no new development was approved and no new infrastructure was installed within the Plan area, or near enough to the Plan area to create substantial changes to the January 2011 traffic counts. Therefore, it is appropriate to use the January 2011 counts in the Transportation Study. The Transportation Study analyzed a cumulative scenario that combined the existing conditions with potential development identified in the Healdsburg 2030 General Plan with buildout under the Plan. This cumulative scenario includes an additional 339 hotel rooms as identified in Table III-4 of the Healdsburg 2030 General Plan Draft EIR, therefore, the traffic impacts of new hotels allowed by the General Plan have been accounted for in the cumulative traffic evaluation.

During the early stages of the planning process for the Plan, a microscopic simulation model of the study area using the software program VISSIM was developed. Traffic microsimulation models capture the interaction of the individual automobiles, buses, trains, and pedestrians as they travel through the transportation system. The model showed that the effects of trains on traffic in the roundabout would be minimal (ARUP 2011). This is because there would only be two peak hour train departures (a half hour apart) in SMART's proposed timetable. Also, most trains consist of only two cars. Therefore, the length of time that the gates are down would be brief. This results in very short periods of time, twice in the peak hour, when the gates are down and vehicles have to wait for trains to pass.

### Response to Comment 9-3

The microscopic simulation model, discussed in Response to Comment 9-2, determined that a semi-trailer combination with a 67-foot wheelbase can successfully perform all the turning paths through the roundabout (ARUP 2011). The City's standard is a 62-foot wheelbase, therefore use of the 67-foot wheelbase in the model provided a conservative assessment of the roundabout's conceptual design. The design of the road improvements along Healdsburg Avenue would take into account delivery trucks. As currently conceived (see Figure V-5c Central Healdsburg Avenue: Long-term Improvements) center turning movements would remain in the configuration of the Healdsburg Avenue road improvements. Alternatively, if appropriate, the design could include center areas designated for delivery trucks only.

**Response to Comment 9-4**

Section 3.12 Transportation, the Draft EIR considers the question: Would the Plan substantially increase hazards due to a design feature (e.g., sharp curse or dangerous intersections)? The Draft EIR found that implementation of the Plan would not substantially increase hazards due to a design feature, and that the plan would actually improve safety, including at the Healdsburg Avenue / Mill Street / Vine Street intersection. The Healdsburg Police Department reports that in 2012 there were seven accidents along the segment of Healdsburg Avenue between Exchange Drive and Mill Street. In 2011, three accidents were reported (personal communication, M.Jenkins, November 2013). This equates to a 2.69 collision rate per million vehicle miles (MVM). The State average for a similar roadway is 2.06 collisions per MVM (Caltrans 2010). Although slightly higher than the State average, it is fairly consistent with average collision rates for similar roadways. The proposed roadway improvements to Healdsburg Avenue, as outlined in the Plan, include reducing the existing four lanes of traffic to two lanes of traffic. Reducing the number of lanes of traffic would reduce the opportunity for conflict.

**Response to Comment 9-5**

The commenter is correct that a pedestrian path is proposed along Foss Creek. In addition, the ultimate vision in the Plan for this portion of Foss Creek is to re-introduce it into the public realm as an open space feature, while improving the ecosystem, and providing an amenity and enhanced pedestrian access. This improved access would provide more eyes along the creek, which has been found to reduce unwanted activities. Although at this point the pedestrian path and other improvements along the Creek are conceptual in nature, the City appreciates knowing of any safety concerns so that they may be considered at such time when these improvements may be implemented.

**Response to Comment 9-6**

The comment appears to be indicating that the Project would cause economic impacts to the commenter's business. CEQA does not require an evaluation of the economic impacts of a proposed project. However, this issue is important to the City and will be shared with decision makers for their consideration.

Comment Letter #10

**From:** stevenrchain@gmail.com [mailto:stevenrchain@gmail.com] **On Behalf Of** Chain Real Estate
**Sent:** Wednesday, October 09, 2013 6:30 AM
**To:** Barbara Nelson
**Subject:** DEIR Comments October 9,2013

Hi Barbara,

10-1 Hope all is going well. Regarding the DEIR comments. I believe I mentioned an apparent conflict I had noticed in the draft. The DEIR (historic resource statements/ significant unavoidable impact) makes reference to, "The Plan" and that our property is outside the plan. Since the plan calls for opening Foss Creek it appears that statement is not correct.

Please let me know your opinion on the importance of that apparent conflict?

Best Regards,

Steve Chain
Chain Real Estate
530-347-6122 Redding/Chico
707-431-1402 Napa Valley/Sonoma
888-958-2498 FAX
dre 01787156

## Letter 10 Response to Comments

### Response to Comment 10-1

It is not clear which property the comment is referring to, but references in the Plan to the opening of Foss Creek would only apply to properties within the Plan area. However, there are two historic properties described in the Cultural Resources section of the Draft EIR, as being "outside" the boundary of the Plan area: 320 Harmon and 329 Harmon. After further review, it has been determined that, while 329 Harmon is indeed just outside the boundary of the Plan, 320 Harmon does not exist within the Plan area nor within the vicinity.

The following change is made to the last sentence on page 3.4-4 of the Draft EIR:

> However, ~~two~~ one potentially historic building~~s are~~ is located just outside the Plan area at ~~320 and~~ 329 Harmon Street.

The following change is made to page 3.4-18 of the Draft EIR:

> ~~320 and~~ 329 Harmon Street
>
> The potentially historic residence~~s~~ at ~~these~~this ~~two~~ address~~es~~ ~~are~~is outside the Plan area but ~~are~~is located across the street from the Healdsburg Station. Reuse and improvement of the Healdsburg Station would not have an adverse effect on the potential eligibility of the ~~two~~ residence~~s~~, because improvements at the Healdsburg rail station would be beneficial to the historic integrity of the area.

Comment Letter #11

To: The Healdsburg Planning Commission
From: Charles Evans
Re: Comments on the CHAP Draft EIR

**The Central Healdsburg Avenue Plan includes 'Urban Frontage" guidelines that require '"active uses" and transparency at the street level that are attractive to pedestrians.**

**This would preclude uses such as landscape berms and the location of parking to this area that would serve as a buffer to noise impacts. This type of buffering is described as mitigation for noise impacts in the General Plan [S-G-2].**

**I have no disagreement with the desirability of having Healdsburg Avenue be a walkable street. However, it needs to be recognized that this is a noisy area of Healdsburg Avenue, and to have realistic expectations about how desirable it can be.**

11-1

**Noise levels are about 70db. Chapter 9.32 of the Healdsburg Municipal Code states that is the objective of the City to require intruding noise levels not to exceed 65db in commercial zones, as a point for your reference.**

**Citing from the Sound Study,**

***When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population.***

**Mitigation Measure NO-1 Noise and Land Use Compatibility**

***In areas where traffic noise levels exceed, or are projected to exceed, 70 dBA Ldn*** (along the US 101 corridor, Mill Street, ***Healdsburg Avenue***, the City shall ensure that an acoustic analysis be prepared that recommends project improvements, as needed….., ***to maintain exterior sounds levels below 65 dBA Ldn. Noise barriers may be necessary to shield outdoor activity areas.***

**The EIR should analyze the pedestrian exposure to noise on Healdsburg Avenue south of Mill Street, comment on the likely pedestrian experience, and reconcile the conflicts with noise exposure level mitigations found in the General Plan and the Noise Ordinance and the Sound Study itself.**

Comment Letter #11
cont'd

## CITATIONS FROM THE NOISE STUDY:

### 3.10 Noise

### Plan Area

***The main sources of noise affecting the Plan area include traffic, particularly along US 101 and Healdsburg Avenue***, and Nu Forest Products, an industrial use located in the approximate center of the Plan area. The noise monitoring survey undertaken as part of this analysis included a combination of 4 long-term (72-hour duration) measurements, conducted during the daytime, evening, and nighttime, and 6 short-term (10-minute) spot measurements throughout the Plan area. Standard measuring practices were followed: precision sound level meters were calibrated before and after each survey, microphones were fitted with windscreens, and data were gathered during good weather.

***The loudest source of noise affecting the Plan area is US 101***. Noise levels measured in September and October 2007 as part of the Healdsburg 2030 General Plan Update process yielded a day-night average noise level of 75 dBA Ldn at the right-of-way. Based on the measurements recently taken for this Plan, as presented in Table 3.10-7, ***Healdsburg Avenue generates a day-night average noise level of 70 dBA Ldn at 50 feet from the centerline***.

### 3.10.1 Setting Fundamentals of Acoustics

11-1
cont'd

***Annoyance***

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The Ldn as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA Ldn. At an Ldn of about 60 dBA, approximately two (2) percent of the population is highly annoyed.

***When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population.***

There is, therefore, an increase of about one percent per dBA between an Ldn of 60 to 70 dBA. Between an Ldn of 70 to 80 dBA, each decibel increase increases by about two percent the percentage of the population highly annoyed.

### 3.10.5 Impacts and Mitigation Measures

**Impact: NO-1: Would the Plan result in a substantial temporary, periodic or permanent increase in ambient noise levels in the project vicinity that would conflict with the Healdsburg 2030 General Plan's Land Use Compatibility for Community Noise Environments guidelines or the City of Healdsburg Noise Ordinance or applicable standards of other agencies?**

Analysis: *Significant*

In areas where traffic noise levels exceed, or are projected to exceed, 70 dBA Ldn (along the US 101 corridor, Mill Street, Healdsburg Avenue, or the Northwestern Pacific Rail corridor as shown on Figure 11 of the Healdsburg 2030 General Plan Policy Document), the City shall ensure that an acoustic analysis be prepared that recommends project improvements, as needed, to maintain interior noise levels at or below 45 dBA Ldn, to maintain exterior sounds levels below 65 dBA Ldn, and to maintain single-event noise below 50 dBA Lmax in bedrooms and 55 dBA Lmax in other rooms. Potential strategies may include, but are not limited to the inclusion of windows and doors with high Sound Transmission Class (STC) ratings, and the incorporation of forced-air mechanical ventilation systems necessary to meet 45 dBA Ldn and the Lmax noise limits. Noise barriers may be necessary to shield outdoor activity areas.

**Mitigation Measure NO-1 Noise and Land Use Compatibility**

***In areas where traffic noise levels exceed, or are projected to exceed, 70 dBA Ldn*** (along the US 101 corridor, Mill Street, ***Healdsburg Avenue***, or the Northwestern Pacific Rail corridor as shown on Figure 11 of the Healdsburg 2030 General Plan Policy Document), the City shall ensure that an acoustic analysis be prepared that recommends project improvements, as needed, to maintain interior noise levels at or below 45 dBA Ldn, ***to maintain exterior sounds levels below 65 dBA Ldn***, and to maintain single-event noise below 50 dBA Lmax in bedrooms and 55 dBA Lmax in other rooms. Potential strategies may include, but are not limited to the inclusion of windows and doors with high Sound Transmission Class (STC) ratings, and the incorporation of forced-air mechanical ventilation systems necessary to meet 45 dBA Ldn and the Lmax noise limits. ***Noise barriers may be necessary to shield outdoor activity areas.***

11-1 cont'd

**3.10.6 Cumulative Impacts**

**Impact:**

Analysis:

**NO-C-1: Would the Plan's incremental effect on ambient noise levels be cumulatively considerable, based on impacts NO-1 and NO-3?**

*Less than Significant*

As indicated in Table 3.10-12, cumulative development would cause noise levels to increase by 0 to 2 dBA Ldn above existing conditions. Cumulative Plus Plan traffic conditions are projected to increase existing noise levels by 1 to 2 dBA Ldn. ***Cumulative and Cumulative Plus Plan traffic noise levels are not calculated to be substantially increased above existing conditions over a permanent basis (3 dBA Ldn or more).***

**GENERAL PLAN POLICY**

**GOAL S-G Protection of residents and other sensitive noise receptors from the harmful effects of excessive noise.**

**Policies**

. S-G-1 New development shall not be approved unless it is generally consistent with the Land Use Compatibility for Community Noise Environments guidelines contained in General Plan Figure 10 and it is demonstrated that the new development will not violate the City's ordinance regulating excessive noise.

Comment Letter #11
cont'd

S-G-2 The City will require the inclusion of design techniques in new construction that minimize noise impacts, including building location and orientation, building design features, ***and placement of noise-tolerant components (i.e., parking, utility areas, and maintenance facilities) between noise sources and the sensitive receptor areas where necessary to meet the Land Use Compatibility for Community Noise Environments guidelines contained in General Plan Figure 10.***

### 3.10.2 Regulatory Framework

**Local**

***City of Healdsburg Municipal Code***

Chapter 9.32 of the Healdsburg Municipal Code regulates community noise levels. Section 9.32.070 regulates noise from construction and temporary activities (City of Healdsburg 2012a):

11-1 cont'd

Section 9.32.080 regulates establishes standards for maximum sound levels.

9.32.080 Standards for maximum sound levels and determining violations.

A. Sound Level Standards. It is the objective of the City to require intruding noise levels not to exceed those listed below to determine if a violation exists:

| Receptor Land Use | Daytime Exterior Sound Level (dBA, L10) |
|---|---|
| Residential-zoned properties not located adjacent to industrial- zoned properties and office-zoned properties: | 60 |
| Residential-zoned properties located adjacent to industrial- zoned properties: | 65 |
| **Commercial-zoned properties:** | **65** |
| Industrial-zoned properties: | 75 |

Comment Letter #11
cont'd

To: The Healdsburg Planning Commission
From: Charles Evans
Re: Comments on the CHAP Draft EIR

The CHAP Transportation Report shows a diagram of 'New Connector Streets' in Figure V-2 on page 4 that differs from that shown as new 'Local/Collector Streets' on Figure 3 on page 7 and on Figures 8-11 on pages 26-29 [as Intersection 8].

11-2 The intersection that is identified as 'Intersection 8' includes no analysis, but does include a projected Level of Service on pages 33, 35 and 37 and a lane configuration on page 46, 48 and 49.

**The EIR should reconcile the two differing locations for the new streets described as:**

**'Local/Collector Street' shown as "Intersection 8", and as the**

**'New Connector Street' shown as "Healdsburg Avenue to one of the new streets extending north of Exchange Avenue".**

**The EIR should also identify the approximate location of "Intersection 8", as it did for the location of "Healdsburg Avenue to one of the new streets extending north of Exchange Avenue", by showing the existing property lines for reference.**

### 3.12.5 Impacts and Mitigation Measures

Impact: **TR-1: Would the Plan conflict with an adopted plan, ordinance, policy or program of the City that establishes a performance measure of the circulation system, taking into account all transportation modes, including public transit and non-motorized travel and relevant components of the circulation system?**

Analysis: *Significant*

The Plan implements or furthers the following General Plan policies and implementation measure related to the proposed transportation network identified in the Plan:

T-A-13 The City will seek to improve motor vehicle, bicycle and pedestrian circulation at the intersection of Healdsburg Avenue, Mill Street and Vine Street.

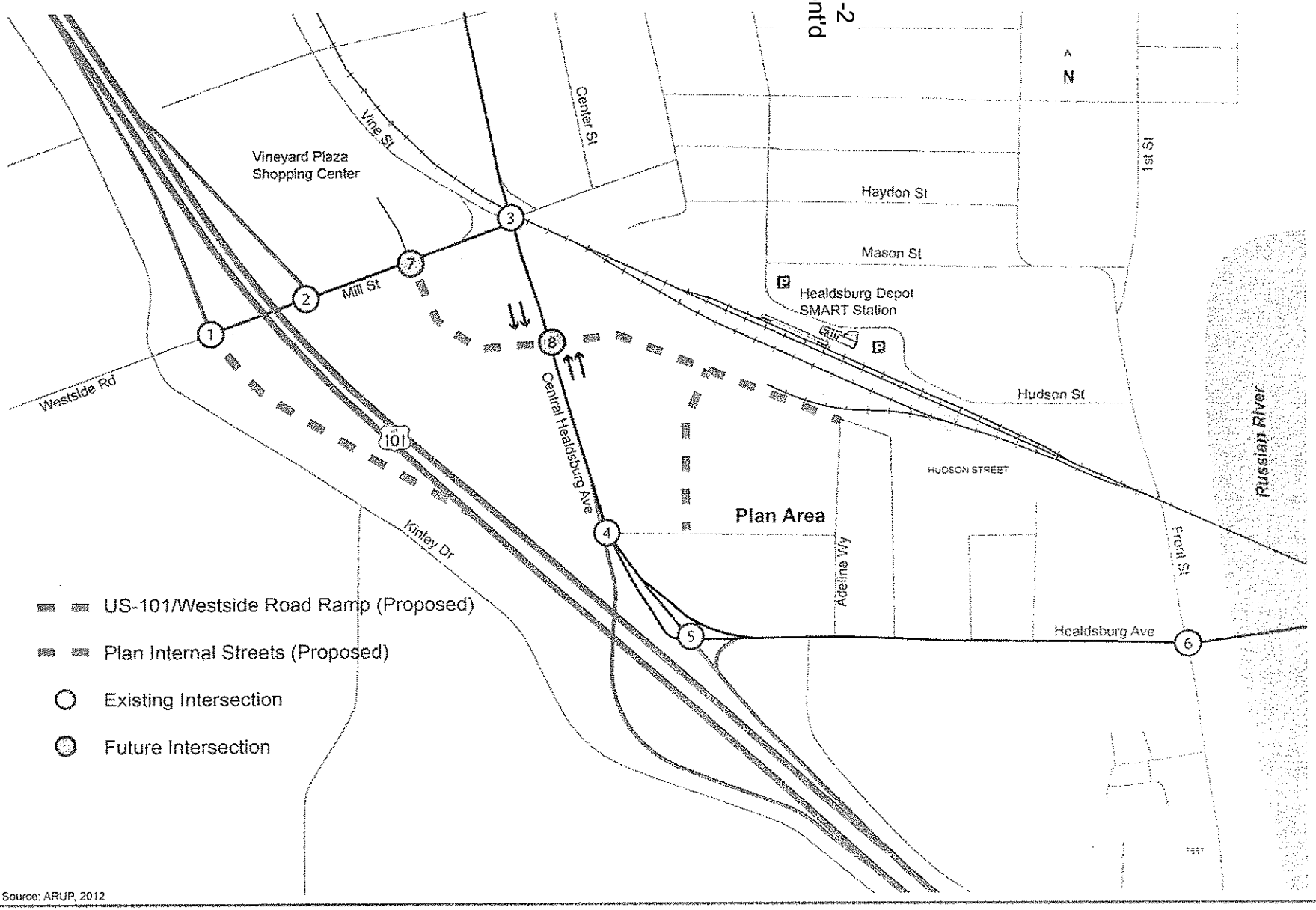
11-2 cont'd

T-A-16 Work with the California Department of Transportation (Caltrans), Sonoma County and the Sonoma County Transportation Authority (SCTA) to plan and implement improvements to the Highway 101 interchanges at Dry Creek and Westside Roads, based on a fair share formula for cooperative funding of improvements among jurisdictions and agencies.

T-6 Improve operating conditions at the intersection of Healdsburg Avenue, Mill Street and Vine Street in conjunction with the Central Healdsburg Entry Special Study Area Plan (now referred to as the Central Healdsburg Avenue Plan) improvements through modifications to lane configurations and signal phasing or by the construction of a roundabout, if it proves to be feasible from an engineering and financial standpoint.

As shown in Figure 3.12-1, eight study intersections are included in this transportation analysis. Using the City's traffic LOS standards, under full buildout of the Plan, including all proposed traffic improvements, there would be no significant traffic impacts at the eight study intersections (refer to Table 3.12-8 below). Although LOS decreases at two intersections along Healdsburg Avenue, it does not degrade to LOS E. LOS improves at the remaining six intersections. The impact to the circulation system under Plan buildout, after mitigation, would be less than significant.

11-2 cont'd




Source: ARUP, 2012

City of Healdsburg
Central Healdsburg Ave. Plan EIR

Job Number 6410105
Revision
Date Mar 2013

Intersection Study Locations

Figure 3.12-1

2235 Mercury Way Suite 150 Santa Rosa California 95407 USA T +1 707 525 1040 F +1 707 527 1088 W www.gra.com

\\sosvr1\Projects\2012\Healdsburg\2072-6410105 Central Healdsburg Ave Plan EIR\04-Technical Work\In\Design\Intersection Study Locations 1 March 1, 2013 2:46 PM

Comment Letter #11 cont'd

Comment Letter #11
cont'd

embankment along US 101 and a dip in the terrain, respectively, need to be addressed in order to fit the geometry of the roundabout and its approaches. The roundabout would include a splitter island on the northeast side to separate faster-moving traffic from slower-moving traffic whose intent is to turn onto driveways for existing businesses.

**Mill Street**

Mill Street west of Healdsburg Avenue within the plan area also would be reconfigured. This segment of Mill Street would continue to have two westbound lanes and one eastbound lane; however, the roadway section would be redesigned to include dedicated Class II on-street bicycle lanes in both directions and a new sidewalk and landscaping on the south side of the roadway to provide pedestrian access to businesses.

**New Connector Streets**

11-2
cont'd

As redevelopment of the Plan area occurs, a network of new streets also would be provided. New streets that have the highest priority are shown on the circulation framework. These include a new street connecting Healdsburg Avenue to Adeline Way and Ward Street, new streets extended northward from Exchange Avenue to provide a vehicular approach to the future Healdsburg SMART station, and a new street extending University Avenue south to Harmon/Hudson Street. Over time, the new street connecting Healdsburg Avenue to Adeline Way and Ward Street would be extended west of Healdsburg Avenue to connect to Mill Street, and a new street also would connect Healdsburg Avenue to one of the new streets extending north of Exchange Avenue. A two-travel lane section is recommended for new local streets in the Plan area, with on-street parallel parking and tree-lined sidewalks on both sides of the streets.

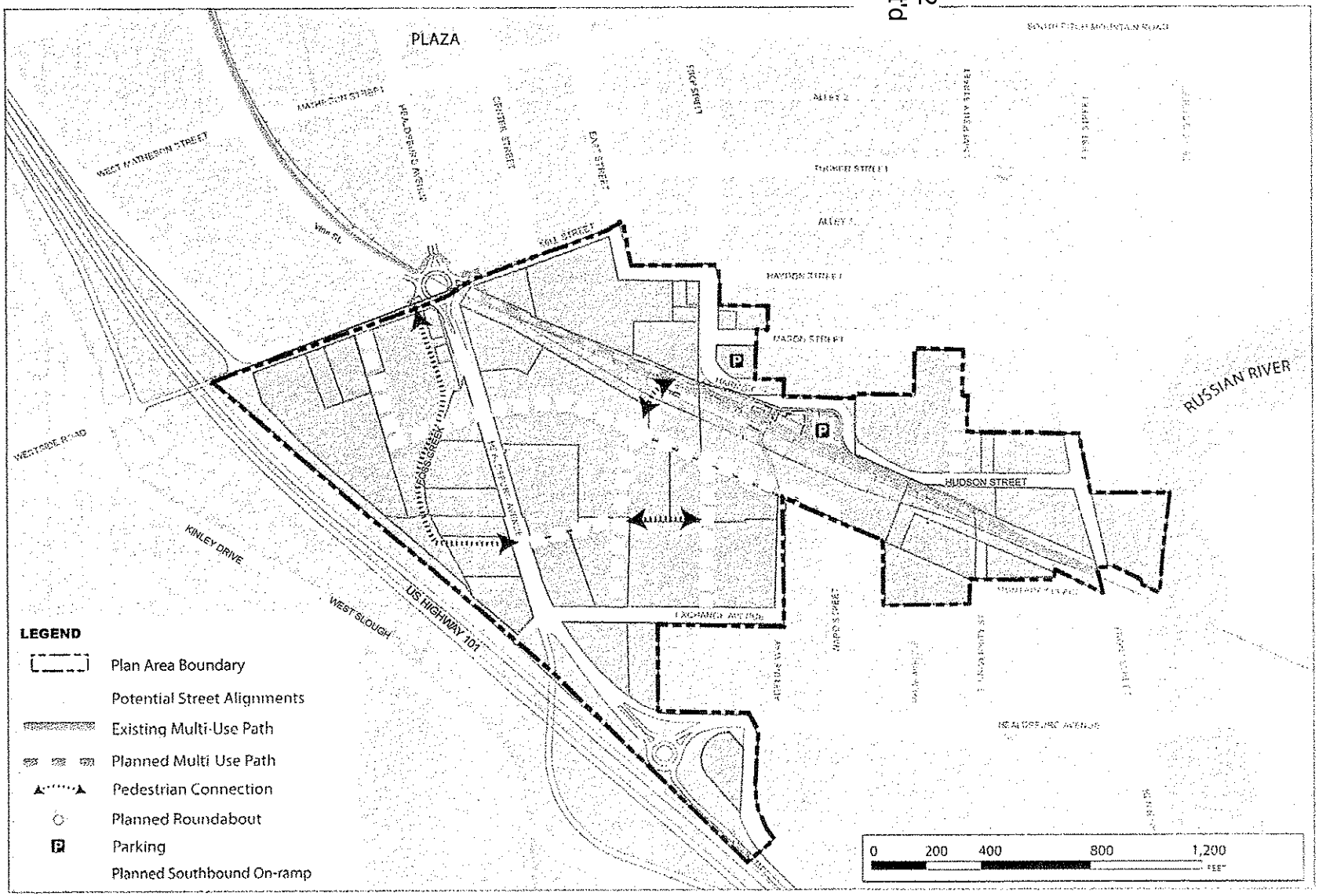
**Bicycle and Pedestrian Paths**

Several new bicycle and pedestrian paths are proposed within the Plan area. The redesign of Mill Street would include new Class II bicycle lanes between Healdsburg Avenue and the US 101 overpass, connecting to bike routes on Kinley Drive and Westside Road. Class III bicycle routes are planned on Harmon Street within the Plan area, connecting to Front Street to the east and to Fitch Street near Haydon Street to the north. The Foss Creek Class I bike path would extend through the Plan area between Front Street and Healdsburg Avenue along the north side of the railroad past the future Healdsburg SMART station. New pedestrian paths include creation of a trail along the west side of Foss Creek south of Mill Street which would connect back to Healdsburg Avenue north of Exchange Avenue, as well as a new pedestrian crossing of the railroad tracks at the western edge of the future Healdsburg SMART station.

**Funding**

The funding for the construction of the southbound on-ramp and other improvements at the US 101 / Westside Road / Mill Street interchange (e.g., constructing the northbound off-ramp, widening Westside Road, installing traffic signals, etc.) will be provided through a combination of potential sources: a) developer fees, b) $12.3 million identified in the Sonoma County Transportation Authority's (SCTA) 2009 Comprehensive Transportation Plan (CTP), and has been included in the City's Capital Improvement Program (CIP) and is expected to be in the 2013-2018 CIP.

11-2 cont'd




N

City of Healdsburg
Central Healdsburg Ave. Plan EIR

Job Number | 8410105
Revision |
Date | September 2012

Proposed Transportation Improvements

Figure 5



2235 Mercury Way Suite 150 Santa Rosa California 95407 USA T 1 707 523 1010 F 1 707 527 8679 W www.ghd.com

Comment Letter #11 cont'd

Table 3.12-8 Project Intersection LOS Analysis

| Intersection | Peak Hour | Existing | | Existing Plus Project | |
|---|---|---|---|---|---|
| | | Traffic Control | LOS / Delay (sec)[1] | Traffic Control | LOS / Delay (sec)[1] |
| 1. Westside Road / US 101 southbound off-ramp | AM<br>PM | Side-Street Stop | C / 16<br>C / 17 | Signal | A / 8<br>A / 7 |
| 2. Westside Road / US 101 northbound on-ramp | AM<br>PM | Uncontrolled | A / 1<br>A / 1 | Signal | A / 1<br>A / 2 |
| 3. Healdsburg Avenue / Mill Street / Vine Street | AM<br>PM | Signal | D / 41<br>D / 41 | Roundabout | D / 39<br>D / 47 |
| 4. Healdsburg Avenue / Exchange Avenue | AM<br>PM | Signal | C / 20<br>B / 17 | Signal | C / 33<br>B / 15 |
| 5. Healdsburg Avenue / US 101 northbound off-ramp | AM<br>PM | Side-Street Stop | C / 20<br>C / 17 | Roundabout | A / 6<br>A / 6 |
| 6. Healdsburg Avenue / Front Street | AM<br>PM | Side-Street Stop | C / 24<br>C / 21 | Side-Street Stop | D / 29<br>D / 25 |
| 7. Mill Street / New Street A | AM<br>PM | n/a | n/a<br>n/a | Side-Street Stop | A / 5<br>B / 11 |
| 8. Healdsburg Avenue / New Street A | AM<br>PM | n/a | n/a<br>n/a | Signal | A / 6<br>A / 8 |

Source: Arup 2012

Note: [1] LOS/Delay (seconds per vehicle) based on HCM 2000 methodologies.

11-2
cont'd

Off-peak traffic volumes are typically significantly lower than volumes during the AM and PM peak hours. Compared to the PM peak hour (the highest volume one-hour of the day), the hourly traffic volumes on US 101 at Westside Road are 20 to 30 percent lower from 9 AM to 2 PM and 30 to 65 percent lower from 6 PM to 8 PM. Given these considerably lower traffic volumes, all eight intersections would operate acceptably (LOS C or better) during the off-peak hours. The impact to off-peak conditions would be less than significant.

Interim Condition: Central Healdsburg Avenue / Mill Street / Vine Street

The Central Healdsburg Avenue / Mill Street / Vine Street intersection currently operates at LOS D with 41 seconds of delay under PM peak hour conditions. The LOS D to E threshold is 55 seconds of delay. Improvements to the intersection and Healdsburg Avenue are proposed as part of buildout of the Plan. As noted below, the intersection would remain at LOS D under buildout of the Plan. However, the timing of the improvements relative to land use development is uncertain. In its existing configuration, the intersection could serve 15 percent more traffic before the existing LOS D degraded to LOS E. The existing PM peak volume is 1,960 vehicles. Therefore, a 15 percent increase represents an additional 290 vehicle trips, for a total of 2,250 vehicle trips during the PM peak. Full buildout under the Plan would add approximately 360 vehicle trips to this intersection. Therefore, if the intersection improvements were not implemented prior to the vehicle trips exceeding 2,250, the impact to this intersection would be significant. This impact would only occur during the PM peak condition.

### 3.12.6 Cumulative Impacts

Impact: **TR-C-1: Would the Plan plus cumulative projects conflict with an adopted plan, ordinance, policy or program of the City that establishes a performance measure of the circulation system, taking into account all transportation modes, including public transit and non-motorized travel and relevant components of the circulation system?**

Analysis: *Significant*

Under cumulative conditions, without the Project, all study intersections would operate at an acceptable level of service (see Table 3.12-11 below). However, with the addition of Project traffic, the following two intersection locations would operate below the City's established LOS threshold under cumulative conditions:

Healdsburg Avenue / Mill Street / Vine Street: LOS at this intersection would degrade from LOS C to LOS E during the PM peak (see Table 3.12-11). This impact would be significant, and the contribution of the project would be cumulatively considerable.

Healdsburg Avenue / Front Street: LOS at this intersection would degrade from LOS D to LOS F during the PM peak (see Table 3.12-11). Current PM peak volumes are 837, with LOS F being triggered at 1,004. This impact would be significant, and the contribution of the project would be cumulatively considerable.

11-2 cont'd

**Table 3.12-11 Intersection LOS: Cumulative/Cumulative Plus Project**

| Intersection | Peak Hour | Cumulative No Project | | Cumulative Plus Project | |
|---|---|---|---|---|---|
| | | Traffic Control | LOS / Delay (sec)[1] | Traffic Control | LOS / Delay (sec)[1] |
| 1. Westside Road / US 101 southbound off-ramp | AM<br>PM | Signal | A / 7<br>A / 9 | Signal | A / 9<br>A / 9 |
| 2. Westside Road / US 101 northbound on-ramp | AM<br>PM | Signal | A / 8<br>B /12 | Signal | A / 8<br>B / 11 |
| 3. Central Healdsburg Avenue / Mill Street / Vine Street | AM<br>PM | Roundabout | B / 18<br>C / 17 | Roundabout | D / 43<br>**E / 67** |
| 4. Central Healdsburg Avenue / Exchange Avenue | AM<br>PM | Signal | B / 12<br>B / 13 | Signal | B / 15<br>B / 17 |
| 5. Central Healdsburg Avenue / US 101 northbound off-ramp | AM<br>PM | Side-Street Stop | C / 21<br>C / 20 | Roundabout | A / 10<br>A / 7 |
| 6. Central Healdsburg Avenue / Front Street | AM<br>PM | Side-Street Stop | D / 35<br>D / 28 | Side-Street Stop | D / 40<br>**F / 67** |
| 7. Mill Street / New Street A | AM<br>PM | n/a | n/a<br>n/a | Side-Street Stop | B / 12<br>C / 23 |
| 8. Central Healdsburg Avenue / New Street A | AM<br>PM | n/a | n/a<br>n/a | Signal | A / 3<br>A / 6 |

Source: Arup 2012

Note: [1]LOS / Delay (seconds per vehicle) based on HCM 2000 methodologies. BOLD results indicate that the LOS exceeds the LOS D significant threshold.

## Letter 11 Response to Comments

### Response to Comment 11-1

The commenter is correct that the Plan's "Urban Frontage" guidelines are intended to locate active uses near streets to make the pedestrian experience more attractive. The noise evaluation in the Draft EIR indicates that some streets in the Plan area, e.g., Healdsburg Avenue, may experience noise levels above 65 dBA Ldn in commercial zones, a threshold identified in the Healdsburg Municipal Code. Therefore, the EIR identifies a significant impact of the Plan and recommends mitigation. Mitigation Measure NO-1 requires that future projects in the Plan area maintain exterior sound levels below 65 dBA Ldn and that "Noise barriers may be necessary to shield outdoor activity areas." Such a mitigation measure is consistent with the General Plan and the Municipal Code and modifies the implementation of future projects within the Plan area to provide barriers rather than active uses, where needed, to meet City noise standards.

Noise impacts are analyzed in the context of exposure to sensitive receptors in residential and work environments. The Draft EIR identified potential conflicts with the City's noise ordinance and the potential to create substantial increases in ambient noise. Both impacts are mitigated to less than significant. A pedestrian passing through an area is not typically included in noise impact assessments, unless there is potential to be exposed to harmful levels. Pedestrians rarely encounter a single noise exposure so severe as to produce a temporary or permanent threshold shift to hearing. The Draft EIR identified a cumulative noise level of 71 dBA $L_{dn}$ along Healdsburg Avenue, which assumes a noise exposure over a minimum 24-hour duration. Although considered a nuisance to some, this is not a harmful level. The EPA has identified noise levels of 76 dBA $L_{dn}$ or greater as hazardous to health. Again, such a noise level assumes a noise exposure over a minimum 24-hour duration, which clearly would not be the case for pedestrians in Healdsburg.

### Response to Comment 11-2

Figure 2 (which also has a label of V-2) on page 4 of the Transportation Report, included as Appendix E in the Draft EIR, shows the future illustrative street network that is envisioned by the Plan, while Figure 3 on page 7 focuses on the intersections that were studied. The impact to the proposed "Intersection 8" was analyzed on pages 3.12-12 and 3.12-13 of the Transportation Section of the Draft EIR. The Cumulative impact to the proposed "Intersection 8" was analyzed on page 3.12-19 of the Transportation Section of the Draft EIR.

The approximate location for the proposed "Intersection 8" is shown on Figure 3.12-1 of the Draft EIR. The "New Connector Streets" described on page 5 of the Transportation Report is a general description of the illustrative street network that is proposed in the Plan. The item identified as "Healdsburg Avenue to one of the new streets extending north of Exchange Avenue" is illustrated on Figure 2 on Page 4 of the Transportation Report, as well as Figure 2-5 of the Draft EIR. It is the first "Potential Street Alignments" shown parallel with, and to the north of, Exchange Avenue. The location of "Intersection 8" is further north.

# 3. Author Initiated Changes

## Table 1-2

On page 1-15 of the Draft EIR in the cell of Table 1-2 that corresponds to TR-C1 and the After-mitigation Significance, the following text is added:

> Less than Significant

## References to High Density Residential

In Response to Comment 6-1, the "High Density Land" Use Designation was changed to "Transit Residential" in Chapter 2 Project Description. The following are the subsequent changes necessitated throughout the EIR.

On page 3.1-8 the following change is made to the second paragraph:

> Buildout under the Plan would be dispersed throughout the Plan area as infill. As summarized in Section 2.4 (Project Characteristics), the land use designation changes proposed in the Plan result in a reduction in Industrial area and an increase in Mixed-Use and ~~High Density~~ Transit Residential area, as compared to the Healdsburg 2030 General Plan designations.

On page 3.6-9 the following change is made to the third paragraph:

> SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicular greenhouse gas emissions by integrating development patterns and the transportation network. One component of this integration is higher density residential infill projects located adjacent to mass transit systems. The Plan exemplifies the idea of higher density residential near mass transit. The two mass transit facilities anchoring the Plan area are the Sonoma County Transit Center and the SMART rail station. The Plan area currently has 14 residences. The current land use designations surrounding the mass transit facilities are industrial and medium density. The Plan would change these designations to Mixed Use and ~~High Density~~ Transit Residential, increasing the residential units to 331.

On page 3.7-16 the following change is made to the first paragraph in the analysis:

> The Plan establishes a framework for development which, under full buildout, would alter existing land uses in the Plan area. The existing land use in the Plan area is primarily Industrial, with Mixed Use-designated parcels along Healdsburg Avenue and a pocket of Medium Density Residential land uses along Fitch Street. The Plan proposes to change the land use designations in the Plan area such that Industrial land use designations would decrease substantially and be re-designated primarily as Mixed Use. Additionally, two parcels would be re-designated as ~~High Density~~ Transit Residential, and one would be re-designated as Medium Density Residential.

On page 3.9-9 the following change is made to the second bullet:

- A ~~High Density~~ new Transit Residential (~~H~~TR) designation would replace the Industrial (I) designation in the area located north of Exchange Street; including a portion of the Healdsburg Lumber and Opperman properties.

On page 3.9-9 the following changes are made to the first and second paragraph after the bullet list:

> The following describes allowable land uses under the ~~High Density~~ Transit Residential (~~H~~TR) and Public Quasi-Public (P) designations. The allowable land uses under the Industrial (I), Mixed Use, and Medium Density Residential (MR) designations are provided above in the Setting under General Plan Land Use Designations.
>
> ~~*High Density*~~ *Transit Residential (~~H~~TR).* This designation provides for single-family units, multi-family units and mobile home parks within the density range of 10 to ~~2~~30 units per gross acre, public and quasi-public uses when compatible with the overall purpose and character of the designation, and similar and compatible uses. ~~The HR parcels within the Plan area would have a development range of 10 to 30 units per acre, instead of 10 to 20 units per acre.~~

On page 3.9-10 the following change is made to the third paragraph:

> The various parcels that would change to Mixed Use (MU) Land Use Designations would be changed to the Mixed Use Zoning District. The parcel that changes to Industrial (I) Land Use Designation would be changed to Industrial Zoning District. The various parcels that would change to Public/Quasi-Public (P) Land Use Designations would change to Public Zoning District. The parcel that changes to Medium Density (MD) Land Use Designation would change to R-1-6,000 Zoning District. The new ~~High Density~~ Transit Residential (~~H~~TR) portion of the Plan area would be rezoned to a Multi-Family Residential (RM) Zoning District.

On page 4-2 the following change is made to the first paragraph under the heading Alternative 2: Reduced Density Alternative:

> The Reduced Density Alternative examines a 43 percent reduction in residential density within the Plan area as compared to the Project. Under the Reduced Density Alternative, densities are set at the lower end of the range for Medium Density (3 units per acre) and ~~High Density~~ Transit Residential (10 units per acre), while under the proposed Project (Plan), densities are set at the maximum allowable range for Medium Density (6 units per acre) and ~~High Density~~ Transit Residential (30 units per acre). In Table 2-3, Buildout Assumptions of Proposed General Plan Designations in Chapter 2 Project Description, the Medium and ~~High Density~~ Transit Residential categories are collectively referred to as "Residential" and identify a maximum of 226 units on 8.3 acres, for the Plan.

On page 4-3 the following change is made to the first paragraph under the heading Alternative 2: Reduced Density Alternative:

> The following compares the potential impacts that could result from the construction of 188 residential units under the Reduced Density Alternative with the potential impacts that could result from the construction of the 331 residential units under the proposed Project. The reduction of 143 residential units would be isolated to the parcels on the 8.3 acres designated Medium Density and ~~High Density~~ Transit Residential.

# 4. References

ARUP. 2011. Preliminary Traffic Analysis and Conceptual Roundabout Design for the Central Healdsburg Avenue Plan.

Caltrans. 2010. 2010 Collision Data on California State Highways.

City of Healdsburg Police Department. 2013. Personal communication, Matt Jenkins. November 14, 2013.

Appendix A

# Additional Traffic Data

# MOVEMENT SUMMARY

**Site: E+P AM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 474 | 2.0 | 1.067 | 62.9 | LOS E | 47.9 | 1216.7 | 1.00 | 1.81 | 14.5 |
| 8 | T | 339 | 2.0 | 1.067 | 57.7 | LOS E | 47.9 | 1216.7 | 1.00 | 1.81 | 14.7 |
| 18 | R | 111 | 2.0 | 1.067 | 58.7 | LOS E | 47.9 | 1216.7 | 1.00 | 1.81 | 14.6 |
| Approach | | 924 | 2.0 | 1.067 | 60.5 | LOS E | 47.9 | 1216.7 | 1.00 | 1.81 | 14.6 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 117 | 2.0 | 0.675 | 32.1 | LOS C | 6.4 | 162.3 | 1.00 | 1.16 | 21.4 |
| 6 | T | 88 | 2.0 | 0.675 | 26.3 | LOS C | 6.4 | 162.3 | 1.00 | 1.16 | 22.3 |
| 16 | R | 42 | 2.0 | 0.675 | 26.6 | LOS C | 6.4 | 162.3 | 1.00 | 1.16 | 22.3 |
| Approach | | 248 | 2.0 | 0.675 | 29.1 | LOS C | 6.4 | 162.3 | 1.00 | 1.16 | 21.8 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 20 | 2.0 | 0.584 | 23.2 | LOS C | 5.1 | 128.8 | 0.92 | 1.10 | 24.9 |
| 4 | T | 204 | 2.0 | 0.584 | 17.5 | LOS B | 5.1 | 128.8 | 0.92 | 1.06 | 26.4 |
| 14 | R | 82 | 2.0 | 0.584 | 18.3 | LOS B | 5.1 | 128.8 | 0.92 | 1.07 | 26.3 |
| Approach | | 305 | 2.0 | 0.584 | 18.0 | LOS B | 5.1 | 128.8 | 0.92 | 1.07 | 26.2 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 20 | 0.9 | 0.249 | 18.3 | LOS B | 1.4 | 36.7 | 0.76 | 0.93 | 26.9 |
| 14X | R | 120 | 2.0 | 0.249 | 12.9 | LOS B | 1.4 | 36.7 | 0.76 | 0.85 | 28.9 |
| Approach | | 139 | 1.8 | 0.249 | 13.7 | LOS B | 1.4 | 36.7 | 0.76 | 0.86 | 28.6 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 114 | 2.0 | 0.435 | 16.5 | LOS B | 2.9 | 73.3 | 0.73 | 0.89 | 27.8 |
| 2 | T | 135 | 2.0 | 0.435 | 10.5 | LOS B | 2.9 | 73.3 | 0.73 | 0.79 | 30.2 |
| 12 | R | 66 | 2.0 | 0.435 | 11.3 | LOS B | 2.9 | 73.3 | 0.73 | 0.81 | 30.0 |
| Approach | | 315 | 2.0 | 0.435 | 12.9 | LOS B | 2.9 | 73.3 | 0.73 | 0.83 | 29.2 |
| All Vehicles | | 1932 | 2.0 | 1.067 | 38.6 | LOS D | 47.9 | 1216.7 | 0.93 | 1.38 | 18.9 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: E+P PM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 379 | 2.0 | 1.041 | 55.5 | LOS E | 40.0 | 1017.0 | 1.00 | 1.70 | 15.7 |
| 8 | T | 337 | 2.0 | 1.041 | 50.4 | LOS E | 40.0 | 1017.0 | 1.00 | 1.70 | 16.0 |
| 18 | R | 126 | 2.0 | 1.041 | 51.3 | LOS E | 40.0 | 1017.0 | 1.00 | 1.70 | 15.9 |
| Approach | | 842 | 2.0 | 1.041 | 52.8 | LOS E | 40.0 | 1017.0 | 1.00 | 1.70 | 15.9 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 137 | 2.0 | 0.820 | 42.3 | LOS D | 10.1 | 255.3 | 1.00 | 1.31 | 18.6 |
| 6 | T | 125 | 2.0 | 0.820 | 36.5 | LOS D | 10.1 | 255.3 | 1.00 | 1.31 | 19.1 |
| 16 | R | 53 | 2.0 | 0.820 | 36.7 | LOS D | 10.1 | 255.3 | 1.00 | 1.31 | 19.1 |
| Approach | | 315 | 2.0 | 0.820 | 39.0 | LOS D | 10.1 | 255.3 | 1.00 | 1.31 | 18.9 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 10 | 2.0 | 0.903 | 42.0 | LOS D | 15.7 | 398.6 | 1.00 | 1.45 | 18.8 |
| 4 | T | 346 | 2.0 | 0.903 | 36.2 | LOS D | 15.7 | 398.6 | 1.00 | 1.45 | 19.4 |
| 14 | R | 138 | 2.0 | 0.903 | 37.0 | LOS D | 15.7 | 398.6 | 1.00 | 1.45 | 19.3 |
| Approach | | 493 | 2.0 | 0.903 | 36.5 | LOS D | 15.7 | 398.6 | 1.00 | 1.45 | 19.3 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 35 | 1.4 | 0.993 | 70.6 | LOS F | 20.8 | 527.4 | 1.00 | 1.72 | 13.6 |
| 14X | R | 385 | 2.0 | 0.993 | 65.5 | LOS E | 20.8 | 527.4 | 1.00 | 1.72 | 13.7 |
| Approach | | 420 | 1.9 | 0.993 | 65.9 | LOS E | 20.8 | 527.4 | 1.00 | 1.72 | 13.7 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 182 | 2.0 | 0.756 | 33.8 | LOS C | 8.7 | 220.8 | 1.00 | 1.26 | 20.8 |
| 2 | T | 92 | 2.0 | 0.756 | 27.9 | LOS C | 8.7 | 220.8 | 1.00 | 1.26 | 21.7 |
| 12 | R | 90 | 2.0 | 0.756 | 28.7 | LOS C | 8.7 | 220.8 | 1.00 | 1.26 | 21.6 |
| Approach | | 364 | 2.0 | 0.756 | 31.0 | LOS C | 8.7 | 220.8 | 1.00 | 1.26 | 21.2 |
| All Vehicles | | 2435 | 2.0 | 1.041 | 46.7 | LOS D | 40.0 | 1017.0 | 1.00 | 1.54 | 17.0 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+NP AM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 249 | 2.0 | 0.874 | 25.3 | LOS C | 16.7 | 425.1 | 1.00 | 1.13 | 23.8 |
| 8 | T | 341 | 2.0 | 0.874 | 20.1 | LOS C | 16.7 | 425.1 | 1.00 | 1.13 | 24.8 |
| 18 | R | 116 | 2.0 | 0.874 | 21.1 | LOS C | 16.7 | 425.1 | 1.00 | 1.13 | 24.7 |
| Approach | | 707 | 2.0 | 0.874 | 22.1 | LOS C | 16.7 | 425.1 | 1.00 | 1.13 | 24.4 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 103 | 2.0 | 0.418 | 21.0 | LOS C | 2.9 | 74.6 | 0.90 | 1.02 | 25.6 |
| 6 | T | 65 | 2.0 | 0.418 | 15.2 | LOS B | 2.9 | 74.6 | 0.90 | 0.98 | 27.2 |
| 16 | R | 20 | 2.0 | 0.418 | 15.4 | LOS B | 2.9 | 74.6 | 0.90 | 0.98 | 27.2 |
| Approach | | 188 | 2.0 | 0.418 | 18.4 | LOS B | 2.9 | 74.6 | 0.90 | 1.00 | 26.3 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 7 | 2.0 | 0.510 | 18.1 | LOS B | 3.9 | 99.8 | 0.79 | 0.98 | 27.3 |
| 4 | T | 292 | 2.0 | 0.510 | 12.3 | LOS B | 3.9 | 99.8 | 0.79 | 0.89 | 29.4 |
| 14 | R | 50 | 2.0 | 0.510 | 13.3 | LOS B | 3.9 | 99.8 | 0.79 | 0.92 | 29.2 |
| Approach | | 349 | 2.0 | 0.510 | 12.5 | LOS B | 3.9 | 99.8 | 0.79 | 0.90 | 29.3 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 22 | 1.0 | 0.283 | 17.4 | LOS B | 1.7 | 42.3 | 0.74 | 0.92 | 27.4 |
| 14X | R | 150 | 2.0 | 0.283 | 12.0 | LOS B | 1.7 | 42.3 | 0.74 | 0.83 | 29.5 |
| Approach | | 172 | 1.9 | 0.283 | 12.7 | LOS B | 1.7 | 42.3 | 0.74 | 0.84 | 29.2 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 180 | 2.0 | 0.505 | 19.0 | LOS B | 3.8 | 97.5 | 0.80 | 0.98 | 26.5 |
| 2 | T | 107 | 2.0 | 0.505 | 12.8 | LOS B | 3.8 | 97.5 | 0.80 | 0.91 | 28.6 |
| 12 | R | 46 | 2.0 | 0.505 | 13.7 | LOS B | 3.8 | 97.5 | 0.80 | 0.93 | 28.4 |
| Approach | | 333 | 2.0 | 0.505 | 16.3 | LOS B | 3.8 | 97.5 | 0.80 | 0.95 | 27.4 |
| All Vehicles | | 1748 | 2.0 | 0.874 | 17.8 | LOS B | 16.7 | 425.1 | 0.89 | 1.01 | 26.5 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+NP PM**

HBG Ave and Mill
Roundabout

| Movement Performance - Vehicles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
| South: RoadName | | | | | | | | | | | |
| 3 | L | 161 | 2.0 | 0.897 | 30.3 | LOS C | 17.3 | 440.1 | 1.00 | 1.28 | 22.0 |
| 8 | T | 353 | 2.0 | 0.897 | 25.2 | LOS C | 17.3 | 440.1 | 1.00 | 1.28 | 22.8 |
| 18 | R | 114 | 2.0 | 0.897 | 26.2 | LOS C | 17.3 | 440.1 | 1.00 | 1.28 | 22.7 |
| Approach | | 628 | 2.0 | 0.897 | 26.7 | LOS C | 17.3 | 440.1 | 1.00 | 1.28 | 22.5 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 97 | 2.0 | 0.467 | 22.6 | LOS C | 3.5 | 87.7 | 0.91 | 1.04 | 24.9 |
| 6 | T | 79 | 2.0 | 0.467 | 16.8 | LOS B | 3.5 | 87.7 | 0.91 | 1.01 | 26.4 |
| 16 | R | 36 | 2.0 | 0.467 | 17.0 | LOS B | 3.5 | 87.7 | 0.91 | 1.01 | 26.4 |
| Approach | | 212 | 2.0 | 0.467 | 19.5 | LOS B | 3.5 | 87.7 | 0.91 | 1.03 | 25.7 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 8 | 2.0 | 0.635 | 19.2 | LOS B | 6.2 | 156.3 | 0.83 | 1.01 | 26.7 |
| 4 | T | 352 | 2.0 | 0.635 | 13.4 | LOS B | 6.2 | 156.3 | 0.83 | 0.94 | 28.6 |
| 14 | R | 112 | 2.0 | 0.635 | 14.3 | LOS B | 6.2 | 156.3 | 0.83 | 0.96 | 28.5 |
| Approach | | 472 | 2.0 | 0.635 | 13.7 | LOS B | 6.2 | 156.3 | 0.83 | 0.94 | 28.6 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 22 | 1.0 | 0.824 | 33.3 | LOS C | 11.4 | 288.2 | 1.00 | 1.30 | 21.2 |
| 14X | R | 430 | 2.0 | 0.824 | 27.8 | LOS C | 11.4 | 288.2 | 1.00 | 1.30 | 22.0 |
| Approach | | 452 | 2.0 | 0.824 | 28.1 | LOS C | 11.4 | 288.2 | 1.00 | 1.30 | 22.0 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 279 | 2.0 | 0.925 | 52.4 | LOS E | 16.5 | 419.8 | 1.00 | 1.55 | 16.4 |
| 2 | T | 88 | 2.0 | 0.925 | 46.3 | LOS D | 16.5 | 419.8 | 1.00 | 1.55 | 16.7 |
| 12 | R | 75 | 2.0 | 0.925 | 47.2 | LOS D | 16.5 | 419.8 | 1.00 | 1.55 | 16.6 |
| Approach | | 442 | 2.0 | 0.925 | 50.3 | LOS E | 16.5 | 419.8 | 1.00 | 1.55 | 16.5 |
| All Vehicles | | 2207 | 2.0 | 0.925 | 28.2 | LOS C | 17.3 | 440.1 | 0.96 | 1.24 | 22.0 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P AM**

HBG Ave and Mill
Roundabout

| Movement Performance - Vehicles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
| South: RoadName | | | | | | | | | | | |
| 3 | L | 257 | 2.0 | 1.113 | 85.6 | LOS F | 46.4 | 1179.7 | 1.00 | 2.21 | 11.8 |
| 8 | T | 342 | 2.0 | 1.113 | 80.3 | LOS F | 46.4 | 1179.7 | 1.00 | 2.21 | 11.8 |
| 18 | R | 150 | 2.0 | 1.113 | 81.3 | LOS F | 46.4 | 1179.7 | 1.00 | 2.21 | 11.8 |
| Approach | | 749 | 2.0 | 1.113 | 82.3 | LOS F | 46.4 | 1179.7 | 1.00 | 2.21 | 11.8 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 137 | 2.0 | 0.577 | 25.8 | LOS C | 4.9 | 124.6 | 0.95 | 1.10 | 23.6 |
| 6 | T | 92 | 2.0 | 0.577 | 20.0 | LOS B | 4.9 | 124.6 | 0.95 | 1.09 | 24.8 |
| 16 | R | 27 | 2.0 | 0.577 | 20.4 | LOS C | 4.9 | 124.6 | 0.95 | 1.09 | 24.8 |
| Approach | | 257 | 2.0 | 0.577 | 23.1 | LOS C | 4.9 | 124.6 | 0.95 | 1.09 | 24.1 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 9 | 2.0 | 0.580 | 20.3 | LOS C | 5.0 | 127.4 | 0.85 | 1.05 | 26.2 |
| 4 | T | 289 | 2.0 | 0.580 | 14.5 | LOS B | 5.0 | 127.4 | 0.85 | 0.99 | 28.0 |
| 14 | R | 80 | 2.0 | 0.580 | 15.3 | LOS B | 5.0 | 127.4 | 0.85 | 1.00 | 27.9 |
| Approach | | 378 | 2.0 | 0.580 | 14.8 | LOS B | 5.0 | 127.4 | 0.85 | 0.99 | 27.9 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 18 | 0.8 | 0.274 | 18.7 | LOS B | 1.6 | 41.2 | 0.79 | 0.94 | 26.8 |
| 14X | R | 129 | 2.0 | 0.274 | 13.2 | LOS B | 1.6 | 41.2 | 0.79 | 0.87 | 28.8 |
| Approach | | 148 | 1.9 | 0.274 | 13.9 | LOS B | 1.6 | 41.2 | 0.79 | 0.88 | 28.5 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 265 | 2.0 | 0.737 | 24.7 | LOS C | 8.6 | 219.5 | 0.95 | 1.17 | 24.0 |
| 2 | T | 147 | 2.0 | 0.737 | 18.6 | LOS B | 8.6 | 219.5 | 0.95 | 1.15 | 25.4 |
| 12 | R | 70 | 2.0 | 0.737 | 19.4 | LOS B | 8.6 | 219.5 | 0.95 | 1.15 | 25.3 |
| Approach | | 482 | 2.0 | 0.737 | 22.1 | LOS C | 8.6 | 219.5 | 0.95 | 1.16 | 24.6 |
| All Vehicles | | 2013 | 2.0 | 1.113 | 42.7 | LOS D | 46.4 | 1179.7 | 0.94 | 1.49 | 17.9 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P PM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 197 | 2.0 | 1.064 | 70.1 | LOS F | 35.7 | 907.3 | 1.00 | 1.96 | 13.6 |
| 8 | T | 333 | 2.0 | 1.064 | 65.0 | LOS E | 35.7 | 907.3 | 1.00 | 1.96 | 13.7 |
| 18 | R | 136 | 2.0 | 1.064 | 66.0 | LOS E | 35.7 | 907.3 | 1.00 | 1.96 | 13.6 |
| Approach | | 665 | 2.0 | 1.064 | 66.7 | LOS E | 35.7 | 907.3 | 1.00 | 1.96 | 13.6 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 125 | 2.0 | 0.704 | 31.6 | LOS C | 7.2 | 183.0 | 1.00 | 1.20 | 21.6 |
| 6 | T | 140 | 2.0 | 0.704 | 25.8 | LOS C | 7.2 | 183.0 | 1.00 | 1.20 | 22.5 |
| 16 | R | 46 | 2.0 | 0.704 | 26.0 | LOS C | 7.2 | 183.0 | 1.00 | 1.20 | 22.5 |
| Approach | | 311 | 2.0 | 0.704 | 28.2 | LOS C | 7.2 | 183.0 | 1.00 | 1.20 | 22.1 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 10 | 2.0 | 0.816 | 28.8 | LOS C | 11.5 | 292.8 | 1.00 | 1.26 | 22.7 |
| 4 | T | 315 | 2.0 | 0.816 | 23.0 | LOS C | 11.5 | 292.8 | 1.00 | 1.26 | 23.8 |
| 14 | R | 193 | 2.0 | 0.816 | 23.8 | LOS C | 11.5 | 292.8 | 1.00 | 1.26 | 23.7 |
| Approach | | 518 | 2.0 | 0.816 | 23.4 | LOS C | 11.5 | 292.8 | 1.00 | 1.26 | 23.8 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 35 | 1.4 | 1.027 | 75.7 | LOS F | 24.3 | 617.5 | 1.00 | 1.82 | 12.9 |
| 14X | R | 421 | 2.0 | 1.027 | 70.8 | LOS F | 24.3 | 617.5 | 1.00 | 1.82 | 13.0 |
| Approach | | 455 | 2.0 | 1.027 | 71.1 | LOS F | 24.3 | 617.5 | 1.00 | 1.82 | 13.0 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 387 | 2.0 | 1.175 | 122.5 | LOS F | 46.4 | 1177.5 | 1.00 | 2.51 | 9.1 |
| 2 | T | 127 | 2.0 | 1.175 | 116.5 | LOS F | 46.4 | 1177.5 | 1.00 | 2.51 | 9.0 |
| 12 | R | 88 | 2.0 | 1.175 | 117.3 | LOS F | 46.4 | 1177.5 | 1.00 | 2.51 | 9.0 |
| Approach | | 602 | 2.0 | 1.175 | 120.5 | LOS F | 46.4 | 1177.5 | 1.00 | 2.51 | 9.1 |
| All Vehicles | | 2552 | 2.0 | 1.175 | 66.7 | LOS E | 46.4 | 1177.5 | 1.00 | 1.83 | 13.7 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P SB Ramp AM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 470 | 2.0 | 1.045 | 54.4 | LOS E | 44.1 | 1120.6 | 1.00 | 1.63 | 15.9 |
| 8 | T | 338 | 2.0 | 1.045 | 49.2 | LOS D | 44.1 | 1120.6 | 1.00 | 1.63 | 16.2 |
| 18 | R | 115 | 2.0 | 1.045 | 50.1 | LOS E | 44.1 | 1120.6 | 1.00 | 1.63 | 16.1 |
| Approach | | 923 | 2.0 | 1.045 | 51.9 | LOS E | 44.1 | 1120.6 | 1.00 | 1.63 | 16.1 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 139 | 2.0 | 0.801 | 41.2 | LOS D | 9.2 | 234.7 | 1.00 | 1.27 | 18.9 |
| 6 | T | 107 | 2.0 | 0.801 | 35.4 | LOS D | 9.2 | 234.7 | 1.00 | 1.27 | 19.4 |
| 16 | R | 45 | 2.0 | 0.801 | 35.6 | LOS D | 9.2 | 234.7 | 1.00 | 1.27 | 19.4 |
| Approach | | 290 | 2.0 | 0.801 | 38.2 | LOS D | 9.2 | 234.7 | 1.00 | 1.27 | 19.1 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 9 | 2.0 | 0.767 | 31.9 | LOS C | 9.0 | 229.0 | 1.00 | 1.24 | 21.7 |
| 4 | T | 291 | 2.0 | 0.767 | 26.2 | LOS C | 9.0 | 229.0 | 1.00 | 1.24 | 22.6 |
| 14 | R | 80 | 2.0 | 0.767 | 27.0 | LOS C | 9.0 | 229.0 | 1.00 | 1.24 | 22.5 |
| Approach | | 380 | 2.0 | 0.767 | 26.5 | LOS C | 9.0 | 229.0 | 1.00 | 1.24 | 22.6 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 18 | 0.8 | 0.310 | 20.2 | LOS C | 1.9 | 48.0 | 0.84 | 0.98 | 26.1 |
| 14X | R | 129 | 2.0 | 0.310 | 14.7 | LOS B | 1.9 | 48.0 | 0.84 | 0.92 | 27.9 |
| Approach | | 148 | 1.9 | 0.310 | 15.4 | LOS B | 1.9 | 48.0 | 0.84 | 0.93 | 27.6 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 109 | 2.0 | 0.486 | 18.7 | LOS B | 3.6 | 92.1 | 0.81 | 0.98 | 26.7 |
| 2 | T | 133 | 2.0 | 0.486 | 12.6 | LOS B | 3.6 | 92.1 | 0.81 | 0.91 | 28.8 |
| 12 | R | 71 | 2.0 | 0.486 | 13.4 | LOS B | 3.6 | 92.1 | 0.81 | 0.93 | 28.7 |
| Approach | | 312 | 2.0 | 0.486 | 14.9 | LOS B | 3.6 | 92.1 | 0.81 | 0.94 | 28.0 |
| All Vehicles | | 2053 | 2.0 | 1.045 | 37.0 | LOS D | 44.1 | 1120.6 | 0.96 | 1.35 | 19.4 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P SB Ramp PM**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 408 | 2.0 | 1.105 | 78.5 | LOS F | 52.2 | 1325.2 | 1.00 | 2.08 | 12.5 |
| 8 | T | 342 | 2.0 | 1.105 | 73.4 | LOS F | 52.2 | 1325.2 | 1.00 | 2.08 | 12.6 |
| 18 | R | 126 | 2.0 | 1.105 | 74.3 | LOS F | 52.2 | 1325.2 | 1.00 | 2.08 | 12.5 |
| Approach | | 876 | 2.0 | 1.105 | 75.9 | LOS F | 52.2 | 1325.2 | 1.00 | 2.08 | 12.6 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 129 | 2.0 | 0.857 | 46.9 | LOS D | 11.4 | 289.5 | 1.00 | 1.36 | 17.6 |
| 6 | T | 141 | 2.0 | 0.857 | 41.1 | LOS D | 11.4 | 289.5 | 1.00 | 1.36 | 18.0 |
| 16 | R | 57 | 2.0 | 0.857 | 41.3 | LOS D | 11.4 | 289.5 | 1.00 | 1.36 | 18.0 |
| Approach | | 327 | 2.0 | 0.857 | 43.4 | LOS D | 11.4 | 289.5 | 1.00 | 1.36 | 17.8 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 10 | 2.0 | 0.948 | 50.2 | LOS E | 19.0 | 483.2 | 1.00 | 1.58 | 17.0 |
| 4 | T | 320 | 2.0 | 0.948 | 44.4 | LOS D | 19.0 | 483.2 | 1.00 | 1.58 | 17.3 |
| 14 | R | 177 | 2.0 | 0.948 | 45.3 | LOS D | 19.0 | 483.2 | 1.00 | 1.58 | 17.3 |
| Approach | | 507 | 2.0 | 0.948 | 44.8 | LOS D | 19.0 | 483.2 | 1.00 | 1.58 | 17.3 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 36 | 1.4 | 1.119 | 110.7 | LOS F | 32.6 | 827.8 | 1.00 | 2.13 | 9.8 |
| 14X | R | 417 | 2.0 | 1.119 | 105.7 | LOS F | 32.6 | 827.8 | 1.00 | 2.13 | 9.7 |
| Approach | | 453 | 2.0 | 1.119 | 106.1 | LOS F | 32.6 | 827.8 | 1.00 | 2.13 | 9.7 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 201 | 2.0 | 0.737 | 30.5 | LOS C | 8.2 | 209.5 | 0.98 | 1.22 | 21.9 |
| 2 | T | 92 | 2.0 | 0.737 | 24.6 | LOS C | 8.2 | 209.5 | 0.98 | 1.22 | 22.8 |
| 12 | R | 88 | 2.0 | 0.737 | 25.4 | LOS C | 8.2 | 209.5 | 0.98 | 1.22 | 22.8 |
| Approach | | 382 | 2.0 | 0.737 | 27.9 | LOS C | 8.2 | 209.5 | 0.98 | 1.22 | 22.3 |
| All Vehicles | | 2545 | 2.0 | 1.119 | 63.7 | LOS E | 52.2 | 1325.2 | 1.00 | 1.77 | 14.1 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P PM - Mitigation**

HBG Ave and Mill
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 3 | L | 197 | 2.0 | 0.751 | 22.6 | LOS C | 9.6 | 244.8 | 1.00 | 1.14 | 24.9 |
| 8 | T | 333 | 2.0 | 0.751 | 17.5 | LOS B | 9.6 | 244.8 | 1.00 | 1.14 | 26.1 |
| 18 | R | 136 | 2.0 | 0.125 | 7.7 | LOS A | 0.7 | 18.2 | 0.39 | 0.55 | 31.7 |
| Approach | | 665 | 2.0 | 0.751 | 17.0 | LOS B | 9.6 | 244.8 | 0.87 | 1.02 | 26.7 |
| East: RoadName | | | | | | | | | | | |
| 1 | L | 125 | 2.0 | 0.790 | 41.7 | LOS D | 9.3 | 236.0 | 1.00 | 1.30 | 18.8 |
| 6 | T | 140 | 2.0 | 0.790 | 35.9 | LOS D | 9.3 | 236.0 | 1.00 | 1.30 | 19.3 |
| 16 | R | 46 | 2.0 | 0.790 | 36.1 | LOS D | 9.3 | 236.0 | 1.00 | 1.30 | 19.3 |
| Approach | | 311 | 2.0 | 0.790 | 38.2 | LOS D | 9.3 | 236.0 | 1.00 | 1.30 | 19.1 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 10 | 2.0 | 0.834 | 30.8 | LOS C | 12.3 | 312.8 | 1.00 | 1.29 | 22.0 |
| 4 | T | 315 | 2.0 | 0.834 | 25.0 | LOS C | 12.3 | 312.8 | 1.00 | 1.29 | 23.0 |
| 14 | R | 193 | 2.0 | 0.834 | 25.8 | LOS C | 12.3 | 312.8 | 1.00 | 1.29 | 22.9 |
| Approach | | 518 | 2.0 | 0.834 | 25.4 | LOS C | 12.3 | 312.8 | 1.00 | 1.29 | 23.0 |
| North West: RoadName | | | | | | | | | | | |
| 7X | L | 35 | 1.4 | 1.031 | 77.2 | LOS F | 24.7 | 626.9 | 1.00 | 1.83 | 12.8 |
| 14X | R | 421 | 2.0 | 1.031 | 72.2 | LOS F | 24.7 | 626.9 | 1.00 | 1.83 | 12.8 |
| Approach | | 455 | 2.0 | 1.031 | 72.6 | LOS F | 24.7 | 626.9 | 1.00 | 1.83 | 12.8 |
| West: RoadName | | | | | | | | | | | |
| 5 | L | 387 | 2.0 | 0.772 | 29.3 | LOS C | 10.6 | 268.5 | 1.00 | 1.27 | 22.2 |
| 2 | T | 127 | 2.0 | 0.772 | 23.3 | LOS C | 10.6 | 268.5 | 1.00 | 1.27 | 23.2 |
| 12 | R | 88 | 2.0 | 0.127 | 11.2 | LOS B | 0.8 | 19.6 | 0.74 | 0.76 | 30.1 |
| Approach | | 602 | 2.0 | 0.772 | 25.4 | LOS C | 10.6 | 268.5 | 0.96 | 1.19 | 23.3 |
| All Vehicles | | 2552 | 2.0 | 1.031 | 33.2 | LOS C | 24.7 | 626.9 | 0.96 | 1.30 | 20.4 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: E+P AM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 672 | 2.0 | 0.624 | 8.0 | LOS A | 5.5 | 140.2 | 0.55 | 0.58 | 31.3 |
| 18 | R | 5 | 2.0 | 0.624 | 8.9 | LOS A | 5.5 | 140.2 | 0.55 | 0.63 | 31.2 |
| Approach | | 677 | 2.0 | 0.624 | 8.0 | LOS A | 5.5 | 140.2 | 0.55 | 0.58 | 31.3 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 188 | 2.0 | 0.341 | 13.2 | LOS B | 2.1 | 53.6 | 0.80 | 0.89 | 28.8 |
| Approach | | 188 | 2.0 | 0.341 | 13.2 | LOS B | 2.1 | 53.6 | 0.80 | 0.89 | 28.8 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 135 | 2.0 | 0.085 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 135 | 2.0 | 0.085 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 1000 | 2.0 | 0.624 | 9.5 | LOS A | 5.5 | 140.2 | 0.53 | 0.66 | 30.6 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.





SIDRA INTERSECTION

# MOVEMENT SUMMARY

**Site: E+P PM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 605 | 2.0 | 0.642 | 8.4 | LOS A | 5.7 | 143.9 | 0.62 | 0.62 | 31.0 |
| 18 | R | 59 | 2.0 | 0.642 | 9.4 | LOS A | 5.7 | 143.9 | 0.62 | 0.66 | 31.0 |
| Approach | | 664 | 2.0 | 0.642 | 8.5 | LOS A | 5.7 | 143.9 | 0.62 | 0.62 | 31.0 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 186 | 2.0 | 0.316 | 12.4 | LOS B | 1.9 | 49.4 | 0.77 | 0.86 | 29.4 |
| Approach | | 186 | 2.0 | 0.316 | 12.4 | LOS B | 1.9 | 49.4 | 0.77 | 0.86 | 29.4 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 165 | 2.0 | 0.104 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 165 | 2.0 | 0.104 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 1015 | 2.0 | 0.642 | 9.8 | LOS A | 5.7 | 143.9 | 0.55 | 0.68 | 30.5 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.





SIDRA INTERSECTION

# MOVEMENT SUMMARY

**Site: C+P AM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 609 | 2.0 | 0.592 | 8.0 | LOS A | 4.9 | 125.3 | 0.54 | 0.59 | 31.3 |
| 18 | R | 21 | 2.0 | 0.592 | 9.0 | LOS A | 4.9 | 125.3 | 0.54 | 0.64 | 31.2 |
| Approach | | 629 | 2.0 | 0.592 | 8.0 | LOS A | 4.9 | 125.3 | 0.54 | 0.59 | 31.3 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 203 | 2.0 | 0.342 | 12.5 | LOS B | 2.1 | 53.5 | 0.78 | 0.87 | 29.3 |
| Approach | | 203 | 2.0 | 0.342 | 12.5 | LOS B | 2.1 | 53.5 | 0.78 | 0.87 | 29.3 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 145 | 2.0 | 0.091 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 145 | 2.0 | 0.091 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 977 | 2.0 | 0.592 | 9.6 | LOS A | 4.9 | 125.3 | 0.51 | 0.67 | 30.7 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P PM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 180 | 2.0 | 0.191 | 6.2 | LOS A | 1.0 | 25.6 | 0.02 | 0.49 | 33.8 |
| 18 | R | 116 | 2.0 | 0.191 | 7.2 | LOS A | 1.0 | 25.6 | 0.02 | 0.59 | 33.0 |
| Approach | | 297 | 2.0 | 0.191 | 6.6 | LOS A | 1.0 | 25.6 | 0.02 | 0.53 | 33.5 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 197 | 2.0 | 0.206 | 8.5 | LOS A | 1.1 | 27.4 | 0.40 | 0.60 | 31.5 |
| Approach | | 197 | 2.0 | 0.206 | 8.5 | LOS A | 1.1 | 27.4 | 0.40 | 0.60 | 31.5 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 1 | 2.0 | 0.001 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 1 | 2.0 | 0.001 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 495 | 2.0 | 0.206 | 7.4 | LOS A | 1.1 | 27.4 | 0.17 | 0.56 | 32.6 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P SB Ramp Only AM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 932 | 2.0 | 0.865 | 12.0 | LOS B | 16.6 | 420.7 | 0.94 | 0.73 | 29.6 |
| 18 | R | 21 | 2.0 | 0.865 | 13.0 | LOS B | 16.6 | 420.7 | 0.94 | 0.73 | 29.5 |
| Approach | | 952 | 2.0 | 0.865 | 12.0 | LOS B | 16.6 | 420.7 | 0.94 | 0.73 | 29.6 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 118 | 2.0 | 0.362 | 17.6 | LOS B | 2.5 | 63.0 | 0.95 | 0.99 | 26.4 |
| Approach | | 118 | 2.0 | 0.362 | 17.6 | LOS B | 2.5 | 63.0 | 0.95 | 0.99 | 26.4 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 145 | 2.0 | 0.091 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 145 | 2.0 | 0.091 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 1215 | 2.0 | 0.865 | 12.6 | LOS B | 16.6 | 420.7 | 0.83 | 0.75 | 29.3 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

# MOVEMENT SUMMARY

**Site: C+P - SB Ramp Only PM**

HBG Ave and NB Off Ramp
Roundabout

**Movement Performance - Vehicles**

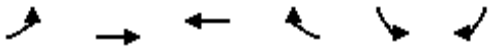
| Mov ID | Turn | Demand Flow veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | 95% Back of Queue Distance ft | Prop. Queued | Effective Stop Rate per veh | Average Speed mph |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South: RoadName | | | | | | | | | | | |
| 8 | T | 729 | 2.0 | 0.894 | 15.5 | LOS B | 20.1 | 511.5 | 1.00 | 0.87 | 27.4 |
| 18 | R | 208 | 2.0 | 0.894 | 16.5 | LOS B | 20.1 | 511.5 | 1.00 | 0.87 | 27.3 |
| Approach | | 937 | 2.0 | 0.894 | 15.8 | LOS B | 20.1 | 511.5 | 1.00 | 0.87 | 27.4 |
| East: RoadName | | | | | | | | | | | |
| 16 | R | 145 | 2.0 | 0.322 | 13.7 | LOS B | 2.1 | 53.9 | 0.88 | 0.93 | 28.5 |
| Approach | | 145 | 2.0 | 0.322 | 13.7 | LOS B | 2.1 | 53.9 | 0.88 | 0.93 | 28.5 |
| North: RoadName | | | | | | | | | | | |
| 7 | L | 176 | 2.0 | 0.111 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| Approach | | 176 | 2.0 | 0.111 | 12.0 | LOS B | 0.0 | 0.0 | 0.00 | 0.73 | 30.0 |
| All Vehicles | | 1258 | 2.0 | 0.894 | 15.0 | LOS B | 20.1 | 511.5 | 0.85 | 0.86 | 27.9 |

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.





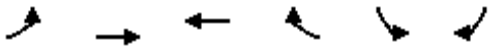
SIDRA INTERSECTION



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 313 | 229 | 0 | 140 | 72 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 340 | 249 | 0 | 152 | 78 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 1182 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 249 | | | | 589 | 249 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 249 | | | | 589 | 249 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 68 | 90 |
| cM capacity (veh/h) | 1317 | | | | 471 | 790 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 340 | 249 | 230 |
| Volume Left | 0 | 0 | 152 |
| Volume Right | 0 | 0 | 78 |
| cSH | 1317 | 1700 | 546 |
| Volume to Capacity | 0.00 | 0.15 | 0.42 |
| Queue Length 95th (ft) | 0 | 0 | 52 |
| Control Delay (s) | 0.0 | 0.0 | 16.3 |
| Lane LOS | | | C |
| Approach Delay (s) | 0.0 | 0.0 | 16.3 |
| Approach LOS | | | C |

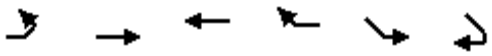
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.6 | | |
| Intersection Capacity Utilization | 35.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 387 | 203 | 0 | 135 | 26 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 421 | 221 | 0 | 147 | 28 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 1182 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 221 | | | | 641 | 221 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 221 | | | | 641 | 221 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 67 | 97 |
| cM capacity (veh/h) | 1349 | | | | 439 | 819 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 421 | 221 | 175 |
| Volume Left | 0 | 0 | 147 |
| Volume Right | 0 | 0 | 28 |
| cSH | 1349 | 1700 | 474 |
| Volume to Capacity | 0.00 | 0.13 | 0.37 |
| Queue Length 95th (ft) | 0 | 0 | 42 |
| Control Delay (s) | 0.0 | 0.0 | 17.0 |
| Lane LOS | | | C |
| Approach Delay (s) | 0.0 | 0.0 | 17.0 |
| Approach LOS | | | C |

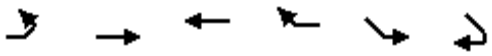
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.6 | | |
| Intersection Capacity Utilization | 36.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 45 | 413 | 232 | 83 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 49 | 449 | 252 | 90 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 807 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 342 | | | | 799 | 252 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 342 | | | | 799 | 252 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 100 |
| cM capacity (veh/h) | 1217 | | | | 340 | 786 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 498 | 252 | 90 |
| Volume Left | 49 | 0 | 0 |
| Volume Right | 0 | 0 | 90 |
| cSH | 1217 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.15 | 0.05 |
| Queue Length 95th (ft) | 3 | 0 | 0 |
| Control Delay (s) | 1.2 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.2 | 0.0 | |
| Approach LOS | | | |

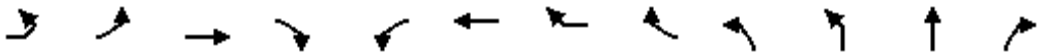
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.7 | | |
| Intersection Capacity Utilization | 43.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 51 | 470 | 203 | 158 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 55 | 511 | 221 | 172 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 807 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 392 | | | | 842 | 221 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 392 | | | | 842 | 221 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 95 | | | | 100 | 100 |
| cM capacity (veh/h) | 1166 | | | | 318 | 819 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 566 | 221 | 172 |
| Volume Left | 55 | 0 | 0 |
| Volume Right | 0 | 0 | 172 |
| cSH | 1166 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.13 | 0.10 |
| Queue Length 95th (ft) | 4 | 0 | 0 |
| Control Delay (s) | 1.3 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.3 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

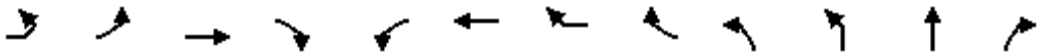


| Movement | EBL2 | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 13 | 46 | 97 | 195 | 86 | 59 | 3 | 4 | 205 | 170 | 325 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 3.6 | 3.5 | | 3.6 | 3.6 | | | 3.5 | 4.0 | 4.0 |
| Lane Util. Factor | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | | 0.98 | 1.00 | | 0.97 | 1.00 | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 1828 | 1583 | | 1809 | 1583 | | | 1770 | 1863 | 1583 |
| Flt Permitted | | | 0.98 | 1.00 | | 0.97 | 1.00 | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 1828 | 1583 | | 1809 | 1583 | | | 1770 | 1863 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 14 | 50 | 105 | 212 | 93 | 64 | 3 | 4 | 223 | 185 | 353 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 140 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 0 | 0 | 169 | 72 | 0 | 157 | 4 | 0 | 0 | 408 | 353 | 59 |
| Turn Type | Split | Split | NA | pm+ov | Split | NA | Perm | | Prot | Prot | NA | custom |
| Protected Phases | 4 | 4 | 4 | 5 | 8 | 8 | | | 5 | 5 | 2 3 | |
| Permitted Phases | | | | 4 | | | 8 | | | | | 2 |
| Actuated Green, G (s) | | | 9.4 | 32.0 | | 11.9 | 11.9 | | | 22.6 | 58.6 | 46.5 |
| Effective Green, g (s) | | | 9.4 | 32.0 | | 11.9 | 11.9 | | | 22.6 | 58.6 | 46.5 |
| Actuated g/C Ratio | | | 0.10 | 0.34 | | 0.13 | 0.13 | | | 0.24 | 0.62 | 0.49 |
| Clearance Time (s) | | | 3.6 | 3.5 | | 3.6 | 3.6 | | | 3.5 | | 4.0 |
| Vehicle Extension (s) | | | 1.5 | 2.0 | | 1.5 | 1.5 | | | 2.0 | | 2.0 |
| Lane Grp Cap (vph) | | | 182 | 535 | | 228 | 199 | | | 423 | 1154 | 778 |
| v/s Ratio Prot | | | c0.09 | 0.03 | | c0.09 | | | | c0.23 | c0.19 | |
| v/s Ratio Perm | | | | 0.01 | | | 0.00 | | | | | 0.04 |
| v/c Ratio | | | 0.93 | 0.13 | | 0.69 | 0.02 | | | 0.96 | 0.31 | 0.08 |
| Uniform Delay, d1 | | | 42.3 | 21.7 | | 39.6 | 36.2 | | | 35.6 | 8.5 | 12.7 |
| Progression Factor | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 45.5 | 0.0 | | 6.7 | 0.0 | | | 34.2 | 0.1 | 0.2 |
| Delay (s) | | | 87.8 | 21.7 | | 46.3 | 36.2 | | | 69.8 | 8.5 | 12.9 |
| Level of Service | | | F | C | | D | D | | | E | A | B |
| Approach Delay (s) | | | 51.0 | | | 45.9 | | | | | 37.5 | |
| Approach LOS | | | D | | | D | | | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 94.6 | Sum of lost time (s) | 10.7 |
| Intersection Capacity Utilization | 62.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 | SER | SER2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 6 | 211 | 28 | 7 | 87 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 5.6 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.88 | 1.00 |
| Frt | 1.00 | 0.98 | | | 0.85 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3464 | | | 2787 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3464 | | | 2787 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 7 | 229 | 30 | 8 | 95 | 41 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 7 | 265 | 0 | 0 | 95 | 4 |
| Turn Type | Prot | NA | | | custom | custom |
| Protected Phases | 1 | 6 | | | 3 | 3 |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 0.5 | 22.3 | | | 8.1 | 8.1 |
| Effective Green, g (s) | 0.5 | 22.3 | | | 8.1 | 8.1 |
| Actuated g/C Ratio | 0.01 | 0.24 | | | 0.09 | 0.09 |
| Clearance Time (s) | 3.0 | 5.6 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 1.0 | 1.5 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 9 | 817 | | | 239 | 136 |
| v/s Ratio Prot | 0.00 | 0.08 | | | 0.03 | 0.00 |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.78 | 0.32 | | | 0.40 | 0.03 |
| Uniform Delay, d1 | 47.0 | 29.9 | | | 40.9 | 39.6 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 157.6 | 1.1 | | | 0.4 | 0.0 |
| Delay (s) | 204.6 | 31.0 | | | 41.3 | 39.7 |
| Level of Service | F | C | | | D | D |
| Approach Delay (s) | | 35.4 | | | | |
| Approach LOS | | D | | | | |

| Intersection Summary |
|---|

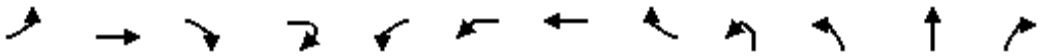


| Movement | EBL2 | EBL | EBT | EBR | WBL | WBT | WBR | WBR2 | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 11 | 67 | 62 | 212 | 79 | 62 | 11 | 12 | 141 | 185 | 343 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 3.6 | 3.5 | | 3.6 | 3.6 | | | 3.5 | 4.0 | 4.0 |
| Lane Util. Factor | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | | | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | | 0.97 | 1.00 | | 0.97 | 1.00 | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 1812 | 1583 | | 1812 | 1583 | | | 1770 | 1863 | 1583 |
| Flt Permitted | | | 0.97 | 1.00 | | 0.97 | 1.00 | | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 1812 | 1583 | | 1812 | 1583 | | | 1770 | 1863 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 73 | 67 | 230 | 86 | 67 | 12 | 13 | 153 | 201 | 373 | 100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 158 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 0 | 0 | 152 | 72 | 0 | 153 | 14 | 0 | 0 | 354 | 373 | 46 |
| Turn Type | Split | Split | NA | pm+ov | Split | NA | Perm | | Prot | Prot | NA | custom |
| Protected Phases | 4 | 4 | 4 | 5 | 8 | 8 | | | 5 | 5 | 2 3 | |
| Permitted Phases | | | | 4 | | | 8 | | | | | 2 |
| Actuated Green, G (s) | | | 9.4 | 31.8 | | 12.2 | 12.2 | | | 22.4 | 65.1 | 46.3 |
| Effective Green, g (s) | | | 9.4 | 31.8 | | 12.2 | 12.2 | | | 22.4 | 65.1 | 46.3 |
| Actuated g/C Ratio | | | 0.09 | 0.31 | | 0.12 | 0.12 | | | 0.22 | 0.64 | 0.46 |
| Clearance Time (s) | | | 3.6 | 3.5 | | 3.6 | 3.6 | | | 3.5 | | 4.0 |
| Vehicle Extension (s) | | | 1.5 | 2.0 | | 1.5 | 1.5 | | | 2.0 | | 2.0 |
| Lane Grp Cap (vph) | | | 168 | 496 | | 218 | 190 | | | 391 | 1195 | 722 |
| v/s Ratio Prot | | | c0.08 | 0.03 | | c0.08 | | | | c0.20 | 0.20 | |
| v/s Ratio Perm | | | | 0.01 | | | 0.01 | | | | | 0.03 |
| v/c Ratio | | | 0.90 | 0.15 | | 0.70 | 0.07 | | | 0.91 | 0.31 | 0.06 |
| Uniform Delay, d1 | | | 45.6 | 25.1 | | 42.9 | 39.6 | | | 38.5 | 8.2 | 15.5 |
| Progression Factor | | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 42.1 | 0.0 | | 8.1 | 0.1 | | | 23.3 | 0.1 | 0.2 |
| Delay (s) | | | 87.7 | 25.1 | | 51.0 | 39.7 | | | 61.9 | 8.2 | 15.6 |
| Level of Service | | | F | C | | D | D | | | E | A | B |
| Approach Delay (s) | | | 50.0 | | | 49.4 | | | | | 32.1 | |
| Approach LOS | | | D | | | D | | | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 101.5 | Sum of lost time (s) | 20.3 |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 | SER | SER2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 7 | 295 | 14 | 13 | 302 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 5.6 | | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | | 0.88 | 1.00 |
| Frt | 1.00 | 0.99 | | | 0.85 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3495 | | | 2787 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3495 | | | 2787 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 8 | 321 | 15 | 14 | 328 | 55 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 8 | 348 | 0 | 0 | 328 | 8 |
| Turn Type | Prot | NA | | | custom | custom |
| Protected Phases | 1 | 6 | | | 3 | 3 |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 0.6 | 22.4 | | | 14.8 | 14.8 |
| Effective Green, g (s) | 0.6 | 22.4 | | | 14.8 | 14.8 |
| Actuated g/C Ratio | 0.01 | 0.22 | | | 0.15 | 0.15 |
| Clearance Time (s) | 3.0 | 5.6 | | | 4.0 | 4.0 |
| Vehicle Extension (s) | 1.0 | 1.5 | | | 2.0 | 2.0 |
| Lane Grp Cap (vph) | 10 | 771 | | | 406 | 231 |
| v/s Ratio Prot | 0.00 | c0.10 | | | c0.12 | 0.01 |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.80 | 0.45 | | | 0.81 | 0.03 |
| Uniform Delay, d1 | 50.4 | 34.2 | | | 42.0 | 37.2 |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | 163.6 | 1.9 | | | 10.6 | 0.0 |
| Delay (s) | 213.9 | 36.1 | | | 52.6 | 37.2 |
| Level of Service | F | D | | | D | D |
| Approach Delay (s) | | 40.1 | | | | |
| Approach LOS | | D | | | | |

| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 0 | 4 | 20 | 1 | 29 | 1 | 46 | 6 | 10 | 767 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.99 | |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1770 | 1583 | | | 1770 | 1589 | | | 1770 | 3521 | |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1770 | 1583 | | | 1770 | 1589 | | | 1770 | 3521 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 0 | 4 | 22 | 1 | 32 | 1 | 50 | 7 | 11 | 834 | 30 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 5 | 0 | 0 | 33 | 5 | 0 | 0 | 18 | 860 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 1.3 | 1.3 | | | 2.9 | 2.9 | | | 0.7 | 12.2 | |
| Effective Green, g (s) | | 1.3 | 1.3 | | | 2.9 | 2.9 | | | 0.7 | 12.2 | |
| Actuated g/C Ratio | | 0.04 | 0.04 | | | 0.09 | 0.09 | | | 0.02 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 68 | 61 | | | 152 | 137 | | | 37 | 1275 | |
| v/s Ratio Prot | | c0.01 | | | | c0.02 | 0.00 | | | 0.01 | c0.24 | |
| v/s Ratio Perm | | | 0.00 | | | | | | | | | |
| v/c Ratio | | 0.24 | 0.08 | | | 0.22 | 0.04 | | | 0.49 | 0.67 | |
| Uniform Delay, d1 | | 15.7 | 15.6 | | | 14.3 | 14.1 | | | 16.3 | 9.1 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | 0.2 | | | 0.3 | 0.0 | | | 3.6 | 1.1 | |
| Delay (s) | | 16.4 | 15.8 | | | 14.6 | 14.2 | | | 20.0 | 10.2 | |
| Level of Service | | B | B | | | B | B | | | B | B | |
| Approach Delay (s) | | 16.0 | | | | | 14.3 | | | | 10.4 | |
| Approach LOS | | B | | | | | B | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.1 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 33.7 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 42.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 27 | 117 | 367 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.88 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3129 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3129 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 127 | 399 | 35 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 29 | 554 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 0.3 | 11.6 | | |
| Effective Green, g (s) | 0.3 | 11.6 | | |
| Actuated g/C Ratio | 0.01 | 0.34 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 16 | 1077 | | |
| v/s Ratio Prot | c0.02 | 0.18 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 1.81 | 0.51 | | |
| Uniform Delay, d1 | 16.7 | 8.8 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 536.6 | 0.2 | | |
| Delay (s) | 553.3 | 9.0 | | |
| Level of Service | F | A | | |
| Approach Delay (s) | | 35.7 | | |
| Approach LOS | | D | | |

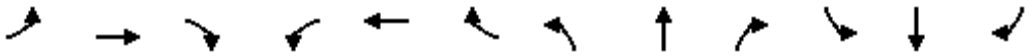
| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | EBR2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 4 | 7 | 26 | 28 | 3 | 30 | 13 | 13 | 665 | 20 | 42 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.5 | 4.5 | | | 4.5 | 4.5 | | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | | 1.00 |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.86 | | | 1.00 | 1.00 | | 1.00 |
| Flt Protected | | 0.96 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (prot) | | 1784 | 1583 | | 1770 | 1607 | | | 1770 | 3524 | | 1770 |
| Flt Permitted | | 0.96 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (perm) | | 1784 | 1583 | | 1770 | 1607 | | | 1770 | 3524 | | 1770 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 4 | 8 | 28 | 30 | 3 | 33 | 14 | 14 | 723 | 22 | 46 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 0 | 31 | 0 | 0 | 0 | 3 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 10 | 0 | 30 | 5 | 0 | 0 | 28 | 742 | 0 | 46 |
| Turn Type | Split | NA | Perm | | Split | NA | | Prot | Prot | NA | | Prot |
| Protected Phases | 2 | 2 | | | 6 | 6 | | 3 | 3 | 8 | | 7 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 2.3 | 2.3 | | 2.8 | 2.8 | | | 0.9 | 19.7 | | 0.9 |
| Effective Green, g (s) | | 2.3 | 2.3 | | 2.8 | 2.8 | | | 0.9 | 19.7 | | 0.9 |
| Actuated g/C Ratio | | 0.05 | 0.05 | | 0.07 | 0.07 | | | 0.02 | 0.46 | | 0.02 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.5 | 4.5 | | | 4.5 | 4.5 | | 4.0 |
| Vehicle Extension (s) | | 1.0 | 1.0 | | 1.0 | 1.0 | | | 1.0 | 1.0 | | 1.0 |
| Lane Grp Cap (vph) | | 96 | 85 | | 116 | 105 | | | 37 | 1626 | | 37 |
| v/s Ratio Prot | | c0.02 | | | c0.02 | 0.00 | | | 0.02 | 0.21 | | c0.03 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.34 | 0.11 | | 0.26 | 0.05 | | | 0.76 | 0.46 | | 1.24 |
| Uniform Delay, d1 | | 19.5 | 19.2 | | 19.0 | 18.7 | | | 20.8 | 7.8 | | 20.9 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 0.8 | 0.2 | | 0.4 | 0.1 | | | 54.5 | 0.1 | | 228.5 |
| Delay (s) | | 20.3 | 19.4 | | 19.4 | 18.8 | | | 75.3 | 7.9 | | 249.4 |
| Level of Service | | C | B | | B | B | | | E | A | | F |
| Approach Delay (s) | | 19.8 | | | | 19.1 | | | | 10.4 | | |
| Approach LOS | | B | | | | B | | | | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 42.7 | Sum of lost time (s) | 16.7 |
| Intersection Capacity Utilization | 54.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBT | SBR | SBR2 |
|---|---|---|---|
| Lane Configurations | | | |
| Volume (vph) | 132 | 636 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | | |
| Lane Util. Factor | 0.95 | | |
| Frt | 0.87 | | |
| Flt Protected | 1.00 | | |
| Satd. Flow (prot) | 3094 | | |
| Flt Permitted | 1.00 | | |
| Satd. Flow (perm) | 3094 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 143 | 691 | 48 |
| RTOR Reduction (vph) | 4 | 0 | 0 |
| Lane Group Flow (vph) | 878 | 0 | 0 |
| Turn Type | NA | | |
| Protected Phases | 4 | | |
| Permitted Phases | | | |
| Actuated Green, G (s) | 19.5 | | |
| Effective Green, g (s) | 19.5 | | |
| Actuated g/C Ratio | 0.46 | | |
| Clearance Time (s) | 4.2 | | |
| Vehicle Extension (s) | 1.0 | | |
| Lane Grp Cap (vph) | 1413 | | |
| v/s Ratio Prot | c0.28 | | |
| v/s Ratio Perm | | | |
| v/c Ratio | 0.62 | | |
| Uniform Delay, d1 | 8.8 | | |
| Progression Factor | 1.00 | | |
| Incremental Delay, d2 | 0.6 | | |
| Delay (s) | 9.4 | | |
| Level of Service | A | | |
| Approach Delay (s) | 21.3 | | |
| Approach LOS | C | | |

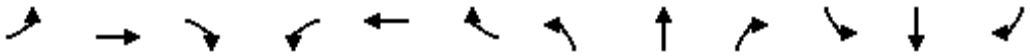
| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 124 | 0 | 0 | 0 | 173 | 0 | 618 | 5 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Yield | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 0 | 135 | 0 | 0 | 0 | 188 | 0 | 672 | 5 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 672 | 672 | 0 | 739 | 672 | 672 | 0 | | | 672 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 672 | 672 | 0 | 739 | 672 | 672 | 0 | | | 672 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 64 | 100 | 100 | 100 | 59 | 100 | | | 100 | | |
| cM capacity (veh/h) | 217 | 377 | 1085 | 241 | 377 | 456 | 1623 | | | 919 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 135 | 188 | 672 | 5 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 188 | 0 | 5 |
| cSH | 377 | 456 | 1700 | 1700 |
| Volume to Capacity | 0.36 | 0.41 | 0.40 | 0.00 |
| Queue Length 95th (ft) | 40 | 50 | 0 | 0 |
| Control Delay (s) | 19.8 | 18.3 | 0.0 | 0.0 |
| Lane LOS | C | C | | |
| Approach Delay (s) | 19.8 | 18.3 | 0.0 | |
| Approach LOS | C | C | | |

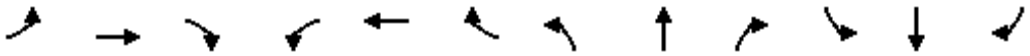
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.1 | | | |
| Intersection Capacity Utilization | 49.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Yield | | | Yield | | | Yield | |
| Volume (vph) | 0 | 144 | 0 | 0 | 0 | 160 | 0 | 547 | 26 | 0 | 0 | 0 |
| 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 |
| Hourly flow rate (vph) | 0 | 157 | 0 | 0 | 0 | 174 | 0 | 595 | 28 | 0 | 0 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 157 | 174 | 595 | 28 |
| Volume Left (vph) | 0 | 0 | 0 | 0 |
| Volume Right (vph) | 0 | 174 | 0 | 28 |
| Hadj (s) | 0.03 | -0.57 | 0.03 | -0.57 |
| Departure Headway (s) | 5.3 | 3.2 | 4.4 | 3.2 |
| Degree Utilization, x | 0.23 | 0.15 | 0.72 | 0.03 |
| Capacity (veh/h) | 618 | 1121 | 803 | 1121 |
| Control Delay (s) | 9.9 | 6.8 | 18.0 | 6.3 |
| Approach Delay (s) | 9.9 | 6.8 | 17.4 | |
| Approach LOS | A | A | C | |

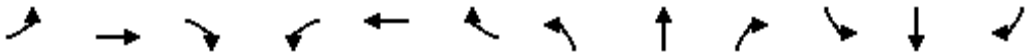
| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.3 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 45.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 37 | 77 | 3 | 3 | 87 | 223 | 4 | 17 | 18 | 266 | 7 | 67 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 40 | 84 | 3 | 3 | 95 | 242 | 4 | 18 | 20 | 289 | 8 | 73 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 337 | | | 87 | | | 465 | 509 | 85 | 417 | 390 | 216 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 337 | | | 87 | | | 465 | 509 | 85 | 417 | 390 | 216 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 100 | | | 99 | 96 | 98 | 43 | 99 | 91 |
| cM capacity (veh/h) | 1222 | | | 1509 | | | 446 | 451 | 974 | 505 | 526 | 824 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 127 | 340 | 42 | 370 |
| Volume Left | 40 | 3 | 4 | 289 |
| Volume Right | 3 | 242 | 20 | 73 |
| cSH | 1222 | 1509 | 598 | 547 |
| Volume to Capacity | 0.03 | 0.00 | 0.07 | 0.68 |
| Queue Length 95th (ft) | 3 | 0 | 6 | 127 |
| Control Delay (s) | 2.7 | 0.1 | 11.5 | 24.2 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 2.7 | 0.1 | 11.5 | 24.2 |
| Approach LOS | | | B | C |

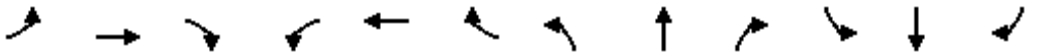
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 11.2 | | |
| Intersection Capacity Utilization | 60.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 36 | 126 | 13 | 7 | 103 | 285 | 5 | 7 | 12 | 177 | 9 | 57 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 39 | 137 | 14 | 8 | 112 | 310 | 5 | 8 | 13 | 192 | 10 | 62 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 422 | | | 151 | | | 571 | 659 | 144 | 521 | 511 | 267 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 422 | | | 151 | | | 571 | 659 | 144 | 521 | 511 | 267 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 99 | | | 99 | 98 | 99 | 56 | 98 | 92 |
| cM capacity (veh/h) | 1137 | | | 1430 | | | 378 | 368 | 903 | 438 | 447 | 772 |

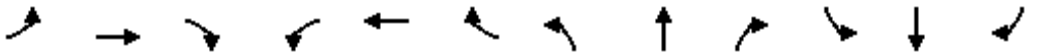
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 190 | 429 | 26 | 264 |
| Volume Left | 39 | 8 | 5 | 192 |
| Volume Right | 14 | 310 | 13 | 62 |
| cSH | 1137 | 1430 | 527 | 488 |
| Volume to Capacity | 0.03 | 0.01 | 0.05 | 0.54 |
| Queue Length 95th (ft) | 3 | 0 | 4 | 79 |
| Control Delay (s) | 2.0 | 0.2 | 12.2 | 20.7 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 2.0 | 0.2 | 12.2 | 20.7 |
| Approach LOS | | | B | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 6.9 | | |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



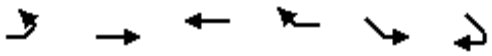
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 201 | 135 | 34 | 245 | 0 | 0 | 0 | 0 | 187 | 0 | 71 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.95 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1761 | | 1770 | 1863 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | 0.52 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1761 | | 968 | 1863 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 218 | 147 | 37 | 266 | 0 | 0 | 0 | 0 | 203 | 0 | 77 |
| RTOR Reduction (vph) | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 0 | 294 | 0 | 37 | 266 | 0 | 0 | 0 | 0 | 0 | 203 | 31 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 7.7 | | 7.7 | 7.7 | | | | | | 10.5 | 10.5 |
| Effective Green, g (s) | | 7.7 | | 7.7 | 7.7 | | | | | | 10.5 | 10.5 |
| Actuated g/C Ratio | | 0.29 | | 0.29 | 0.29 | | | | | | 0.40 | 0.40 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 518 | | 284 | 548 | | | | | | 709 | 634 |
| v/s Ratio Prot | | c0.17 | | | 0.14 | | | | | | c0.11 | |
| v/s Ratio Perm | | | | 0.04 | | | | | | | | 0.02 |
| v/c Ratio | | 0.57 | | 0.13 | 0.49 | | | | | | 0.29 | 0.05 |
| Uniform Delay, d1 | | 7.8 | | 6.8 | 7.6 | | | | | | 5.3 | 4.8 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.4 | | 0.2 | 0.7 | | | | | | 0.2 | 0.0 |
| Delay (s) | | 9.3 | | 7.0 | 8.3 | | | | | | 5.5 | 4.8 |
| Level of Service | | A | | A | A | | | | | | A | A |
| Approach Delay (s) | | 9.3 | | | 8.1 | | | 0.0 | | | 5.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 26.2 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 312 | 113 | 214 | 232 | 0 | 0 | 0 | 0 | 158 | 0 | 42 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1796 | | 1770 | 1863 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | 0.44 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1796 | | 824 | 1863 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 339 | 123 | 233 | 252 | 0 | 0 | 0 | 0 | 172 | 0 | 46 |
| RTOR Reduction (vph) | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 0 | 434 | 0 | 233 | 252 | 0 | 0 | 0 | 0 | 0 | 172 | 12 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 15.1 | | 15.1 | 15.1 | | | | | | 8.4 | 8.4 |
| Effective Green, g (s) | | 15.1 | | 15.1 | 15.1 | | | | | | 8.4 | 8.4 |
| Actuated g/C Ratio | | 0.48 | | 0.48 | 0.48 | | | | | | 0.27 | 0.27 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 861 | | 395 | 893 | | | | | | 472 | 422 |
| v/s Ratio Prot | | 0.24 | | | 0.14 | | | | | | c0.10 | |
| v/s Ratio Perm | | | | c0.28 | | | | | | | | 0.01 |
| v/c Ratio | | 0.50 | | 0.59 | 0.28 | | | | | | 0.36 | 0.03 |
| Uniform Delay, d1 | | 5.6 | | 6.0 | 4.9 | | | | | | 9.4 | 8.5 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.5 | | 2.3 | 0.2 | | | | | | 0.5 | 0.0 |
| Delay (s) | | 6.1 | | 8.2 | 5.1 | | | | | | 9.9 | 8.6 |
| Level of Service | | A | | A | A | | | | | | A | A |
| Approach Delay (s) | | 6.1 | | | 6.6 | | | 0.0 | | | 9.6 | |
| Approach LOS | | A | | | A | | | A | | | A | |

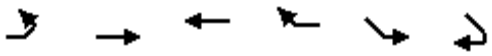
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 31.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 53.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 45 | 347 | 282 | 105 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 49 | 377 | 307 | 114 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 375 | 352 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 421 | | | | 782 | 307 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 421 | | | | 782 | 307 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 100 |
| cM capacity (veh/h) | 1138 | | | | 348 | 733 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 426 | 307 | 114 |
| Volume Left | 49 | 0 | 0 |
| Volume Right | 0 | 0 | 114 |
| cSH | 1138 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.18 | 0.07 |
| Queue Length 95th (ft) | 3 | 0 | 0 |
| Control Delay (s) | 1.4 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.4 | 0.0 | |
| Approach LOS | | | |

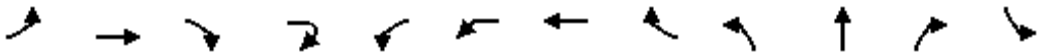
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.7 | | |
| Intersection Capacity Utilization | 42.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 50 | 419 | 446 | 206 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 54 | 455 | 485 | 224 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 375 | 352 | | | |
| pX, platoon unblocked | | | | | 0.97 | |
| vC, conflicting volume | 709 | | | | 1049 | 485 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 709 | | | | 1033 | 485 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 94 | | | | 100 | 100 |
| cM capacity (veh/h) | 890 | | | | 234 | 582 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 510 | 485 | 224 |
| Volume Left | 54 | 0 | 0 |
| Volume Right | 0 | 0 | 224 |
| cSH | 890 | 1700 | 1700 |
| Volume to Capacity | 0.06 | 0.29 | 0.13 |
| Queue Length 95th (ft) | 5 | 0 | 0 |
| Control Delay (s) | 1.7 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.7 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.7 | | |
| Intersection Capacity Utilization | 55.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

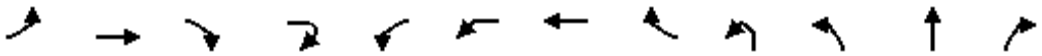


| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 0 | 4 | 20 | 10 | 80 | 1 | 70 | 10 | 853 | 137 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | 1.00 | 0.98 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (prot) | | 1770 | 1583 | | | 1770 | 1587 | | 1770 | 3466 | | 1770 |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (perm) | | 1770 | 1583 | | | 1770 | 1587 | | 1770 | 3466 | | 1770 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 0 | 4 | 22 | 11 | 87 | 1 | 76 | 11 | 927 | 149 | 162 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 66 | 0 | 0 | 20 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 5 | 0 | 0 | 98 | 11 | 0 | 11 | 1056 | 0 | 162 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | NA | | Prot |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 8 | | 7 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 1.5 | 1.5 | | | 4.9 | 4.9 | | 0.9 | 12.3 | | 3.4 |
| Effective Green, g (s) | | 1.5 | 1.5 | | | 4.9 | 4.9 | | 0.9 | 12.3 | | 3.4 |
| Actuated g/C Ratio | | 0.04 | 0.04 | | | 0.13 | 0.13 | | 0.02 | 0.31 | | 0.09 |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.0 |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 |
| Lane Grp Cap (vph) | | 68 | 61 | | | 222 | 199 | | 41 | 1090 | | 154 |
| v/s Ratio Prot | | c0.01 | | | | c0.06 | 0.01 | | 0.01 | c0.30 | | c0.09 |
| v/s Ratio Perm | | | 0.00 | | | | | | | | | |
| v/c Ratio | | 0.24 | 0.08 | | | 0.44 | 0.05 | | 0.27 | 0.97 | | 1.05 |
| Uniform Delay, d1 | | 18.2 | 18.1 | | | 15.8 | 15.1 | | 18.8 | 13.2 | | 17.9 |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 0.7 | 0.2 | | | 0.5 | 0.0 | | 1.3 | 19.8 | | 87.0 |
| Delay (s) | | 18.9 | 18.3 | | | 16.3 | 15.1 | | 20.1 | 33.0 | | 104.8 |
| Level of Service | | B | B | | | B | B | | C | C | | F |
| Approach Delay (s) | | 18.5 | | | | | 15.8 | | | 32.9 | | |
| Approach LOS | | B | | | | | B | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 32.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 39.1 | Sum of lost time (s) | 17.0 |
| Intersection Capacity Utilization | 58.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBT | SBR | SBR2 |
|---|---|---|---|
| Lane Configurations | | | |
| Volume (vph) | 104 | 165 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | | |
| Lane Util. Factor | 0.95 | | |
| Frt | 0.90 | | |
| Flt Protected | 1.00 | | |
| Satd. Flow (prot) | 3192 | | |
| Flt Permitted | 1.00 | | |
| Satd. Flow (perm) | 3192 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 113 | 179 | 35 |
| RTOR Reduction (vph) | 12 | 0 | 0 |
| Lane Group Flow (vph) | 315 | 0 | 0 |
| Turn Type | NA | | |
| Protected Phases | 4 | | |
| Permitted Phases | | | |
| Actuated Green, G (s) | 14.6 | | |
| Effective Green, g (s) | 14.6 | | |
| Actuated g/C Ratio | 0.37 | | |
| Clearance Time (s) | 4.2 | | |
| Vehicle Extension (s) | 1.0 | | |
| Lane Grp Cap (vph) | 1192 | | |
| v/s Ratio Prot | 0.10 | | |
| v/s Ratio Perm | | | |
| v/c Ratio | 0.26 | | |
| Uniform Delay, d1 | 8.5 | | |
| Progression Factor | 1.00 | | |
| Incremental Delay, d2 | 0.0 | | |
| Delay (s) | 8.6 | | |
| Level of Service | A | | |
| Approach Delay (s) | 40.5 | | |
| Approach LOS | D | | |

| Intersection Summary |
|---|

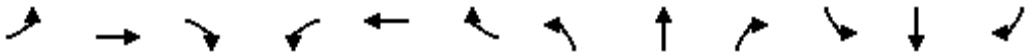


| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 4 | 7 | 26 | 17 | 147 | 3 | 86 | 13 | 13 | 626 | 110 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.98 | |
| Flt Protected | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1784 | 1583 | | | 1770 | 1592 | | | 1770 | 3460 | |
| Flt Permitted | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1784 | 1583 | | | 1770 | 1592 | | | 1770 | 3460 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 4 | 8 | 28 | 18 | 160 | 3 | 93 | 14 | 14 | 680 | 120 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 9 | 0 | 0 | 178 | 16 | 0 | 0 | 28 | 780 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 2.4 | 2.4 | | | 6.8 | 6.8 | | | 1.9 | 17.2 | |
| Effective Green, g (s) | | 2.4 | 2.4 | | | 6.8 | 6.8 | | | 1.9 | 17.2 | |
| Actuated g/C Ratio | | 0.05 | 0.05 | | | 0.14 | 0.14 | | | 0.04 | 0.37 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 91 | 81 | | | 256 | 230 | | | 71 | 1264 | |
| v/s Ratio Prot | | c0.02 | | | | c0.10 | 0.01 | | | 0.02 | 0.23 | |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.36 | 0.12 | | | 0.70 | 0.07 | | | 0.39 | 0.62 | |
| Uniform Delay, d1 | | 21.6 | 21.3 | | | 19.2 | 17.4 | | | 22.0 | 12.2 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.9 | 0.2 | | | 6.5 | 0.0 | | | 1.3 | 0.6 | |
| Delay (s) | | 22.5 | 21.6 | | | 25.6 | 17.5 | | | 23.4 | 12.9 | |
| Level of Service | | C | C | | | C | B | | | C | B | |
| Approach Delay (s) | | 22.0 | | | | | 22.8 | | | | 13.2 | |
| Approach LOS | | C | | | | | C | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 47.1 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 56.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 91 | 120 | 565 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.87 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3095 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3095 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 99 | 130 | 614 | 48 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 |
| Lane Group Flow (vph) | 99 | 786 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 3.7 | 18.8 | | |
| Effective Green, g (s) | 3.7 | 18.8 | | |
| Actuated g/C Ratio | 0.08 | 0.40 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 139 | 1235 | | |
| v/s Ratio Prot | c0.06 | c0.25 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 0.71 | 0.64 | | |
| Uniform Delay, d1 | 21.2 | 11.4 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 13.4 | 0.8 | | |
| Delay (s) | 34.5 | 12.2 | | |
| Level of Service | C | B | | |
| Approach Delay (s) | | 14.7 | | |
| Approach LOS | | B | | |

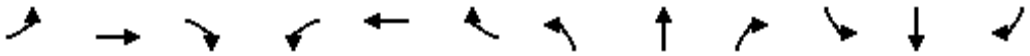
| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 52 | 83 | 3 | 3 | 68 | 384 | 4 | 17 | 18 | 228 | 7 | 67 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 57 | 90 | 3 | 3 | 74 | 417 | 4 | 18 | 20 | 248 | 8 | 73 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 491 | | | 93 | | | 571 | 703 | 92 | 523 | 496 | 283 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 491 | | | 93 | | | 571 | 703 | 92 | 523 | 496 | 283 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 100 | | | 99 | 95 | 98 | 41 | 98 | 90 |
| cM capacity (veh/h) | 1072 | | | 1501 | | | 369 | 342 | 966 | 418 | 449 | 756 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 150 | 495 | 42 | 328 |
| Volume Left | 57 | 3 | 4 | 248 |
| Volume Right | 3 | 417 | 20 | 73 |
| cSH | 1072 | 1501 | 493 | 465 |
| Volume to Capacity | 0.05 | 0.00 | 0.09 | 0.71 |
| Queue Length 95th (ft) | 4 | 0 | 7 | 136 |
| Control Delay (s) | 3.5 | 0.1 | 13.0 | 29.2 |
| Lane LOS | A | A | B | D |
| Approach Delay (s) | 3.5 | 0.1 | 13.0 | 29.2 |
| Approach LOS | | | B | D |

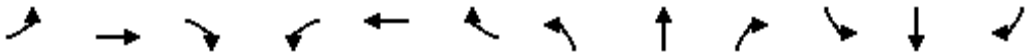
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 10.5 | | |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 49 | 115 | 13 | 7 | 90 | 295 | 5 | 7 | 12 | 212 | 9 | 62 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 53 | 125 | 14 | 8 | 98 | 321 | 5 | 8 | 13 | 230 | 10 | 67 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 418 | | | 139 | | | 584 | 672 | 132 | 529 | 519 | 258 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 418 | | | 139 | | | 584 | 672 | 132 | 529 | 519 | 258 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 99 | | | 99 | 98 | 99 | 46 | 98 | 91 |
| cM capacity (veh/h) | 1141 | | | 1444 | | | 365 | 357 | 917 | 429 | 437 | 780 |

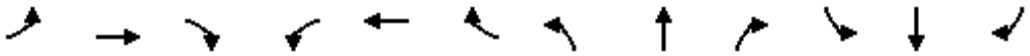
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 192 | 426 | 26 | 308 |
| Volume Left | 53 | 8 | 5 | 230 |
| Volume Right | 14 | 321 | 13 | 67 |
| cSH | 1141 | 1444 | 518 | 476 |
| Volume to Capacity | 0.05 | 0.01 | 0.05 | 0.65 |
| Queue Length 95th (ft) | 4 | 0 | 4 | 113 |
| Control Delay (s) | 2.6 | 0.2 | 12.3 | 25.3 |
| Lane LOS | A | A | B | D |
| Approach Delay (s) | 2.6 | 0.2 | 12.3 | 25.3 |
| Approach LOS | | | B | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.1 | | |
| Intersection Capacity Utilization | 65.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



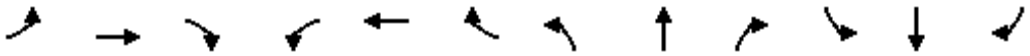
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 33 | 149 | 34 | 95 | 172 | 0 | 15 | 7 | 59 | 6 | 50 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | | 0.90 | | | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1811 | | 1770 | 1863 | | | 1665 | | | 1739 | |
| Flt Permitted | 0.64 | 1.00 | | 0.63 | 1.00 | | | 0.96 | | | 0.99 | |
| Satd. Flow (perm) | 1192 | 1811 | | 1179 | 1863 | | | 1612 | | | 1726 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 36 | 162 | 37 | 103 | 187 | 0 | 16 | 8 | 64 | 7 | 54 | 54 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 24 | 0 |
| Lane Group Flow (vph) | 36 | 172 | 0 | 103 | 187 | 0 | 0 | 59 | 0 | 0 | 91 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 7.6 | 7.6 | | 7.6 | 7.6 | | | 18.9 | | | 18.9 | |
| Effective Green, g (s) | 7.6 | 7.6 | | 7.6 | 7.6 | | | 18.9 | | | 18.9 | |
| Actuated g/C Ratio | 0.22 | 0.22 | | 0.22 | 0.22 | | | 0.55 | | | 0.55 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 263 | 399 | | 260 | 410 | | | 883 | | | 946 | |
| v/s Ratio Prot | | 0.10 | | | c0.10 | | | | | | | |
| v/s Ratio Perm | 0.03 | | | 0.09 | | | | 0.04 | | | c0.05 | |
| v/c Ratio | 0.14 | 0.43 | | 0.40 | 0.46 | | | 0.07 | | | 0.10 | |
| Uniform Delay, d1 | 10.8 | 11.6 | | 11.5 | 11.7 | | | 3.7 | | | 3.7 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.8 | | 1.0 | 0.8 | | | 0.1 | | | 0.2 | |
| Delay (s) | 11.1 | 12.3 | | 12.5 | 12.5 | | | 3.8 | | | 3.9 | |
| Level of Service | B | B | | B | B | | | A | | | A | |
| Approach Delay (s) | | 12.1 | | | 12.5 | | | 3.8 | | | 3.9 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.20 | | |
| Actuated Cycle Length (s) | 34.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 35.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



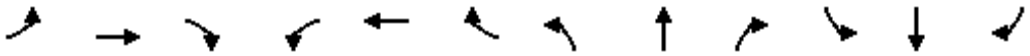
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 26 | 117 | 30 | 118 | 373 | 0 | 51 | 16 | 135 | 0 | 16 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | 1.00 | 1.00 | | | 0.91 | | | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1805 | | 1770 | 1863 | | | 1673 | | | 1632 | |
| Flt Permitted | 0.39 | 1.00 | | 0.66 | 1.00 | | | 0.90 | | | 1.00 | |
| Satd. Flow (perm) | 732 | 1805 | | 1221 | 1863 | | | 1517 | | | 1632 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 28 | 127 | 33 | 128 | 405 | 0 | 55 | 17 | 147 | 0 | 17 | 189 |
| RTOR Reduction (vph) | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 105 | 0 |
| Lane Group Flow (vph) | 28 | 138 | 0 | 128 | 405 | 0 | 0 | 138 | 0 | 0 | 101 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 12.8 | 12.8 | | 12.8 | 12.8 | | | 16.8 | | | 16.8 | |
| Effective Green, g (s) | 12.8 | 12.8 | | 12.8 | 12.8 | | | 16.8 | | | 16.8 | |
| Actuated g/C Ratio | 0.34 | 0.34 | | 0.34 | 0.34 | | | 0.45 | | | 0.45 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 249 | 614 | | 416 | 634 | | | 678 | | | 729 | |
| v/s Ratio Prot | | 0.08 | | | c0.22 | | | | | | 0.06 | |
| v/s Ratio Perm | 0.04 | | | 0.10 | | | | c0.09 | | | | |
| v/c Ratio | 0.11 | 0.23 | | 0.31 | 0.64 | | | 0.20 | | | 0.14 | |
| Uniform Delay, d1 | 8.5 | 8.9 | | 9.1 | 10.5 | | | 6.3 | | | 6.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.2 | | 0.4 | 2.1 | | | 0.7 | | | 0.4 | |
| Delay (s) | 8.7 | 9.0 | | 9.6 | 12.6 | | | 7.0 | | | 6.5 | |
| Level of Service | A | A | | A | B | | | A | | | A | |
| Approach Delay (s) | | 9.0 | | | 11.8 | | | 7.0 | | | 6.5 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 9.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 37.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



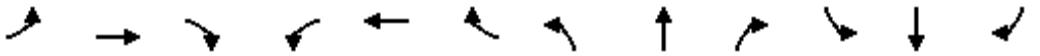
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 1 | 45 | 0 | 6 | 85 | 129 | 683 | 0 | 26 | 563 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.87 | | | 0.87 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1616 | | | 1629 | | 1770 | 1863 | | 1770 | 1863 | |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.39 | 1.00 | | 0.31 | 1.00 | |
| Satd. Flow (perm) | | 1616 | | | 1629 | | 726 | 1863 | | 572 | 1863 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 1 | 49 | 0 | 7 | 92 | 140 | 742 | 0 | 28 | 612 | 0 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 7 | 0 | 0 | 18 | 0 | 140 | 742 | 0 | 28 | 612 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 4.2 | | | 4.2 | | 22.8 | 22.8 | | 22.8 | 22.8 | |
| Effective Green, g (s) | | 4.2 | | | 4.2 | | 22.8 | 22.8 | | 22.8 | 22.8 | |
| Actuated g/C Ratio | | 0.12 | | | 0.12 | | 0.65 | 0.65 | | 0.65 | 0.65 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 194 | | | 195 | | 473 | 1214 | | 373 | 1214 | |
| v/s Ratio Prot | | 0.00 | | | c0.01 | | | c0.40 | | | 0.33 | |
| v/s Ratio Perm | | | | | | | 0.19 | | | 0.05 | | |
| v/c Ratio | | 0.04 | | | 0.09 | | 0.30 | 0.61 | | 0.08 | 0.50 | |
| Uniform Delay, d1 | | 13.6 | | | 13.7 | | 2.6 | 3.5 | | 2.2 | 3.2 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.1 | | | 0.2 | | 1.6 | 2.3 | | 0.4 | 1.5 | |
| Delay (s) | | 13.7 | | | 13.9 | | 4.2 | 5.8 | | 2.6 | 4.7 | |
| Level of Service | | B | | | B | | A | A | | A | A | |
| Approach Delay (s) | | 13.7 | | | 13.9 | | | 5.6 | | | 4.6 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.53 | | |
| Actuated Cycle Length (s) | 35.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



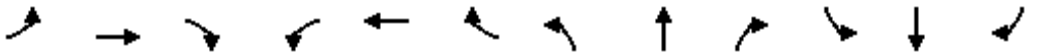
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 12 | 150 | 0 | 12 | 146 | 86 | 689 | 0 | 134 | 655 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.87 | | | 0.88 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1630 | | | 1630 | | 1770 | 1863 | | 1770 | 1863 | |
| Flt Permitted | | 1.00 | | | 1.00 | | 0.31 | 1.00 | | 0.28 | 1.00 | |
| Satd. Flow (perm) | | 1630 | | | 1630 | | 569 | 1863 | | 525 | 1863 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 13 | 163 | 0 | 13 | 159 | 93 | 749 | 0 | 146 | 712 | 0 |
| RTOR Reduction (vph) | 0 | 85 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 91 | 0 | 0 | 96 | 0 | 93 | 749 | 0 | 146 | 712 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 6.8 | | | 6.8 | | 25.2 | 25.2 | | 25.2 | 25.2 | |
| Effective Green, g (s) | | 6.8 | | | 6.8 | | 25.2 | 25.2 | | 25.2 | 25.2 | |
| Actuated g/C Ratio | | 0.17 | | | 0.17 | | 0.63 | 0.63 | | 0.63 | 0.63 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 277 | | | 277 | | 358 | 1174 | | 331 | 1174 | |
| v/s Ratio Prot | | 0.06 | | | c0.06 | | | c0.40 | | | 0.38 | |
| v/s Ratio Perm | | | | | | | 0.16 | | | 0.28 | | |
| v/c Ratio | | 0.33 | | | 0.35 | | 0.26 | 0.64 | | 0.44 | 0.61 | |
| Uniform Delay, d1 | | 14.6 | | | 14.6 | | 3.3 | 4.6 | | 3.8 | 4.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | | | 0.8 | | 1.8 | 2.7 | | 4.2 | 2.3 | |
| Delay (s) | | 15.3 | | | 15.4 | | 5.0 | 7.2 | | 8.0 | 6.8 | |
| Level of Service | | B | | | B | | A | A | | A | A | |
| Approach Delay (s) | | 15.3 | | | 15.4 | | | 7.0 | | | 7.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 40.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 323 | 160 | 46 | 245 | 0 | 0 | 0 | 0 | 156 | 0 | 79 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1779 | | 1770 | 1863 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | 0.36 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1779 | | 679 | 1863 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 351 | 174 | 50 | 266 | 0 | 0 | 0 | 0 | 170 | 0 | 86 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 0 | 483 | 0 | 50 | 266 | 0 | 0 | 0 | 0 | 0 | 170 | 25 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 12.5 | | 12.5 | 12.5 | | | | | | 8.5 | 8.5 |
| Effective Green, g (s) | | 12.5 | | 12.5 | 12.5 | | | | | | 8.5 | 8.5 |
| Actuated g/C Ratio | | 0.43 | | 0.43 | 0.43 | | | | | | 0.29 | 0.29 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 767 | | 293 | 803 | | | | | | 519 | 464 |
| v/s Ratio Prot | | c0.27 | | | 0.14 | | | | | | c0.10 | |
| v/s Ratio Perm | | | | 0.07 | | | | | | | | 0.02 |
| v/c Ratio | | 0.63 | | 0.17 | 0.33 | | | | | | 0.33 | 0.05 |
| Uniform Delay, d1 | | 6.4 | | 5.1 | 5.5 | | | | | | 8.0 | 7.4 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.6 | | 0.3 | 0.2 | | | | | | 0.4 | 0.0 |
| Delay (s) | | 8.1 | | 5.3 | 5.7 | | | | | | 8.4 | 7.4 |
| Level of Service | | A | | A | A | | | | | | A | A |
| Approach Delay (s) | | 8.1 | | | 5.7 | | | 0.0 | | | 8.1 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.4 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 29.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 397 | 127 | 220 | 282 | 0 | 0 | 0 | 0 | 145 | 0 | 77 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.97 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1802 | | 1770 | 1863 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | 0.35 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1802 | | 651 | 1863 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 432 | 138 | 239 | 307 | 0 | 0 | 0 | 0 | 158 | 0 | 84 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| Lane Group Flow (vph) | 0 | 546 | 0 | 239 | 307 | 0 | 0 | 0 | 0 | 0 | 158 | 22 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 16.1 | | 16.1 | 16.1 | | | | | | 8.4 | 8.4 |
| Effective Green, g (s) | | 16.1 | | 16.1 | 16.1 | | | | | | 8.4 | 8.4 |
| Actuated g/C Ratio | | 0.50 | | 0.50 | 0.50 | | | | | | 0.26 | 0.26 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 893 | | 322 | 923 | | | | | | 457 | 409 |
| v/s Ratio Prot | | 0.30 | | | 0.16 | | | | | | c0.09 | |
| v/s Ratio Perm | | | | c0.37 | | | | | | | | 0.01 |
| v/c Ratio | | 0.61 | | 0.74 | 0.33 | | | | | | 0.35 | 0.05 |
| Uniform Delay, d1 | | 5.9 | | 6.5 | 5.0 | | | | | | 9.8 | 9.1 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.2 | | 8.9 | 0.2 | | | | | | 0.5 | 0.1 |
| Delay (s) | | 7.2 | | 15.5 | 5.2 | | | | | | 10.3 | 9.1 |
| Level of Service | | A | | B | A | | | | | | B | A |
| Approach Delay (s) | | 7.2 | | | 9.7 | | | 0.0 | | | 9.9 | |
| Approach LOS | | A | | | A | | | A | | | A | |

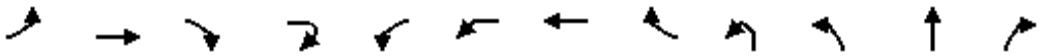
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.7 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 32.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 58.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL2 | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Volume (vph) | 47 | 423 | 0 | 0 | 242 | 89 | 86 | 0 | 236 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 0.90 | | | |
| Flt Protected | | 1.00 | | | 1.00 | 1.00 | | 0.99 | | | |
| Satd. Flow (prot) | | 1853 | | | 1863 | 1583 | | 1656 | | | |
| Flt Permitted | | 0.95 | | | 1.00 | 1.00 | | 0.99 | | | |
| Satd. Flow (perm) | | 1765 | | | 1863 | 1583 | | 1656 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 51 | 460 | 0 | 0 | 263 | 97 | 93 | 0 | 257 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 174 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 511 | 0 | 0 | 263 | 43 | 0 | 176 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | Perm | Perm | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | |
| Actuated Green, G (s) | | 13.1 | | | 13.1 | 13.1 | | 8.4 | | | |
| Effective Green, g (s) | | 13.1 | | | 13.1 | 13.1 | | 8.4 | | | |
| Actuated g/C Ratio | | 0.44 | | | 0.44 | 0.44 | | 0.28 | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | |
| Lane Grp Cap (vph) | | 784 | | | 827 | 703 | | 472 | | | |
| v/s Ratio Prot | | | | | 0.14 | | | | | | |
| v/s Ratio Perm | | c0.29 | | | | 0.03 | | 0.11 | | | |
| v/c Ratio | | 0.65 | | | 0.32 | 0.06 | | 0.37 | | | |
| Uniform Delay, d1 | | 6.4 | | | 5.3 | 4.7 | | 8.4 | | | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Incremental Delay, d2 | | 2.0 | | | 0.2 | 0.0 | | 0.5 | | | |
| Delay (s) | | 8.4 | | | 5.5 | 4.7 | | 8.9 | | | |
| Level of Service | | A | | | A | A | | A | | | |
| Approach Delay (s) | | 8.4 | | | 5.3 | | | 8.9 | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.6 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 29.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 66.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL2 | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Volume (vph) | 56 | 480 | 0 | 0 | 312 | 173 | 191 | 0 | 294 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 0.92 | | | |
| Flt Protected | | 0.99 | | | 1.00 | 1.00 | | 0.98 | | | |
| Satd. Flow (prot) | | 1853 | | | 1863 | 1583 | | 1677 | | | |
| Flt Permitted | | 0.93 | | | 1.00 | 1.00 | | 0.98 | | | |
| Satd. Flow (perm) | | 1739 | | | 1863 | 1583 | | 1677 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 61 | 522 | 0 | 0 | 339 | 188 | 208 | 0 | 320 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 108 | 0 | 130 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 583 | 0 | 0 | 339 | 80 | 0 | 398 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | Perm | Perm | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | |
| Actuated Green, G (s) | | 14.8 | | | 14.8 | 14.8 | | 12.0 | | | |
| Effective Green, g (s) | | 14.8 | | | 14.8 | 14.8 | | 12.0 | | | |
| Actuated g/C Ratio | | 0.43 | | | 0.43 | 0.43 | | 0.34 | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | |
| Lane Grp Cap (vph) | | 740 | | | 792 | 673 | | 578 | | | |
| v/s Ratio Prot | | | | | 0.18 | | | | | | |
| v/s Ratio Perm | | c0.34 | | | | 0.05 | | 0.24 | | | |
| v/c Ratio | | 0.79 | | | 0.43 | 0.12 | | 0.69 | | | |
| Uniform Delay, d1 | | 8.6 | | | 7.0 | 6.1 | | 9.8 | | | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Incremental Delay, d2 | | 5.6 | | | 0.4 | 0.1 | | 3.4 | | | |
| Delay (s) | | 14.2 | | | 7.4 | 6.1 | | 13.2 | | | |
| Level of Service | | B | | | A | A | | B | | | |
| Approach Delay (s) | | 14.2 | | | 6.9 | | | 13.2 | | 0.0 | |
| Approach LOS | | B | | | A | | | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 34.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 0 | 4 | 20 | 1 | 31 | 1 | 71 | 10 | 10 | 777 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.99 | |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1770 | 1583 | | | 1770 | 1587 | | | 1770 | 3515 | |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1770 | 1583 | | | 1770 | 1587 | | | 1770 | 3515 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 0 | 4 | 22 | 1 | 34 | 1 | 77 | 11 | 11 | 845 | 41 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 5 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 5 | 0 | 0 | 35 | 7 | 0 | 0 | 22 | 881 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 1.4 | 1.4 | | | 3.0 | 3.0 | | | 0.8 | 13.8 | |
| Effective Green, g (s) | | 1.4 | 1.4 | | | 3.0 | 3.0 | | | 0.8 | 13.8 | |
| Actuated g/C Ratio | | 0.04 | 0.04 | | | 0.08 | 0.08 | | | 0.02 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 64 | 57 | | | 137 | 123 | | | 36 | 1250 | |
| v/s Ratio Prot | | c0.01 | | | | c0.02 | 0.00 | | | 0.01 | c0.25 | |
| v/s Ratio Perm | | | 0.00 | | | | | | | | | |
| v/c Ratio | | 0.25 | 0.08 | | | 0.26 | 0.06 | | | 0.61 | 0.70 | |
| Uniform Delay, d1 | | 18.2 | 18.1 | | | 16.8 | 16.6 | | | 18.8 | 10.7 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | 0.2 | | | 0.4 | 0.1 | | | 19.6 | 1.5 | |
| Delay (s) | | 18.9 | 18.3 | | | 17.2 | 16.7 | | | 38.5 | 12.2 | |
| Level of Service | | B | B | | | B | B | | | D | B | |
| Approach Delay (s) | | 18.6 | | | | | 16.8 | | | | 12.9 | |
| Approach LOS | | B | | | | | B | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 38.8 | Sum of lost time (s) | 17.0 |
| Intersection Capacity Utilization | 46.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 68 | 127 | 377 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.89 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3134 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3134 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 74 | 138 | 410 | 35 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 |
| Lane Group Flow (vph) | 74 | 578 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 3.6 | 16.4 | | |
| Effective Green, g (s) | 3.6 | 16.4 | | |
| Actuated g/C Ratio | 0.09 | 0.42 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 164 | 1325 | | |
| v/s Ratio Prot | c0.04 | 0.18 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 0.45 | 0.44 | | |
| Uniform Delay, d1 | 16.7 | 7.9 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 0.7 | 0.1 | | |
| Delay (s) | 17.4 | 8.0 | | |
| Level of Service | B | A | | |
| Approach Delay (s) | | 9.1 | | |
| Approach LOS | | A | | |

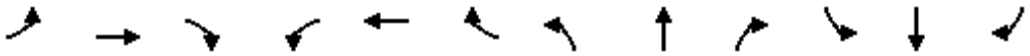
| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | EBR2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 4 | 7 | 26 | 32 | 3 | 90 | 16 | 13 | 675 | 30 | 90 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.5 | 4.5 | | | 4.5 | 4.5 | | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | | 1.00 |
| Frt | | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 0.99 | | 1.00 |
| Flt Protected | | 0.96 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (prot) | | 1784 | 1583 | | 1770 | 1592 | | | 1770 | 3516 | | 1770 |
| Flt Permitted | | 0.96 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (perm) | | 1784 | 1583 | | 1770 | 1592 | | | 1770 | 3516 | | 1770 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 4 | 8 | 28 | 35 | 3 | 98 | 17 | 14 | 734 | 33 | 98 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 0 | 91 | 0 | 0 | 0 | 4 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 10 | 0 | 35 | 10 | 0 | 0 | 31 | 763 | 0 | 98 |
| Turn Type | Split | NA | Perm | | Split | NA | | Prot | Prot | NA | | Prot |
| Protected Phases | 2 | 2 | | | 6 | 6 | | 3 | 3 | 8 | | 7 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 2.4 | 2.4 | | 3.0 | 3.0 | | | 0.9 | 18.3 | | 3.5 |
| Effective Green, g (s) | | 2.4 | 2.4 | | 3.0 | 3.0 | | | 0.9 | 18.3 | | 3.5 |
| Actuated g/C Ratio | | 0.05 | 0.05 | | 0.07 | 0.07 | | | 0.02 | 0.41 | | 0.08 |
| Clearance Time (s) | | 4.0 | 4.0 | | 4.5 | 4.5 | | | 4.5 | 4.5 | | 4.0 |
| Vehicle Extension (s) | | 1.0 | 1.0 | | 1.0 | 1.0 | | | 1.0 | 1.0 | | 1.0 |
| Lane Grp Cap (vph) | | 97 | 86 | | 120 | 108 | | | 36 | 1456 | | 140 |
| v/s Ratio Prot | | c0.02 | | | c0.02 | 0.01 | | | 0.02 | 0.22 | | c0.06 |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.34 | 0.11 | | 0.29 | 0.09 | | | 0.86 | 0.52 | | 0.70 |
| Uniform Delay, d1 | | 20.1 | 19.9 | | 19.6 | 19.3 | | | 21.6 | 9.7 | | 19.8 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 0.8 | 0.2 | | 0.5 | 0.1 | | | 93.1 | 0.2 | | 11.7 |
| Delay (s) | | 20.9 | 20.1 | | 20.1 | 19.4 | | | 114.7 | 9.8 | | 31.5 |
| Level of Service | | C | C | | C | B | | | F | A | | C |
| Approach Delay (s) | | 20.5 | | | | 19.6 | | | | 13.9 | | |
| Approach LOS | | C | | | | B | | | | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 13.3 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 44.2 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 56.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBT | SBR | SBR2 |
|---|---|---|---|
| Lane Configurations | | | |
| Volume (vph) | 140 | 642 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | | |
| Lane Util. Factor | 0.95 | | |
| Frt | 0.88 | | |
| Flt Protected | 1.00 | | |
| Satd. Flow (prot) | 3098 | | |
| Flt Permitted | 1.00 | | |
| Satd. Flow (perm) | 3098 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 152 | 698 | 48 |
| RTOR Reduction (vph) | 4 | 0 | 0 |
| Lane Group Flow (vph) | 894 | 0 | 0 |
| Turn Type | NA | | |
| Protected Phases | 4 | | |
| Permitted Phases | | | |
| Actuated Green, G (s) | 20.7 | | |
| Effective Green, g (s) | 20.7 | | |
| Actuated g/C Ratio | 0.47 | | |
| Clearance Time (s) | 4.2 | | |
| Vehicle Extension (s) | 1.0 | | |
| Lane Grp Cap (vph) | 1451 | | |
| v/s Ratio Prot | c0.29 | | |
| v/s Ratio Perm | | | |
| v/c Ratio | 0.62 | | |
| Uniform Delay, d1 | 8.8 | | |
| Progression Factor | 1.00 | | |
| Incremental Delay, d2 | 0.6 | | |
| Delay (s) | 9.3 | | |
| Level of Service | A | | |
| Approach Delay (s) | 11.5 | | |
| Approach LOS | B | | |

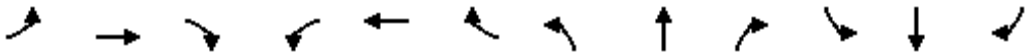
| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 134 | 0 | 0 | 0 | 177 | 0 | 628 | 10 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Yield | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 0 | 146 | 0 | 0 | 0 | 192 | 0 | 683 | 11 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 683 | 683 | 0 | 755 | 683 | 683 | 0 | | | 683 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 683 | 683 | 0 | 755 | 683 | 683 | 0 | | | 683 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 61 | 100 | 100 | 100 | 57 | 100 | | | 100 | | |
| cM capacity (veh/h) | 208 | 372 | 1085 | 226 | 372 | 449 | 1623 | | | 910 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 146 | 192 | 683 | 11 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 192 | 0 | 11 |
| cSH | 372 | 449 | 1700 | 1700 |
| Volume to Capacity | 0.39 | 0.43 | 0.40 | 0.01 |
| Queue Length 95th (ft) | 45 | 53 | 0 | 0 |
| Control Delay (s) | 20.8 | 18.9 | 0.0 | 0.0 |
| Lane LOS | C | C | | |
| Approach Delay (s) | 20.8 | 18.9 | 0.0 | |
| Approach LOS | C | C | | |

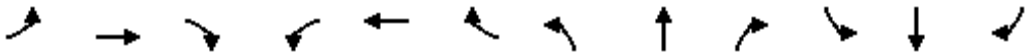
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.5 | | | |
| Intersection Capacity Utilization | 50.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 152 | 0 | 0 | 0 | 171 | 0 | 557 | 54 | 0 | 0 | 0 |
| Sign Control | | Stop | | | Yield | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 0 | 165 | 0 | 0 | 0 | 186 | 0 | 605 | 59 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 605 | 605 | 0 | 688 | 605 | 605 | 0 | | | 605 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 605 | 605 | 0 | 688 | 605 | 605 | 0 | | | 605 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 60 | 100 | 100 | 100 | 63 | 100 | | | 100 | | |
| cM capacity (veh/h) | 256 | 412 | 1085 | 248 | 412 | 497 | 1623 | | | 973 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 165 | 186 | 605 | 59 |
| Volume Left | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 186 | 0 | 59 |
| cSH | 412 | 497 | 1700 | 1700 |
| Volume to Capacity | 0.40 | 0.37 | 0.36 | 0.03 |
| Queue Length 95th (ft) | 47 | 43 | 0 | 0 |
| Control Delay (s) | 19.5 | 16.5 | 0.0 | 0.0 |
| Lane LOS | C | C | | |
| Approach Delay (s) | 19.5 | 16.5 | 0.0 | |
| Approach LOS | C | C | | |

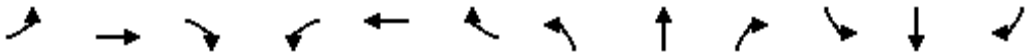
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.2 | | | |
| Intersection Capacity Utilization | 46.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 47 | 87 | 3 | 3 | 91 | 233 | 4 | 17 | 18 | 291 | 17 | 67 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 51 | 95 | 3 | 3 | 99 | 253 | 4 | 18 | 20 | 316 | 18 | 73 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 352 | | | 98 | | | 512 | 557 | 96 | 459 | 432 | 226 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 352 | | | 98 | | | 512 | 557 | 96 | 459 | 432 | 226 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 100 | | | 99 | 96 | 98 | 32 | 96 | 91 |
| cM capacity (veh/h) | 1207 | | | 1495 | | | 403 | 419 | 960 | 468 | 493 | 814 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 149 | 355 | 42 | 408 |
| Volume Left | 51 | 3 | 4 | 316 |
| Volume Right | 3 | 253 | 20 | 73 |
| cSH | 1207 | 1495 | 563 | 508 |
| Volume to Capacity | 0.04 | 0.00 | 0.08 | 0.80 |
| Queue Length 95th (ft) | 3 | 0 | 6 | 190 |
| Control Delay (s) | 3.0 | 0.1 | 11.9 | 34.9 |
| Lane LOS | A | A | B | D |
| Approach Delay (s) | 3.0 | 0.1 | 11.9 | 34.9 |
| Approach LOS | | | B | D |

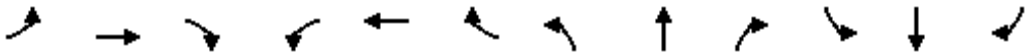
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 16.0 | | |
| Intersection Capacity Utilization | 64.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 59 | 134 | 13 | 7 | 111 | 295 | 5 | 7 | 12 | 182 | 19 | 58 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 64 | 146 | 14 | 8 | 121 | 321 | 5 | 8 | 13 | 198 | 21 | 63 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 441 | | | 160 | | | 651 | 738 | 153 | 594 | 584 | 281 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 441 | | | 160 | | | 651 | 738 | 153 | 594 | 584 | 281 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 94 | | | 99 | | | 98 | 98 | 99 | 48 | 95 | 92 |
| cM capacity (veh/h) | 1119 | | | 1419 | | | 320 | 324 | 893 | 384 | 397 | 758 |

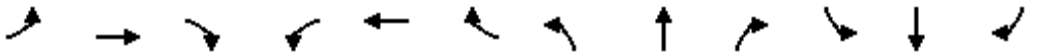
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 224 | 449 | 26 | 282 |
| Volume Left | 64 | 8 | 5 | 198 |
| Volume Right | 14 | 321 | 13 | 63 |
| cSH | 1119 | 1419 | 474 | 433 |
| Volume to Capacity | 0.06 | 0.01 | 0.06 | 0.65 |
| Queue Length 95th (ft) | 5 | 0 | 4 | 113 |
| Control Delay (s) | 2.8 | 0.2 | 13.0 | 27.5 |
| Lane LOS | A | A | B | D |
| Approach Delay (s) | 2.8 | 0.2 | 13.0 | 27.5 |
| Approach LOS | | | B | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 9.0 | | |
| Intersection Capacity Utilization | 66.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 196 | 155 | 46 | 253 | 0 | 0 | 0 | 0 | 194 | 0 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.94 | | | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 0.99 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1752 | | | 1849 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | | 0.88 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1752 | | | 1641 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 213 | 168 | 50 | 275 | 0 | 0 | 0 | 0 | 211 | 0 | 96 |
| RTOR Reduction (vph) | 0 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 0 | 299 | 0 | 0 | 325 | 0 | 0 | 0 | 0 | 0 | 211 | 37 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 8.1 | | | 8.1 | | | | | | 10.3 | 10.3 |
| Effective Green, g (s) | | 8.1 | | | 8.1 | | | | | | 10.3 | 10.3 |
| Actuated g/C Ratio | | 0.31 | | | 0.31 | | | | | | 0.39 | 0.39 |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 538 | | | 503 | | | | | | 691 | 618 |
| v/s Ratio Prot | | 0.17 | | | | | | | | | c0.12 | |
| v/s Ratio Perm | | | | | c0.20 | | | | | | | 0.02 |
| v/c Ratio | | 0.56 | | | 0.65 | | | | | | 0.31 | 0.06 |
| Uniform Delay, d1 | | 7.6 | | | 7.9 | | | | | | 5.6 | 5.0 |
| Progression Factor | | 1.00 | | | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 1.2 | | | 2.9 | | | | | | 0.3 | 0.0 |
| Delay (s) | | 8.9 | | | 10.8 | | | | | | 5.8 | 5.1 |
| Level of Service | | A | | | B | | | | | | A | A |
| Approach Delay (s) | | 8.9 | | | 10.8 | | | 0.0 | | | 5.6 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 26.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.4% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 315 | 125 | 310 | 285 | 0 | 0 | 0 | 0 | 148 | 0 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Frt | | 0.96 | | 1.00 | 1.00 | | | | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1791 | | 1770 | 1863 | | | | | | 1770 | 1583 |
| Flt Permitted | | 1.00 | | 0.44 | 1.00 | | | | | | 0.95 | 1.00 |
| Satd. Flow (perm) | | 1791 | | 815 | 1863 | | | | | | 1770 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 342 | 136 | 337 | 310 | 0 | 0 | 0 | 0 | 161 | 0 | 95 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| Lane Group Flow (vph) | 0 | 452 | 0 | 337 | 310 | 0 | 0 | 0 | 0 | 0 | 161 | 23 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | 6 |
| Actuated Green, G (s) | | 23.5 | | 23.5 | 23.5 | | | | | | 10.0 | 10.0 |
| Effective Green, g (s) | | 23.5 | | 23.5 | 23.5 | | | | | | 10.0 | 10.0 |
| Actuated g/C Ratio | | 0.57 | | 0.57 | 0.57 | | | | | | 0.24 | 0.24 |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1014 | | 462 | 1055 | | | | | | 427 | 381 |
| v/s Ratio Prot | | 0.25 | | | 0.17 | | | | | | c0.09 | |
| v/s Ratio Perm | | | | c0.41 | | | | | | | | 0.01 |
| v/c Ratio | | 0.45 | | 0.73 | 0.29 | | | | | | 0.38 | 0.06 |
| Uniform Delay, d1 | | 5.2 | | 6.7 | 4.7 | | | | | | 13.1 | 12.1 |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.3 | | 5.7 | 0.2 | | | | | | 0.6 | 0.1 |
| Delay (s) | | 5.5 | | 12.4 | 4.8 | | | | | | 13.7 | 12.2 |
| Level of Service | | A | | B | A | | | | | | B | B |
| Approach Delay (s) | | 5.5 | | | 8.8 | | | 0.0 | | | 13.1 | |
| Approach LOS | | A | | | A | | | A | | | B | |

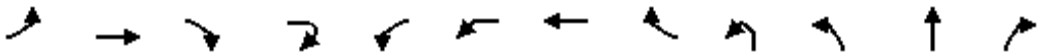
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.62 | | |
| Actuated Cycle Length (s) | 41.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 59.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL2 | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Volume (vph) | 54 | 340 | 0 | 0 | 216 | 107 | 86 | 0 | 352 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 0.89 | | | |
| Flt Protected | | 0.99 | | | 1.00 | 1.00 | | 0.99 | | | |
| Satd. Flow (prot) | | 1850 | | | 1863 | 1583 | | 1644 | | | |
| Flt Permitted | | 0.93 | | | 1.00 | 1.00 | | 0.99 | | | |
| Satd. Flow (perm) | | 1730 | | | 1863 | 1583 | | 1644 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 59 | 370 | 0 | 0 | 235 | 116 | 93 | 0 | 383 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 69 | 0 | 223 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 429 | 0 | 0 | 235 | 47 | 0 | 253 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | Perm | Perm | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | |
| Actuated Green, G (s) | | 11.9 | | | 11.9 | 11.9 | | 9.4 | | | |
| Effective Green, g (s) | | 11.9 | | | 11.9 | 11.9 | | 9.4 | | | |
| Actuated g/C Ratio | | 0.41 | | | 0.41 | 0.41 | | 0.32 | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | |
| Lane Grp Cap (vph) | | 703 | | | 757 | 643 | | 527 | | | |
| v/s Ratio Prot | | | | | 0.13 | | | | | | |
| v/s Ratio Perm | | c0.25 | | | | 0.03 | | 0.15 | | | |
| v/c Ratio | | 0.61 | | | 0.31 | 0.07 | | 0.48 | | | |
| Uniform Delay, d1 | | 6.9 | | | 5.9 | 5.3 | | 8.0 | | | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Incremental Delay, d2 | | 1.6 | | | 0.2 | 0.0 | | 0.7 | | | |
| Delay (s) | | 8.4 | | | 6.1 | 5.4 | | 8.7 | | | |
| Level of Service | | A | | | A | A | | A | | | |
| Approach Delay (s) | | 8.4 | | | 5.9 | | | 8.7 | | 0.0 | |
| Approach LOS | | A | | | A | | | A | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.8 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 29.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 68.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL2 | NBL | NBR | SEL | SER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Volume (vph) | 65 | 407 | 0 | 0 | 421 | 224 | 174 | 0 | 361 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Lane Util. Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Frt | | 1.00 | | | 1.00 | 0.85 | | 0.91 | | | |
| Flt Protected | | 0.99 | | | 1.00 | 1.00 | | 0.98 | | | |
| Satd. Flow (prot) | | 1850 | | | 1863 | 1583 | | 1666 | | | |
| Flt Permitted | | 0.89 | | | 1.00 | 1.00 | | 0.98 | | | |
| Satd. Flow (perm) | | 1658 | | | 1863 | 1583 | | 1666 | | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 71 | 442 | 0 | 0 | 458 | 243 | 189 | 0 | 392 | 0 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 142 | 0 | 167 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 513 | 0 | 0 | 458 | 101 | 0 | 414 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | | NA | Perm | Perm | NA | | | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | |
| Permitted Phases | 4 | | | | | 8 | 2 | | | | |
| Actuated Green, G (s) | | 14.3 | | | 14.3 | 14.3 | | 12.2 | | | |
| Effective Green, g (s) | | 14.3 | | | 14.3 | 14.3 | | 12.2 | | | |
| Actuated g/C Ratio | | 0.41 | | | 0.41 | 0.41 | | 0.35 | | | |
| Clearance Time (s) | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | 3.0 | | 3.0 | | | |
| Lane Grp Cap (vph) | | 687 | | | 772 | 656 | | 589 | | | |
| v/s Ratio Prot | | | | | 0.25 | | | | | | |
| v/s Ratio Perm | | c0.31 | | | | 0.06 | | 0.25 | | | |
| v/c Ratio | | 0.75 | | | 0.59 | 0.15 | | 0.70 | | | |
| Uniform Delay, d1 | | 8.6 | | | 7.8 | 6.3 | | 9.6 | | | |
| Progression Factor | | 1.00 | | | 1.00 | 1.00 | | 1.00 | | | |
| Incremental Delay, d2 | | 4.4 | | | 1.2 | 0.1 | | 3.8 | | | |
| Delay (s) | | 13.0 | | | 9.1 | 6.4 | | 13.4 | | | |
| Level of Service | | B | | | A | A | | B | | | |
| Approach Delay (s) | | 13.0 | | | 8.2 | | | 13.4 | | 0.0 | |
| Approach LOS | | B | | | A | | | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 11.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 34.5 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 89.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

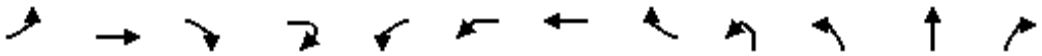


| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 0 | 4 | 20 | 10 | 84 | 1 | 113 | 20 | 10 | 613 | 132 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.97 | |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1770 | 1583 | | | 1770 | 1586 | | | 1770 | 3445 | |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1770 | 1583 | | | 1770 | 1586 | | | 1770 | 3445 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 0 | 4 | 22 | 11 | 91 | 1 | 123 | 22 | 11 | 666 | 143 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 107 | 0 | 0 | 0 | 27 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 5 | 0 | 0 | 102 | 17 | 0 | 0 | 33 | 782 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 1.5 | 1.5 | | | 5.3 | 5.3 | | | 0.9 | 13.0 | |
| Effective Green, g (s) | | 1.5 | 1.5 | | | 5.3 | 5.3 | | | 0.9 | 13.0 | |
| Actuated g/C Ratio | | 0.04 | 0.04 | | | 0.13 | 0.13 | | | 0.02 | 0.32 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 66 | 59 | | | 233 | 209 | | | 40 | 1114 | |
| v/s Ratio Prot | | c0.01 | | | | c0.06 | 0.01 | | | 0.02 | c0.23 | |
| v/s Ratio Perm | | | 0.00 | | | | | | | | | |
| v/c Ratio | | 0.24 | 0.08 | | | 0.44 | 0.08 | | | 0.82 | 0.70 | |
| Uniform Delay, d1 | | 18.8 | 18.7 | | | 16.1 | 15.3 | | | 19.6 | 11.9 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | 0.2 | | | 0.5 | 0.1 | | | 74.0 | 1.7 | |
| Delay (s) | | 19.5 | 18.9 | | | 16.6 | 15.4 | | | 93.5 | 13.6 | |
| Level of Service | | B | B | | | B | B | | | F | B | |
| Approach Delay (s) | | 19.1 | | | | | 15.9 | | | | 16.7 | |
| Approach LOS | | B | | | | | B | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.57 | | |
| Actuated Cycle Length (s) | 40.2 | Sum of lost time (s) | 17.0 |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 73 | 117 | 265 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.89 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3158 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3158 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 79 | 127 | 288 | 35 |
| RTOR Reduction (vph) | 0 | 8 | 0 | 0 |
| Lane Group Flow (vph) | 79 | 442 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 3.4 | 15.3 | | |
| Effective Green, g (s) | 3.4 | 15.3 | | |
| Actuated g/C Ratio | 0.08 | 0.38 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 150 | 1202 | | |
| v/s Ratio Prot | c0.04 | 0.14 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 0.53 | 0.37 | | |
| Uniform Delay, d1 | 17.6 | 9.0 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 1.5 | 0.1 | | |
| Delay (s) | 19.2 | 9.0 | | |
| Level of Service | B | A | | |
| Approach Delay (s) | | 10.5 | | |
| Approach LOS | | B | | |

| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 4 | 7 | 26 | 18 | 147 | 3 | 150 | 26 | 13 | 383 | 116 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.97 | |
| Flt Protected | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1784 | 1583 | | | 1770 | 1588 | | | 1770 | 3416 | |
| Flt Permitted | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1784 | 1583 | | | 1770 | 1588 | | | 1770 | 3416 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 4 | 8 | 28 | 20 | 160 | 3 | 163 | 28 | 14 | 416 | 126 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 0 | 0 | 132 | 0 | 0 | 0 | 42 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 9 | 0 | 0 | 180 | 34 | 0 | 0 | 42 | 500 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 2.4 | 2.4 | | | 9.3 | 9.3 | | | 2.1 | 16.6 | |
| Effective Green, g (s) | | 2.4 | 2.4 | | | 9.3 | 9.3 | | | 2.1 | 16.6 | |
| Actuated g/C Ratio | | 0.05 | 0.05 | | | 0.19 | 0.19 | | | 0.04 | 0.34 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 88 | 78 | | | 338 | 303 | | | 76 | 1164 | |
| v/s Ratio Prot | | c0.02 | | | | c0.10 | 0.02 | | | 0.02 | 0.15 | |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.38 | 0.12 | | | 0.53 | 0.11 | | | 0.55 | 0.43 | |
| Uniform Delay, d1 | | 22.4 | 22.1 | | | 17.7 | 16.3 | | | 22.8 | 12.4 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | 0.3 | | | 0.8 | 0.1 | | | 4.9 | 0.1 | |
| Delay (s) | | 23.4 | 22.4 | | | 18.6 | 16.3 | | | 27.7 | 12.5 | |
| Level of Service | | C | C | | | B | B | | | C | B | |
| Approach Delay (s) | | 22.9 | | | | | 17.5 | | | | 13.6 | |
| Approach LOS | | C | | | | | B | | | | B | |

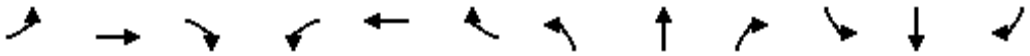
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 16.9 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 48.7 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 55.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 92 | 136 | 517 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.88 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3112 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3112 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 100 | 148 | 562 | 48 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 |
| Lane Group Flow (vph) | 100 | 752 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 3.4 | 17.7 | | |
| Effective Green, g (s) | 3.4 | 17.7 | | |
| Actuated g/C Ratio | 0.07 | 0.36 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 124 | 1131 | | |
| v/s Ratio Prot | c0.06 | c0.24 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 0.81 | 0.96dr | | |
| Uniform Delay, d1 | 22.3 | 13.0 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 29.0 | 1.2 | | |
| Delay (s) | 51.4 | 14.2 | | |
| Level of Service | D | B | | |
| Approach Delay (s) | | 18.5 | | |
| Approach LOS | | B | | |

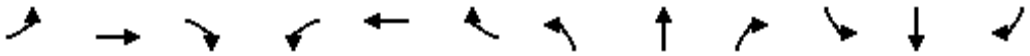
| Intersection Summary |
|---|



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 41 | 77 | 3 | 3 | 101 | 276 | 4 | 17 | 18 | 30 | 22 | 70 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 45 | 84 | 3 | 3 | 110 | 300 | 4 | 18 | 20 | 33 | 24 | 76 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 410 | | | 87 | | | 529 | 591 | 85 | 470 | 442 | 260 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 410 | | | 87 | | | 529 | 591 | 85 | 470 | 442 | 260 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 100 | | | 99 | 95 | 98 | 93 | 95 | 90 |
| cM capacity (veh/h) | 1149 | | | 1509 | | | 388 | 403 | 974 | 462 | 489 | 779 |

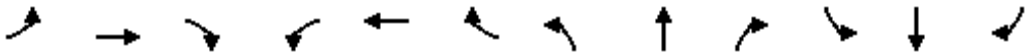
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 132 | 413 | 42 | 133 |
| Volume Left | 45 | 3 | 4 | 33 |
| Volume Right | 3 | 300 | 20 | 76 |
| cSH | 1149 | 1509 | 549 | 610 |
| Volume to Capacity | 0.04 | 0.00 | 0.08 | 0.22 |
| Queue Length 95th (ft) | 3 | 0 | 6 | 21 |
| Control Delay (s) | 3.0 | 0.1 | 12.1 | 12.5 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 3.0 | 0.1 | 12.1 | 12.5 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.6 | | |
| Intersection Capacity Utilization | 52.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 41 | 77 | 3 | 3 | 101 | 276 | 4 | 17 | 18 | 30 | 22 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.90 | | | 0.94 | | | 0.92 | |
| Flt Protected | | 0.98 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1826 | | | 1679 | | | 1735 | | | 1698 | |
| Flt Permitted | | 0.84 | | | 1.00 | | | 0.97 | | | 0.92 | |
| Satd. Flow (perm) | | 1555 | | | 1676 | | | 1686 | | | 1581 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 45 | 84 | 3 | 3 | 110 | 300 | 4 | 18 | 20 | 33 | 24 | 76 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 194 | 0 | 0 | 14 | 0 | 0 | 52 | 0 |
| Lane Group Flow (vph) | 0 | 130 | 0 | 0 | 219 | 0 | 0 | 28 | 0 | 0 | 81 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 8.5 | | | 8.5 | | | 7.5 | | | 7.5 | |
| Effective Green, g (s) | | 8.5 | | | 8.5 | | | 7.5 | | | 7.5 | |
| Actuated g/C Ratio | | 0.35 | | | 0.35 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 551 | | | 594 | | | 527 | | | 494 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.08 | | | c0.13 | | | 0.02 | | | c0.05 | |
| v/c Ratio | | 0.24 | | | 0.37 | | | 0.05 | | | 0.16 | |
| Uniform Delay, d1 | | 5.5 | | | 5.8 | | | 5.8 | | | 6.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | | 0.4 | | | 0.0 | | | 0.2 | |
| Delay (s) | | 5.7 | | | 6.1 | | | 5.8 | | | 6.1 | |
| Level of Service | | A | | | A | | | A | | | A | |
| Approach Delay (s) | | 5.7 | | | 6.1 | | | 5.8 | | | 6.1 | |
| Approach LOS | | A | | | A | | | A | | | A | |

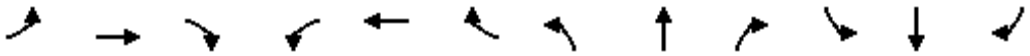
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 6.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.27 | | |
| Actuated Cycle Length (s) | 24.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 119 | 145 | 13 | 7 | 121 | 305 | 5 | 7 | 12 | 192 | 24 | 67 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 129 | 158 | 14 | 8 | 132 | 332 | 5 | 8 | 13 | 209 | 26 | 73 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 463 | | | 172 | | | 822 | 902 | 165 | 753 | 743 | 297 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 463 | | | 172 | | | 822 | 902 | 165 | 753 | 743 | 297 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 88 | | | 99 | | | 98 | 97 | 99 | 27 | 91 | 90 |
| cM capacity (veh/h) | 1098 | | | 1405 | | | 224 | 244 | 880 | 284 | 301 | 742 |

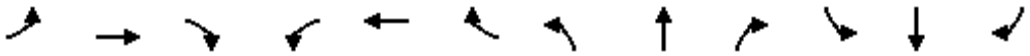
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 301 | 471 | 26 | 308 |
| Volume Left | 129 | 8 | 5 | 209 |
| Volume Right | 14 | 332 | 13 | 73 |
| cSH | 1098 | 1405 | 371 | 335 |
| Volume to Capacity | 0.12 | 0.01 | 0.07 | 0.92 |
| Queue Length 95th (ft) | 10 | 0 | 6 | 229 |
| Control Delay (s) | 4.4 | 0.2 | 15.4 | 66.6 |
| Lane LOS | A | A | C | F |
| Approach Delay (s) | 4.4 | 0.2 | 15.4 | 66.6 |
| Approach LOS | | | C | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 20.2 | | |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



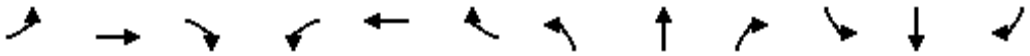
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 119 | 145 | 13 | 7 | 121 | 305 | 5 | 7 | 12 | 192 | 24 | 67 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 0.99 | | | 0.91 | | | 0.93 | | | 0.97 | |
| Flt Protected | | 0.98 | | | 1.00 | | | 0.99 | | | 0.97 | |
| Satd. Flow (prot) | | 1812 | | | 1684 | | | 1720 | | | 1744 | |
| Flt Permitted | | 0.70 | | | 0.99 | | | 0.93 | | | 0.78 | |
| Satd. Flow (perm) | | 1292 | | | 1674 | | | 1615 | | | 1408 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 129 | 158 | 14 | 8 | 132 | 332 | 5 | 8 | 13 | 209 | 26 | 73 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 204 | 0 | 0 | 8 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 0 | 297 | 0 | 0 | 268 | 0 | 0 | 18 | 0 | 0 | 278 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 11.9 | | | 11.9 | | | 11.0 | | | 11.0 | |
| Effective Green, g (s) | | 11.9 | | | 11.9 | | | 11.0 | | | 11.0 | |
| Actuated g/C Ratio | | 0.39 | | | 0.39 | | | 0.36 | | | 0.36 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 498 | | | 645 | | | 575 | | | 501 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.23 | | | 0.16 | | | 0.01 | | | c0.20 | |
| v/c Ratio | | 0.60 | | | 0.42 | | | 0.03 | | | 0.55 | |
| Uniform Delay, d1 | | 7.6 | | | 7.0 | | | 6.5 | | | 8.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 1.9 | | | 0.4 | | | 0.0 | | | 1.3 | |
| Delay (s) | | 9.5 | | | 7.4 | | | 6.5 | | | 9.3 | |
| Level of Service | | A | | | A | | | A | | | A | |
| Approach Delay (s) | | 9.5 | | | 7.4 | | | 6.5 | | | 9.3 | |
| Approach LOS | | A | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.5 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 30.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 73.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



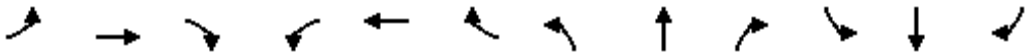
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 33 | 149 | 34 | 95 | 172 | 0 | 15 | 7 | 59 | 0 | 6 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | | 1.00 | | | 0.90 | | | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | | 0.98 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1811 | | | 1830 | | | 1665 | | | 1640 | |
| Flt Permitted | 0.53 | 1.00 | | | 0.81 | | | 0.96 | | | 1.00 | |
| Satd. Flow (perm) | 991 | 1811 | | | 1517 | | | 1619 | | | 1640 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 36 | 162 | 37 | 103 | 187 | 0 | 16 | 8 | 64 | 0 | 7 | 54 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 0 | 28 | 0 |
| Lane Group Flow (vph) | 36 | 176 | 0 | 0 | 290 | 0 | 0 | 55 | 0 | 0 | 33 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 11.7 | 11.7 | | | 11.7 | | | 18.1 | | | 18.1 | |
| Effective Green, g (s) | 11.7 | 11.7 | | | 11.7 | | | 18.1 | | | 18.1 | |
| Actuated g/C Ratio | 0.31 | 0.31 | | | 0.31 | | | 0.48 | | | 0.48 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 307 | 561 | | | 470 | | | 775 | | | 785 | |
| v/s Ratio Prot | | 0.10 | | | | | | | | | 0.02 | |
| v/s Ratio Perm | 0.04 | | | | c0.19 | | | c0.03 | | | | |
| v/c Ratio | 0.12 | 0.31 | | | 0.62 | | | 0.07 | | | 0.04 | |
| Uniform Delay, d1 | 9.4 | 10.0 | | | 11.1 | | | 5.3 | | | 5.2 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.3 | | | 2.4 | | | 0.2 | | | 0.1 | |
| Delay (s) | 9.5 | 10.3 | | | 13.5 | | | 5.5 | | | 5.3 | |
| Level of Service | A | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 10.2 | | | 13.5 | | | 5.5 | | | 5.3 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.29 | | |
| Actuated Cycle Length (s) | 37.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 45.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



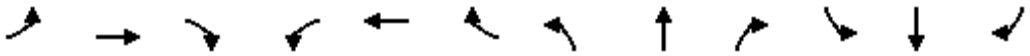
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 26 | 117 | 30 | 118 | 373 | 0 | 51 | 16 | 135 | 0 | 16 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | | 1.00 | | | 0.91 | | | 0.88 | |
| Flt Protected | 0.95 | 1.00 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1805 | | | 1841 | | | 1673 | | | 1632 | |
| Flt Permitted | 0.28 | 1.00 | | | 0.88 | | | 0.89 | | | 1.00 | |
| Satd. Flow (perm) | 517 | 1805 | | | 1638 | | | 1511 | | | 1632 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 28 | 127 | 33 | 128 | 405 | 0 | 55 | 17 | 147 | 0 | 17 | 189 |
| RTOR Reduction (vph) | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 112 | 0 |
| Lane Group Flow (vph) | 28 | 140 | 0 | 0 | 533 | 0 | 0 | 132 | 0 | 0 | 94 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 15.1 | 15.1 | | | 15.1 | | | 16.0 | | | 16.0 | |
| Effective Green, g (s) | 15.1 | 15.1 | | | 15.1 | | | 16.0 | | | 16.0 | |
| Actuated g/C Ratio | 0.39 | 0.39 | | | 0.39 | | | 0.41 | | | 0.41 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 200 | 697 | | | 633 | | | 618 | | | 668 | |
| v/s Ratio Prot | | 0.08 | | | | | | | | | 0.06 | |
| v/s Ratio Perm | 0.05 | | | | c0.33 | | | c0.09 | | | | |
| v/c Ratio | 0.14 | 0.20 | | | 0.84 | | | 0.21 | | | 0.14 | |
| Uniform Delay, d1 | 7.8 | 8.0 | | | 10.9 | | | 7.5 | | | 7.2 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.1 | | | 9.9 | | | 0.8 | | | 0.4 | |
| Delay (s) | 8.1 | 8.1 | | | 20.8 | | | 8.3 | | | 7.7 | |
| Level of Service | A | A | | | C | | | A | | | A | |
| Approach Delay (s) | | 8.1 | | | 20.8 | | | 8.3 | | | 7.7 | |
| Approach LOS | | A | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 14.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 39.1 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 71.0% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



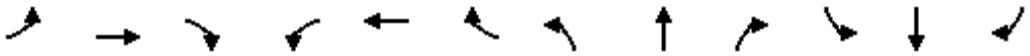
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 4 | 43 | 0 | 3 | 36 | 43 | 571 | 0 | 95 | 601 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | 0.95 | |
| Frt | | 0.88 | | | 0.87 | | | 1.00 | | | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1631 | | | 1629 | | | 3527 | | | 3515 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.89 | | | 0.81 | |
| Satd. Flow (perm) | | 1631 | | | 1629 | | | 3137 | | | 2882 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 4 | 47 | 0 | 3 | 39 | 47 | 621 | 0 | 103 | 653 | 0 |
| RTOR Reduction (vph) | 0 | 45 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 6 | 0 | 0 | 5 | 0 | 0 | 668 | 0 | 0 | 756 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 1.5 | | | 1.5 | | | 26.5 | | | 26.5 | |
| Effective Green, g (s) | | 1.5 | | | 1.5 | | | 26.5 | | | 26.5 | |
| Actuated g/C Ratio | | 0.04 | | | 0.04 | | | 0.74 | | | 0.74 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 68 | | | 68 | | | 2309 | | | 2121 | |
| v/s Ratio Prot | | c0.00 | | | 0.00 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.21 | | | c0.26 | |
| v/c Ratio | | 0.09 | | | 0.07 | | | 0.29 | | | 0.36 | |
| Uniform Delay, d1 | | 16.6 | | | 16.6 | | | 1.6 | | | 1.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 0.4 | | | 0.3 | | | 0.5 | |
| Delay (s) | | 17.2 | | | 17.0 | | | 1.9 | | | 2.2 | |
| Level of Service | | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 17.2 | | | 17.0 | | | 1.9 | | | 2.2 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 3.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.34 | | |
| Actuated Cycle Length (s) | 36.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 51.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



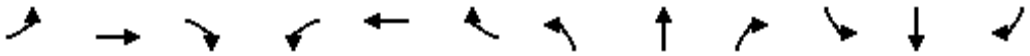
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 11 | 142 | 0 | 7 | 82 | 42 | 555 | 0 | 117 | 632 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | 0.95 | |
| Frt | | 0.87 | | | 0.88 | | | 1.00 | | | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 1.00 | | | 0.99 | |
| Satd. Flow (prot) | | 1629 | | | 1632 | | | 3527 | | | 3512 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.88 | | | 0.79 | |
| Satd. Flow (perm) | | 1629 | | | 1632 | | | 3107 | | | 2785 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 12 | 154 | 0 | 8 | 89 | 46 | 603 | 0 | 127 | 687 | 0 |
| RTOR Reduction (vph) | 0 | 92 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 74 | 0 | 0 | 24 | 0 | 0 | 649 | 0 | 0 | 814 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 6.1 | | | 6.1 | | | 19.9 | | | 19.9 | |
| Effective Green, g (s) | | 6.1 | | | 6.1 | | | 19.9 | | | 19.9 | |
| Actuated g/C Ratio | | 0.18 | | | 0.18 | | | 0.59 | | | 0.59 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 292 | | | 293 | | | 1819 | | | 1630 | |
| v/s Ratio Prot | | c0.05 | | | 0.01 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.21 | | | c0.29 | |
| v/c Ratio | | 0.25 | | | 0.08 | | | 0.36 | | | 0.50 | |
| Uniform Delay, d1 | | 12.0 | | | 11.6 | | | 3.7 | | | 4.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.5 | | | 0.1 | | | 0.5 | | | 1.1 | |
| Delay (s) | | 12.5 | | | 11.7 | | | 4.2 | | | 5.2 | |
| Level of Service | | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 12.5 | | | 11.7 | | | 4.2 | | | 5.2 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 5.9 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 34.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



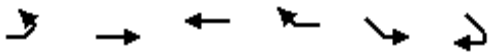
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 199 | 155 | 46 | 251 | 0 | 0 | 0 | 0 | 199 | 0 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | |
| Frt | | 0.94 | | 1.00 | 1.00 | | | | | | 0.96 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.97 | |
| Satd. Flow (prot) | | 1753 | | 1770 | 1863 | | | | | | 1730 | |
| Flt Permitted | | 1.00 | | 0.50 | 1.00 | | | | | | 0.97 | |
| Satd. Flow (perm) | | 1753 | | 931 | 1863 | | | | | | 1730 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 216 | 168 | 50 | 273 | 0 | 0 | 0 | 0 | 216 | 0 | 85 |
| RTOR Reduction (vph) | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 |
| Lane Group Flow (vph) | 0 | 301 | 0 | 50 | 273 | 0 | 0 | 0 | 0 | 0 | 267 | 0 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 8.0 | | 8.0 | 8.0 | | | | | | 11.4 | |
| Effective Green, g (s) | | 8.0 | | 8.0 | 8.0 | | | | | | 11.4 | |
| Actuated g/C Ratio | | 0.29 | | 0.29 | 0.29 | | | | | | 0.42 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 512 | | 272 | 544 | | | | | | 720 | |
| v/s Ratio Prot | | c0.17 | | | 0.15 | | | | | | c0.15 | |
| v/s Ratio Perm | | | | 0.05 | | | | | | | | |
| v/c Ratio | | 0.59 | | 0.18 | 0.50 | | | | | | 0.37 | |
| Uniform Delay, d1 | | 8.3 | | 7.3 | 8.0 | | | | | | 5.5 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | |
| Incremental Delay, d2 | | 1.7 | | 0.3 | 0.7 | | | | | | 0.3 | |
| Delay (s) | | 10.0 | | 7.6 | 8.8 | | | | | | 5.8 | |
| Level of Service | | B | | A | A | | | | | | A | |
| Approach Delay (s) | | 10.0 | | | 8.6 | | | 0.0 | | | 5.8 | |
| Approach LOS | | B | | | A | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 8.3 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.46 | | |
| Actuated Cycle Length (s) | 27.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 50.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 330 | 123 | 283 | 252 | 0 | 0 | 0 | 0 | 152 | 0 | 77 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | |
| Frt | | 0.96 | | 1.00 | 1.00 | | | | | | 0.95 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | | | | | 0.97 | |
| Satd. Flow (prot) | | 1794 | | 1770 | 1863 | | | | | | 1721 | |
| Flt Permitted | | 1.00 | | 0.41 | 1.00 | | | | | | 0.97 | |
| Satd. Flow (perm) | | 1794 | | 770 | 1863 | | | | | | 1721 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 359 | 134 | 308 | 274 | 0 | 0 | 0 | 0 | 165 | 0 | 84 |
| RTOR Reduction (vph) | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 0 |
| Lane Group Flow (vph) | 0 | 464 | 0 | 308 | 274 | 0 | 0 | 0 | 0 | 0 | 193 | 0 |
| Turn Type | | NA | | Perm | NA | | | | | Split | NA | |
| Protected Phases | | 4 | | | 8 | | | | | 6 | 6 | |
| Permitted Phases | | | | 8 | | | | | | | | |
| Actuated Green, G (s) | | 16.1 | | 16.1 | 16.1 | | | | | | 8.8 | |
| Effective Green, g (s) | | 16.1 | | 16.1 | 16.1 | | | | | | 8.8 | |
| Actuated g/C Ratio | | 0.49 | | 0.49 | 0.49 | | | | | | 0.27 | |
| Clearance Time (s) | | 4.0 | | 4.0 | 4.0 | | | | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | | | | | 3.0 | |
| Lane Grp Cap (vph) | | 878 | | 377 | 912 | | | | | | 460 | |
| v/s Ratio Prot | | 0.26 | | | 0.15 | | | | | | c0.11 | |
| v/s Ratio Perm | | | | c0.40 | | | | | | | | |
| v/c Ratio | | 0.53 | | 0.82 | 0.30 | | | | | | 0.42 | |
| Uniform Delay, d1 | | 5.8 | | 7.1 | 5.0 | | | | | | 9.9 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | | | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | 12.8 | 0.2 | | | | | | 0.6 | |
| Delay (s) | | 6.4 | | 20.0 | 5.2 | | | | | | 10.6 | |
| Level of Service | | A | | B | A | | | | | | B | |
| Approach Delay (s) | | 6.4 | | | 13.0 | | | 0.0 | | | 10.6 | |
| Approach LOS | | A | | | B | | | A | | | B | |

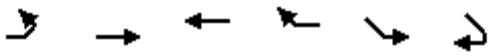
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.1 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 32.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 54 | 348 | 299 | 104 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 59 | 378 | 325 | 113 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 375 | 403 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 438 | | | | 821 | 325 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 438 | | | | 821 | 325 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 95 | | | | 100 | 100 |
| cM capacity (veh/h) | 1122 | | | | 326 | 716 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 437 | 325 | 113 |
| Volume Left | 59 | 0 | 0 |
| Volume Right | 0 | 0 | 113 |
| cSH | 1122 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.19 | 0.07 |
| Queue Length 95th (ft) | 4 | 0 | 0 |
| Control Delay (s) | 1.6 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.6 | 0.0 | |
| Approach LOS | | | |

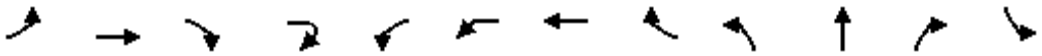
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 55 | 426 | 535 | 208 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 60 | 463 | 582 | 226 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | 375 | 403 | | | |
| pX, platoon unblocked | 0.95 | | | | 0.97 | 0.95 |
| vC, conflicting volume | 808 | | | | 1164 | 582 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 769 | | | | 1033 | 531 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 93 | | | | 100 | 100 |
| cM capacity (veh/h) | 801 | | | | 232 | 520 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 523 | 582 | 226 |
| Volume Left | 60 | 0 | 0 |
| Volume Right | 0 | 0 | 226 |
| cSH | 801 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.34 | 0.13 |
| Queue Length 95th (ft) | 6 | 0 | 0 |
| Control Delay (s) | 2.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 2.0 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 60.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

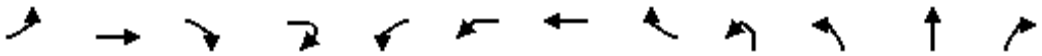


| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 15 | 0 | 4 | 20 | 10 | 83 | 1 | 73 | 10 | 859 | 131 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | 1.00 | 0.98 | | 1.00 |
| Flt Protected | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (prot) | | 1770 | 1583 | | | 1770 | 1587 | | 1770 | 3469 | | 1770 |
| Flt Permitted | | 0.95 | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 |
| Satd. Flow (perm) | | 1770 | 1583 | | | 1770 | 1587 | | 1770 | 3469 | | 1770 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 0 | 4 | 22 | 11 | 90 | 1 | 79 | 11 | 934 | 142 | 79 |
| RTOR Reduction (vph) | 0 | 0 | 21 | 0 | 0 | 0 | 69 | 0 | 0 | 18 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 16 | 5 | 0 | 0 | 101 | 11 | 0 | 11 | 1058 | 0 | 79 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | NA | | Prot |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 8 | | 7 |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 1.5 | 1.5 | | | 5.1 | 5.1 | | 0.9 | 12.9 | | 3.4 |
| Effective Green, g (s) | | 1.5 | 1.5 | | | 5.1 | 5.1 | | 0.9 | 12.9 | | 3.4 |
| Actuated g/C Ratio | | 0.04 | 0.04 | | | 0.13 | 0.13 | | 0.02 | 0.32 | | 0.09 |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.0 |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 |
| Lane Grp Cap (vph) | | 67 | 60 | | | 226 | 203 | | 40 | 1122 | | 151 |
| v/s Ratio Prot | | c0.01 | | | | c0.06 | 0.01 | | 0.01 | c0.30 | | c0.04 |
| v/s Ratio Perm | | | 0.00 | | | | | | | | | |
| v/c Ratio | | 0.24 | 0.08 | | | 0.45 | 0.05 | | 0.28 | 0.94 | | 0.52 |
| Uniform Delay, d1 | | 18.6 | 18.5 | | | 16.1 | 15.3 | | 19.2 | 13.1 | | 17.5 |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Incremental Delay, d2 | | 0.7 | 0.2 | | | 0.5 | 0.0 | | 1.4 | 14.9 | | 1.5 |
| Delay (s) | | 19.3 | 18.7 | | | 16.6 | 15.3 | | 20.5 | 28.1 | | 19.0 |
| Level of Service | | B | B | | | B | B | | C | C | | B |
| Approach Delay (s) | | 19.0 | | | | | 16.0 | | | 28.0 | | |
| Approach LOS | | B | | | | | B | | | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 39.9 | Sum of lost time (s) | 17.0 |
| Intersection Capacity Utilization | 54.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBT | SBR | SBR2 |
|---|---|---|---|
| Lane Configurations | | | |
| Volume (vph) | 117 | 269 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | | |
| Lane Util. Factor | 0.95 | | |
| Frt | 0.89 | | |
| Flt Protected | 1.00 | | |
| Satd. Flow (prot) | 3157 | | |
| Flt Permitted | 1.00 | | |
| Satd. Flow (perm) | 3157 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 127 | 292 | 35 |
| RTOR Reduction (vph) | 8 | 0 | 0 |
| Lane Group Flow (vph) | 446 | 0 | 0 |
| Turn Type | NA | | |
| Protected Phases | 4 | | |
| Permitted Phases | | | |
| Actuated Green, G (s) | 15.2 | | |
| Effective Green, g (s) | 15.2 | | |
| Actuated g/C Ratio | 0.38 | | |
| Clearance Time (s) | 4.2 | | |
| Vehicle Extension (s) | 1.0 | | |
| Lane Grp Cap (vph) | 1203 | | |
| v/s Ratio Prot | 0.14 | | |
| v/s Ratio Perm | | | |
| v/c Ratio | 0.37 | | |
| Uniform Delay, d1 | 8.9 | | |
| Progression Factor | 1.00 | | |
| Incremental Delay, d2 | 0.1 | | |
| Delay (s) | 9.0 | | |
| Level of Service | A | | |
| Approach Delay (s) | 10.5 | | |
| Approach LOS | B | | |

| Intersection Summary |
|---|

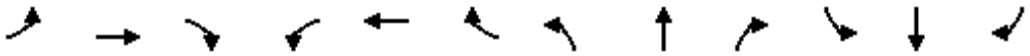


| Movement | EBL | EBT | EBR | EBR2 | WBL2 | WBL | WBT | WBR | NBL2 | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 27 | 4 | 7 | 26 | 17 | 147 | 3 | 89 | 13 | 13 | 670 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 0.95 | |
| Frt | | 1.00 | 0.85 | | | 1.00 | 0.85 | | | 1.00 | 0.98 | |
| Flt Protected | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1784 | 1583 | | | 1770 | 1592 | | | 1770 | 3462 | |
| Flt Permitted | | 0.96 | 1.00 | | | 0.95 | 1.00 | | | 0.95 | 1.00 | |
| Satd. Flow (perm) | | 1784 | 1583 | | | 1770 | 1592 | | | 1770 | 3462 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 4 | 8 | 28 | 18 | 160 | 3 | 97 | 14 | 14 | 728 | 123 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 0 | 0 | 83 | 0 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 9 | 0 | 0 | 178 | 17 | 0 | 0 | 28 | 832 | 0 |
| Turn Type | Split | NA | Perm | | Split | Split | NA | | Prot | Prot | NA | |
| Protected Phases | 2 | 2 | | | 6 | 6 | 6 | | 3 | 3 | 8 | |
| Permitted Phases | | | 2 | | | | | | | | | |
| Actuated Green, G (s) | | 2.4 | 2.4 | | | 6.8 | 6.8 | | | 1.9 | 17.1 | |
| Effective Green, g (s) | | 2.4 | 2.4 | | | 6.8 | 6.8 | | | 1.9 | 17.1 | |
| Actuated g/C Ratio | | 0.05 | 0.05 | | | 0.14 | 0.14 | | | 0.04 | 0.36 | |
| Clearance Time (s) | | 4.0 | 4.0 | | | 4.5 | 4.5 | | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 1.0 | 1.0 | | | 1.0 | 1.0 | | | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | | 91 | 81 | | | 256 | 230 | | | 72 | 1260 | |
| v/s Ratio Prot | | c0.02 | | | | c0.10 | 0.01 | | | 0.02 | 0.24 | |
| v/s Ratio Perm | | | 0.01 | | | | | | | | | |
| v/c Ratio | | 0.36 | 0.12 | | | 0.70 | 0.07 | | | 0.39 | 0.66 | |
| Uniform Delay, d1 | | 21.6 | 21.3 | | | 19.1 | 17.4 | | | 22.0 | 12.5 | |
| Progression Factor | | 1.00 | 1.00 | | | 1.00 | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.9 | 0.2 | | | 6.5 | 0.1 | | | 1.3 | 1.0 | |
| Delay (s) | | 22.5 | 21.5 | | | 25.6 | 17.4 | | | 23.3 | 13.5 | |
| Level of Service | | C | C | | | C | B | | | C | B | |
| Approach Delay (s) | | 22.0 | | | | | 22.6 | | | | 13.8 | |
| Approach LOS | | C | | | | | C | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.6 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 47.0 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 55.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBL | SBT | SBR | SBR2 |
|---|---|---|---|---|
| Lane Configurations | | | | |
| Volume (vph) | 91 | 132 | 537 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.2 | | |
| Lane Util. Factor | 1.00 | 0.95 | | |
| Frt | 1.00 | 0.88 | | |
| Flt Protected | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 1770 | 3106 | | |
| Flt Permitted | 0.95 | 1.00 | | |
| Satd. Flow (perm) | 1770 | 3106 | | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 99 | 143 | 584 | 48 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 |
| Lane Group Flow (vph) | 99 | 769 | 0 | 0 |
| Turn Type | Prot | NA | | |
| Protected Phases | 7 | 4 | | |
| Permitted Phases | | | | |
| Actuated Green, G (s) | 3.7 | 18.7 | | |
| Effective Green, g (s) | 3.7 | 18.7 | | |
| Actuated g/C Ratio | 0.08 | 0.40 | | |
| Clearance Time (s) | 4.0 | 4.2 | | |
| Vehicle Extension (s) | 1.0 | 1.0 | | |
| Lane Grp Cap (vph) | 139 | 1236 | | |
| v/s Ratio Prot | c0.06 | c0.25 | | |
| v/s Ratio Perm | | | | |
| v/c Ratio | 0.71 | 0.62 | | |
| Uniform Delay, d1 | 21.1 | 11.3 | | |
| Progression Factor | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 13.4 | 0.7 | | |
| Delay (s) | 34.5 | 12.0 | | |
| Level of Service | C | B | | |
| Approach Delay (s) | | 14.6 | | |
| Approach LOS | | B | | |

| Intersection Summary |
|---|



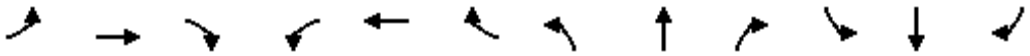
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 49 | 99 | 3 | 3 | 70 | 404 | 4 | 17 | 18 | 324 | 7 | 69 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 53 | 108 | 3 | 3 | 76 | 439 | 4 | 18 | 20 | 352 | 8 | 75 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 515 | | | 111 | | | 597 | 738 | 109 | 547 | 520 | 296 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 515 | | | 111 | | | 597 | 738 | 109 | 547 | 520 | 296 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 95 | | | 100 | | | 99 | 94 | 98 | 13 | 98 | 90 |
| cM capacity (veh/h) | 1050 | | | 1479 | | | 353 | 327 | 944 | 403 | 436 | 744 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 164 | 518 | 42 | 435 |
| Volume Left | 53 | 3 | 4 | 352 |
| Volume Right | 3 | 439 | 20 | 75 |
| cSH | 1050 | 1479 | 474 | 438 |
| Volume to Capacity | 0.05 | 0.00 | 0.09 | 0.99 |
| Queue Length 95th (ft) | 4 | 0 | 7 | 314 |
| Control Delay (s) | 3.1 | 0.1 | 13.3 | 72.0 |
| Lane LOS | A | A | B | F |
| Approach Delay (s) | 3.1 | 0.1 | 13.3 | 72.0 |
| Approach LOS | | | B | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 28.0 | | |
| Intersection Capacity Utilization | 76.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 6: Kennedy Ln/Front St & Healdsburg Ave

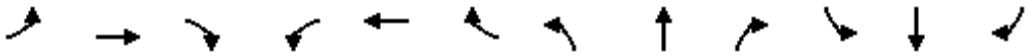
11/21/2012



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 209 | 144 | 13 | 7 | 86 | 275 | 5 | 7 | 12 | 259 | 9 | 65 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 227 | 157 | 14 | 8 | 93 | 299 | 5 | 8 | 13 | 282 | 10 | 71 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 392 | | | 171 | | | 952 | 1026 | 164 | 893 | 883 | 243 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 392 | | | 171 | | | 952 | 1026 | 164 | 893 | 883 | 243 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 81 | | | 99 | | | 97 | 96 | 99 | 0 | 96 | 91 |
| cM capacity (veh/h) | 1166 | | | 1407 | | | 179 | 188 | 881 | 212 | 228 | 796 |

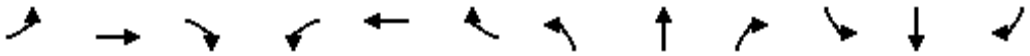
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 398 | 400 | 26 | 362 |
| Volume Left | 227 | 8 | 5 | 282 |
| Volume Right | 14 | 299 | 13 | 71 |
| cSH | 1166 | 1407 | 305 | 248 |
| Volume to Capacity | 0.19 | 0.01 | 0.09 | 1.46 |
| Queue Length 95th (ft) | 18 | 0 | 7 | 519 |
| Control Delay (s) | 5.9 | 0.2 | 17.9 | 264.3 |
| Lane LOS | A | A | C | F |
| Approach Delay (s) | 5.9 | 0.2 | 17.9 | 264.3 |
| Approach LOS | | | C | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 83.1 | | | |
| Intersection Capacity Utilization | 77.2% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



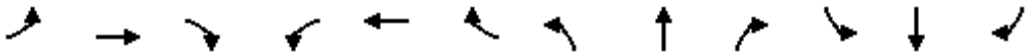
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 32 | 149 | 35 | 97 | 188 | 0 | 16 | 6 | 56 | 5 | 50 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | | 1.00 | | | 0.90 | | | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | | 0.98 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1810 | | | 1832 | | | 1666 | | | 1739 | |
| Flt Permitted | 0.51 | 1.00 | | | 0.82 | | | 0.95 | | | 0.99 | |
| Satd. Flow (perm) | 948 | 1810 | | | 1530 | | | 1602 | | | 1729 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 35 | 162 | 38 | 105 | 204 | 0 | 17 | 7 | 61 | 5 | 54 | 54 |
| RTOR Reduction (vph) | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 29 | 0 |
| Lane Group Flow (vph) | 35 | 176 | 0 | 0 | 309 | 0 | 0 | 53 | 0 | 0 | 84 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 12.0 | 12.0 | | | 12.0 | | | 17.7 | | | 17.7 | |
| Effective Green, g (s) | 12.0 | 12.0 | | | 12.0 | | | 17.7 | | | 17.7 | |
| Actuated g/C Ratio | 0.32 | 0.32 | | | 0.32 | | | 0.47 | | | 0.47 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 302 | 576 | | | 487 | | | 752 | | | 812 | |
| v/s Ratio Prot | | 0.10 | | | | | | | | | | |
| v/s Ratio Perm | 0.04 | | | | c0.20 | | | 0.03 | | | c0.05 | |
| v/c Ratio | 0.12 | 0.31 | | | 0.63 | | | 0.07 | | | 0.10 | |
| Uniform Delay, d1 | 9.1 | 9.7 | | | 11.0 | | | 5.5 | | | 5.6 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.2 | 0.3 | | | 2.7 | | | 0.2 | | | 0.3 | |
| Delay (s) | 9.3 | 10.0 | | | 13.7 | | | 5.7 | | | 5.8 | |
| Level of Service | A | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 9.9 | | | 13.7 | | | 5.7 | | | 5.8 | |
| Approach LOS | | A | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 10.4 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 37.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 46.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



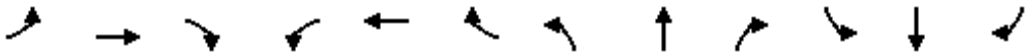
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 19 | 134 | 28 | 117 | 466 | 0 | 55 | 14 | 134 | 14 | 168 | 168 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | 1.00 | 0.97 | | | 1.00 | | | 0.91 | | | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | | 0.99 | | | 0.99 | | | 1.00 | |
| Satd. Flow (prot) | 1770 | 1815 | | | 1844 | | | 1674 | | | 1739 | |
| Flt Permitted | 0.25 | 1.00 | | | 0.89 | | | 0.85 | | | 0.99 | |
| Satd. Flow (perm) | 466 | 1815 | | | 1667 | | | 1443 | | | 1718 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 21 | 146 | 30 | 127 | 507 | 0 | 60 | 15 | 146 | 15 | 183 | 183 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 88 | 0 | 0 | 83 | 0 |
| Lane Group Flow (vph) | 21 | 158 | 0 | 0 | 634 | 0 | 0 | 133 | 0 | 0 | 298 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 16.0 | 16.0 | | | 16.0 | | | 16.0 | | | 16.0 | |
| Effective Green, g (s) | 16.0 | 16.0 | | | 16.0 | | | 16.0 | | | 16.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | | | 0.40 | | | 0.40 | | | 0.40 | |
| Clearance Time (s) | 4.0 | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | 186 | 726 | | | 667 | | | 577 | | | 687 | |
| v/s Ratio Prot | | 0.09 | | | | | | | | | | |
| v/s Ratio Perm | 0.05 | | | | c0.38 | | | 0.09 | | | c0.17 | |
| v/c Ratio | 0.11 | 0.22 | | | 0.95 | | | 0.23 | | | 0.43 | |
| Uniform Delay, d1 | 7.5 | 7.9 | | | 11.6 | | | 7.9 | | | 8.7 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | 0.3 | 0.2 | | | 23.3 | | | 0.9 | | | 2.0 | |
| Delay (s) | 7.8 | 8.0 | | | 34.9 | | | 8.9 | | | 10.7 | |
| Level of Service | A | A | | | C | | | A | | | B | |
| Approach Delay (s) | | 8.0 | | | 34.9 | | | 8.9 | | | 10.7 | |
| Approach LOS | | A | | | C | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 20.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 40.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 85.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 4 | 43 | 0 | 6 | 71 | 123 | 697 | 0 | 96 | 605 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | 0.95 | |
| Frt | | 0.88 | | | 0.88 | | | 1.00 | | | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1631 | | | 1632 | | | 3513 | | | 3515 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.77 | | | 0.78 | |
| Satd. Flow (perm) | | 1631 | | | 1632 | | | 2726 | | | 2753 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 4 | 47 | 0 | 7 | 77 | 134 | 758 | 0 | 104 | 658 | 0 |
| RTOR Reduction (vph) | 0 | 43 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 8 | 0 | 0 | 13 | 0 | 0 | 892 | 0 | 0 | 762 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 2.9 | | | 2.9 | | | 24.0 | | | 24.0 | |
| Effective Green, g (s) | | 2.9 | | | 2.9 | | | 24.0 | | | 24.0 | |
| Actuated g/C Ratio | | 0.08 | | | 0.08 | | | 0.69 | | | 0.69 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 136 | | | 136 | | | 1875 | | | 1893 | |
| v/s Ratio Prot | | 0.00 | | | c0.01 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.33 | | | 0.28 | |
| v/c Ratio | | 0.06 | | | 0.10 | | | 0.48 | | | 0.40 | |
| Uniform Delay, d1 | | 14.7 | | | 14.8 | | | 2.5 | | | 2.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.2 | | | 0.3 | | | 0.9 | | | 0.6 | |
| Delay (s) | | 14.9 | | | 15.1 | | | 3.4 | | | 3.0 | |
| Level of Service | | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 14.9 | | | 15.1 | | | 3.4 | | | 3.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 4.1 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 34.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 0 | 11 | 148 | 0 | 12 | 136 | 91 | 731 | 0 | 121 | 640 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 0.95 | | | 0.95 | |
| Frt | | 0.87 | | | 0.88 | | | 1.00 | | | 1.00 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.99 | |
| Satd. Flow (prot) | | 1629 | | | 1632 | | | 3520 | | | 3511 | |
| Flt Permitted | | 1.00 | | | 1.00 | | | 0.81 | | | 0.74 | |
| Satd. Flow (perm) | | 1629 | | | 1632 | | | 2852 | | | 2606 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 12 | 161 | 0 | 13 | 148 | 99 | 795 | 0 | 132 | 696 | 0 |
| RTOR Reduction (vph) | 0 | 88 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 85 | 0 | 0 | 99 | 0 | 0 | 894 | 0 | 0 | 828 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 6.4 | | | 6.4 | | | 19.0 | | | 19.0 | |
| Effective Green, g (s) | | 6.4 | | | 6.4 | | | 19.0 | | | 19.0 | |
| Actuated g/C Ratio | | 0.19 | | | 0.19 | | | 0.57 | | | 0.57 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 312 | | | 313 | | | 1622 | | | 1482 | |
| v/s Ratio Prot | | 0.05 | | | c0.06 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.31 | | | c0.32 | |
| v/c Ratio | | 0.27 | | | 0.32 | | | 0.55 | | | 0.56 | |
| Uniform Delay, d1 | | 11.5 | | | 11.6 | | | 4.5 | | | 4.6 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.5 | | | 0.6 | | | 1.4 | | | 1.5 | |
| Delay (s) | | 12.0 | | | 12.2 | | | 5.9 | | | 6.1 | |
| Level of Service | | B | | | B | | | A | | | A | |
| Approach Delay (s) | | 12.0 | | | 12.2 | | | 5.9 | | | 6.1 | |
| Approach LOS | | B | | | B | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 7.0 | HCM Level of Service | A |
| HCM Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 33.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 63.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |